

IHMA PATENT NEWSLETTER

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Published and granted patents

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- 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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P33350

CARD

WO202195171

TOPPAN PRINTING

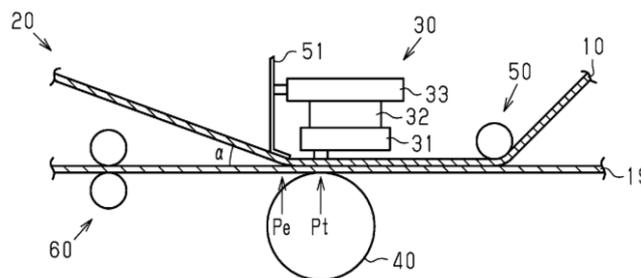
Priority Date: 13/11/2019

PRINTING DEVICE

This printing device comprises a head mechanism including a thermal head, a ribbon-conveying section that defines a conveying path of a heat transfer ribbon and conveys the heat transfer ribbon along the conveying path, and a medium-conveying section that defines a conveying path of a medium to be transferred and conveys the medium to be transferred along the conveying path. The conveying path of the heat transfer ribbon and the conveying path of the medium to be transferred each include a transfer position where the heat transfer ribbon overlaid on the medium to be transferred receives heat and pressure from the thermal head, and, downstream from the transfer position, a peeling position where the heat transfer ribbon starts to be peeled away from the medium to be transferred. The angle formed by the direction in which the heat transfer ribbon is conveyed from the peeling position and the direction in which the medium to be transferred is conveyed from the peeling position is 30° or less.

DISPOSITIF D'IMPRESSION

Dispositif d'impression comprenant un mécanisme de tête comprenant une tête thermique, une section de transport de ruban qui définit un trajet de transport d'un ruban de transfert de chaleur et transporte le ruban de transfert de chaleur le long du trajet de transport, et une section de transport de milieu qui définit un trajet de transport d'un milieu à transférer et transporte le milieu à transférer le long du trajet de transport. Le trajet de transport du ruban de transfert de chaleur et le trajet de transport du milieu à transférer comprennent chacun une position de transfert dans laquelle le ruban de transfert de chaleur superposé sur le milieu à transférer reçoit de la chaleur et de la pression provenant de la tête thermique, et, en aval de la position de transfert, une position de décollage où le ruban de transfert de chaleur commence à être décollé du milieu à transférer. L'angle formé par la direction dans laquelle le ruban de transfert de chaleur est transporté depuis la position de décollage et la direction dans laquelle le milieu à transférer est transporté depuis la position de décollage est inférieur ou égal à 30°.



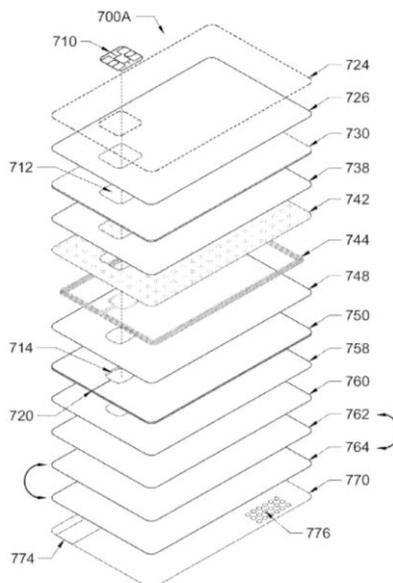
CLAIM 1. A printing apparatus configured to transfer a transfer layer to a receiving medium from a heat transfer ribbon having a base material and the transfer layer, the transfer layer comprising a release layer in contact with the base material and a resin layer comprising a curable resin and in contact with the release layer, the printing apparatus comprising: A head mechanism including a thermal head; a ribbon conveyance unit that defines a conveyance path for the heat transfer ribbon and conveys the heat transfer ribbon along the conveyance path; a medium conveyance unit that defines a conveyance path for the transfer medium and conveys the transfer medium along the conveyance path; Wherein each of a conveying path of the heat transfer ribbon and a conveying path of the transfer medium includes a transfer position where the heat transfer ribbon overlaid on the transfer medium receives heat and pressure from the thermal head, and A peeling position at which peeling of the heat transfer ribbon from the transfer medium starts downstream of the transfer position, wherein an angle formed by a direction in which the heat transfer ribbon is conveyed from the peeling position and a direction in which the transfer medium is conveyed from the peeling position is 30° or less.

CONTACTLESS METAL TRANSACTION CARDS, AND A COMPOUND FILLED RECESS FOR EMBEDDING AN ELECTRONIC COMPONENT

A transaction card having a front "continuous" (with no slit) metal layer (530, 630, 730) with an opening (506, 612, 712) for a dual-interface transponder chip module (510, 610, 710). A shielding layer (540, 640, 742) comprising ferrite material (shielding layer) disposed below the metal layer. An amplifying element (507, 650, 744) disposed under the shielding layer. A metal interlayer (750, FIG. 7B) with a slit to function as a coupling frame (CF). A coupling frame antenna (507) having a single turn or track mounted on a supporting substrate (502). A rear plastic layer (560, 660, 760) formed of non-RF impeding material may capture a magnetic stripe and security elements (signature panel and hologram). The coupling frame antenna (507) may be integrated into the rear plastic layer. A portion of the front metal layer may protrude downward into the shielding layer. A dielectric spacer (548, 648, 748) may be disposed between the shielding layer and the amplifying element. A compound-filled recess for embedding an electronic component is also disclosed.

CARTES MÉTALLIQUES DE TRANSACTION SANS CONTACT, ET RENFORCEMENT REMPLI DE COMPOSÉ POUR L'INCORPORATION D'UN COMPOSANT ÉLECTRONIQUE

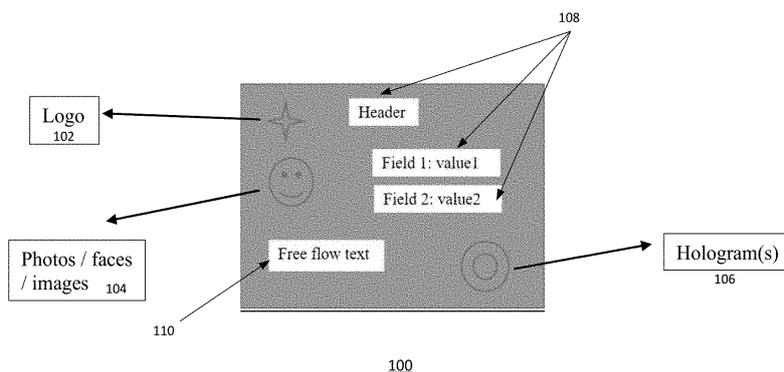
Une carte de transaction ayant une couche métallique avant « continue » (sans fente) (530, 630, 730) présentant une ouverture (506, 612, 712) destinée à un module puce de transpondeur à double interface (510, 610, 710). Une couche de blindage (540, 640, 742) comprend un matériau en ferrite (couche de blindage) disposée au-dessous de la couche métallique. Un élément amplificateur (507, 650, 744) est disposé sous la couche de blindage. Une couche intermédiaire métallique (750, FIG. 7B) présente une fente pour servir de cadre d'accouplement (CF). Une antenne de cadre d'accouplement (507) présentant une seule spire ou une seule impression conductrice est montée sur un substrat support (502). Une couche plastique arrière (560, 660, 760) composée d'un matériau laissant passer les RF peut capturer une bande magnétique et des éléments de sécurité (plage de signature et hologramme). L'antenne de cadre d'accouplement (507) peut être intégrée dans la couche plastique arrière. Une partie de la couche métallique avant peut faire saillie vers le bas dans la couche de blindage. Un espaceur diélectrique (548, 648, 748) peut être disposé entre la couche de blindage et l'élément amplificateur. La présente invention concerne également un renforcement rempli de composé destiné à incorporer un composant électronique.



CLAIM 1. Smartcard having a card body comprising: a front metal layer (730) having a first module opening (MO; 712); a shielding layer (742) disposed behind the front metal layer; a booster antenna circuit (BAC; 744) disposed behind the shielding layer; and a metal interlayer or layers (750) each having a second module opening (714) and a slit (720); wherein the front metal layer does not have a slit extending from a peripheral edge of the front metal layer to the first module opening.

SYSTEM AND METHODS FOR AUTHENTICATION OF DOCUMENTS

A system and methods directed to the authentication/verification of identification and other documents. Such documents may include identity cards, driver's licenses, passports, documents being used to show a proof of registration or certification, voter ballots, data entry forms, etc. The authentication or verification process may be performed for purposes of control of access to information, control of access to and/or use of a venue, a method of transport, or a service, for assistance in performing a security function, to establish eligibility for and enable provision of a government provided service or benefit, etc. The authentication or verification process may also or instead be performed for purposes of verifying a document itself as authentic so that the information it contains can confidently be assumed to be accurate and reliable.



CLAIM 1. A system for authenticating a document, comprising: an electronic processor programmed with a set of executable instructions, where when executed, the instructions cause the system to: receive an image of a subject document; identify one or more invariable attributes of the subject document, wherein an invariable attribute is one or more of a label, a title, a header, a field name, a logo, a hologram, a watermark, or a seal; access a set of document templates, wherein each template represents an example of a type of document and includes information regarding a set of invariable attributes associated with each type of document; identify a template in the set of document templates representing a document of the type of the subject document by comparing the identified invariable attributes of the subject document with the invariable attributes associated with each type of document of the set of templates; access data associated with the identified template, wherein the accessed data comprises one or more of data regarding a font type associated with an invariable attribute of the identified template, data regarding a font characteristic associated with an invariable attribute of the identified template, and a data format for information entered into a field associated with an invariable attribute of the identified template; verify that the identified template is a sufficiently close match to the subject document by comparing a font or font characteristic of one or more of the invariable attributes of the subject document to the data regarding a font or font characteristic associated with an invariable attribute of the identified template; if the identified template is a sufficiently close match to the subject document, then identify one or more elements of data placed in a field of the subject document for additional processing, wherein the additional processing includes comparing the identified data to the accessed data associated with the identified template, and further, wherein the additional processing comprises one or more of: fraud detection processing to identify possible instances of alteration or tampering with a document; format checking to determine if invariable attributes and the identified data are in an expected format for the type of document represented by the identified template; font verification processing to determine if the identified data is in the expected font type and font characteristic for the type of document represented by the identified template; and if applicable, accessing an external database to confirm validity of one or more of the identified data; and if the additional processing indicates that the subject document is valid, then generating an indication that the subject document and the information it contains are valid.

P33388

CARD

KR102251228

KONA M

Priority Date: 13/11/2019

METHOD FOR FORMING METAL CARD HOLOGRAM USING LASER AND METAL CARD ACCORDING TO THE SAME

The present invention relates to a method for forming a hologram of a metal card using a laser and a metal card according to the method. the method for manufacturing a hologram of a metal card includes: a surface processing step of polishing a metal sheet composed of a metal to increase reflectance of a surface thereof; Plating the surface-treated metal sheet to form a plating layer on the polished surface; and irradiating the plating layer formed on the surface of the metal sheet with a laser to form a hologram pattern.

CLAIM 1. A method of forming a hologram on a surface of a metal card, comprising: a surface processing step of polishing a metal sheet composed of a metal to increase reflectance of the surface; a plating treatment step of plating the surface-treated metal sheet to form a plating layer on the polished surface; And a hologram pattern laser processing step of forming a hologram pattern by irradiating the plating layer formed on the surface of the metal sheet with a laser, wherein before the plating processing step and the hologram pattern laser processing step, And a bottom pattern laser processing step of irradiating the metal sheet having the increased reflectance by the surface processing step with a laser to reduce the reflectance of a specific portion of the metal sheet to form a bottom pattern repeatedly formed on a front surface region of the metal card and visually appearing using a difference in surface reflectance, Wherein the laser beam of the bottom pattern laser processing step and the laser beam of the hologram pattern laser processing step are different from each other in at least one of energy, wavelength, and irradiation moving speed.

P33402

PRINTING – CARD

JP2021066030

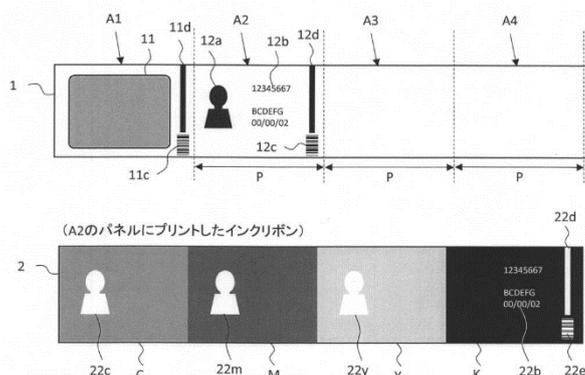
TOPPAN PRINTING

Priority Date: 18/10/2019

INDIRECT TRANSFER RECORDING APPARATUS AND INDIRECT TRANSFER RECORDING METHOD

TOPIC: To automatically expose an unused portion such as an intermediate transfer ribbon or the like, and to accurately grasp the number of used portions and the number of unused portions of a roll such as an intermediate transfer film or the like to suppress unauthorized use.

INVENTION: a barcode 12 c including information specifying a roll of an intermediate transfer film 1 and information specifying an order of the unit recording regions in the roll, a bar code sensor S1 for reading the barcode is provided upstream from a primary recording unit, A determination recording unit 103 for determining whether the unit recording region of the intermediate transfer film is unused or used based on the read result of the bar code sensor and storing the determination result in association with the information of the bar code; Based on the determination, in the primary recording unit, a read-ahead operation, which is an operation of setting the leading portion of the unused portion to a predetermined recording start position, is performed on the intermediate transfer film.



CLAIM 1. A primary recording part for recording a barcode and an image for each unit recording region of a transfer layer of an intermediate transfer film having a transfer layer on a substrate; a secondary recording part for superimposing the intermediate transfer film and an object to be transferred, and heat-transferring the transfer layer to the object to be transferred using a heat roller; An intermediate transfer film conveying mechanism for conveying the intermediate transfer film from a primary recording part to a secondary recording part, wherein the barcode comprises information specifying a roll of the intermediate transfer film and information specifying an order of the unit recording region in the roll; and The device according to claim 1, wherein a bar code sensor for reading the barcode is provided upstream from the primary recording unit, and the device further comprises a determination recording unit for determining whether the unit recording region of the intermediate transfer film is unused or used based on the read result of the bar code sensor and for storing the determination result in association with the information of the barcode; Based on the determination, in the primary recording unit, a finding operation, which is an operation of setting a leading portion of an unused portion to a predetermined recording start position, is performed on the intermediate transfer film.

P33413

PATENT OF THE MONTH
OVD – BANKNOTE – CARD

EP3825139

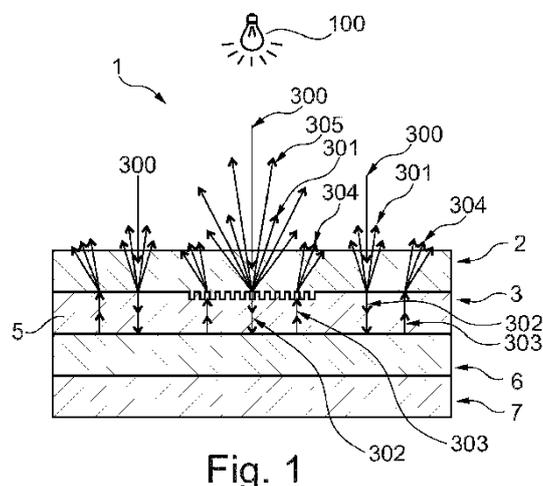
CENTRO GRAFICO DG

Priority Date: 22/11/2019

ANTICOUNTERFEIT MULTILAYER DEVICE

The present invention refers to an anticounterfeit multilayer device (1) comprising:- a shift color layer (2) comprising one or more photonic crystals;- a holographic layer (3) comprising a holographic structure (4) occupying all the holographic layer (3) or partially occupying the holographic layer (3) so that the holographic layer (3) comprises one or more portions (5) devoid of the holographic structure (4);- a reflective layer (6);wherein the shift color layer (2) overlaps the holographic layer (3) and the holographic layer (3) overlaps the reflective layer (6).

CLAIM 1. Anticounterfeit multilayer device (1) comprising: - a color shift layer (2) comprising one or more photonic crystals; - a holographic layer (3) comprising a holographic structure (4) occupying all the holographic layer (3) or partially occupying the holographic layer (3) so that the holographic layer (3) comprises one or more portions (5) devoid of the holographic structure (4); - a reflecting layer (6); wherein the color shift layer (2) overlaps the holographic layer (3) and the holographic layer (3) overlaps the reflecting layer (6).



P33426

PRINTING – THREAD

CN213261708U

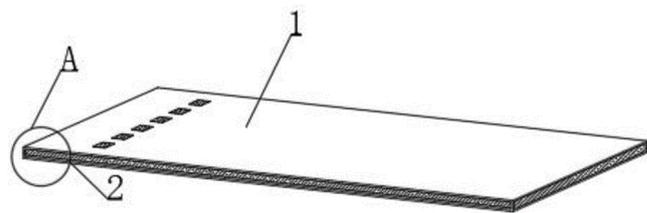
YIN QIUFANG

Priority Date: 01/09/2020

ULTRATHIN GOLD AND SILVER COMMEMORATIVE BANK NOTE WITH ANTI-COUNTERFEITING FUNCTION

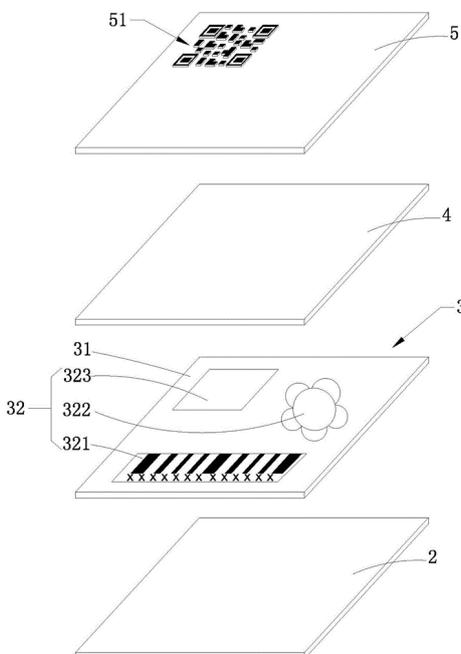
The utility model provides an ultra-thin gold and silver commemorative paper money with anti-fake function, including plastic envelope cover and gold and silver commemorative paper money, the surface of gold and silver commemorative paper money has the plastic envelope cover through the plastic packaging machine plastic envelope, gold and silver commemorative paper money includes top layer and basic unit, the inside from the top down of plastic envelope cover is equipped with top layer and basic unit in proper order, top layer and basic unit closely laminate, the edge of top layer top surface is equipped with welding seam department, a plurality of anti-fake strip rabbit has been seted up at the top of top layer, the edge at basic unit top is equipped with basic unit's welding seam department, the top of basic unit is equipped with anti-fake strip, welding seam department and basic unit. The anti-counterfeiting label is characterized in that an information sheet and an information sheet RFID flexible information sheet are arranged, an electronic information anti-counterfeiting code can be implanted in the information sheet, the anti-counterfeiting code is a string of numbers, the numbers and the holographic anti-counterfeiting strip form a matched anti-counterfeiting label, and one set of anti-counterfeiting code is used for one holographic anti-counterfeiting strip, so that the problem of single anti-counterfeiting function in the past is solved.

CLAIM 1. The utility model provides an ultra-thin gold and silver commemorative paper money with anti-fake function, includes plastic envelope (1) and gold and silver commemorative paper money (2), its characterized in that: the outer surface of the gold and silver commemorative bank note (2) is plastically packaged with a plastic package sleeve (1) through a plastic package machine; the gold and silver commemorative bank note (2) comprises a top layer (3) and a base layer (4), wherein the top layer (3) and the base layer (4) are tightly attached to each other; the edge of the top surface of the top layer (3) is provided with a welding seam (11), and the top of the top layer (3) is provided with a plurality of anti-counterfeiting strip inlaying openings (12); a base layer welding seam (13) is arranged at the edge of the top of the base layer (4), and an anti-counterfeiting strip (5) is arranged at the top of the base layer (4); the welding seam (11) and the base layer welding seam (13) are welded seamlessly through laser.



HOLOGRAPHIC ANTI-FAKE WATERPROOF ZIPPER

The utility model relates to a waterproof zipper technical field, concretely relates to holographic anti-fake waterproof zipper. The zipper comprises a zipper body, a first adhesive layer, a holographic anti-counterfeiting layer, a second adhesive layer and a waterproof layer, wherein the first adhesive layer, the holographic anti-counterfeiting layer, the second adhesive layer and the waterproof layer are sequentially arranged on the back surface of the zipper body; the holographic anti-counterfeiting layer comprises a base material and an anti-counterfeiting printing layer arranged on the surface of the base material, the anti-counterfeiting printing layer comprises a holographic character string area, a multi-channel holographic pattern area and a blank background area, and the base material is attached to the first adhesive layer; a two-dimensional code anti-counterfeiting area is arranged on one side, close to the holographic anti-counterfeiting layer, of the waterproof layer in a laser mode, and the two-dimensional code anti-counterfeiting area is arranged corresponding to the blank ground color area; the second adhesive layer is arranged between the anti-counterfeiting printing layer and the waterproof layer. The utility model discloses a waterproof zipper novel structure has the false proof mark effect of preferred, and is difficult for appearing the phenomenon of interlaminar separation.



CLAIM 1. The utility model provides a holographic anti-fake waterproof zip fastener which characterized in that: the anti-counterfeiting zipper comprises a zipper body (1), and a first adhesive layer (2), a holographic anti-counterfeiting layer (3), a second adhesive layer (4) and a waterproof layer (5) which are sequentially arranged on the back surface of the zipper body (1), wherein the zipper body (1) comprises two zipper strips (11) which are symmetrically arranged and two groups of zipper teeth (12) which are respectively arranged on the front surfaces of the two zipper strips (11), and the first adhesive layer (2) is adhered to the back surfaces of the two zipper strips (11); the holographic anti-counterfeiting layer (3) comprises a base material (31) and an anti-counterfeiting printing layer (32) arranged on the surface of the base material (31), wherein the anti-counterfeiting printing layer (32) comprises a holographic string area (321), a multi-channel holographic pattern area (322) and a blank ground color area (323), and the base material (31) is attached to the first adhesive layer (2); one surface, close to the holographic anti-counterfeiting layer (3), of the waterproof layer (5) is provided with a two-dimensional code anti-counterfeiting area (51) in a laser mode, and the two-dimensional code anti-counterfeiting area (51) is arranged corresponding to the blank background color area (323); the second adhesive layer (4) is arranged between the anti-counterfeiting printing layer (32) and the waterproof layer (5).

P33431

PRINTING – SEAL

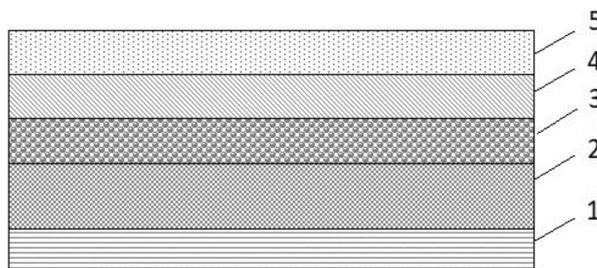
CN213229808U

Priority Date: 07/07/2020

ANHUI ZIJIANG SPRAY ALUMINUM ENVIRONMENTAL PROTECTION MATERIAL - SHANGHAI ZIJIANG METALLIZATION ENVIRONMENT PROTECTION MATERIAL

NANO-ANTIBACTERIAL MICROSTRUCTURE HOLOGRAPHIC LASER ANTI-COUNTERFEITING POLYOLEFIN PACKAGING FILM

The utility model relates to a holographic radium-shine anti-fake polyolefin packaging film of antibiotic micro-structure of nanometer, institute packaging film is including local nanometer silver antibacterial coating layer (1), polyolefin rete (2), colored picture and text printing layer (3), local UV gloss oil layer (4) and the radium-shine anti-fake layer of holography (5) that set gradually from bottom to top. Compared with the prior art, the utility model discloses not only can realize fine heat-seal effect at low temperature, and possessed holographic anti-fake radium-shine and the antibiotic high antibacterial efficiency that keeps of nanometer simultaneously.



CLAIM 1. The packaging film is characterized by comprising a local nano-silver antibacterial coating layer (1), a polyolefin film layer (2), a color image-text printing layer (3), a local UV gloss oil layer (4) and a holographic laser anti-counterfeiting layer (5) which are sequentially arranged from bottom to top.

P33432

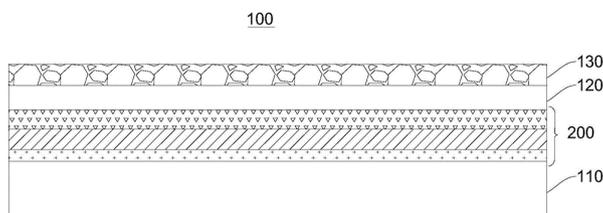
CN213228059U

Priority Date: 28/07/2020

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

HOLOGRAPHIC INFORMATION LAYER, HOLOGRAPHIC MATTE GOLD STAMPING FILM AND IDENTIFICATION STRUCTURE

The application relates to the field of films, in particular to a holographic information layer, a holographic matte gold stamping film and an identification structure. The holographic information layer comprises a release layer, a matte curing layer and an imaging layer which are sequentially stacked, wherein laser patterns are concavely arranged on one side of the imaging layer, which is far away from the matte curing layer; wherein the thickness of the matte curing layer is 1.0-1.8 μm , and the thickness of the imaging layer is 1.2-1.5 μm ; the depth of the laser patterns is 0.8-1.2 μm , and the depth of the laser patterns is smaller than the thickness of the imaging layer. The matte texture of the matte curing layer in the holographic information layer provided by the application can not disappear after the matte curing layer transfers laser patterns with the depth of 0.8-1.2 μm at the high temperature of 220 °C. The matte effect and the laser effect can be considered.



CLAIM 1. The holographic information layer is characterized by comprising a release layer, a matte curing layer and an imaging layer which are sequentially stacked, wherein a laser pattern is concavely arranged on one side of the imaging layer, which is far away from the matte curing layer; wherein the thickness of the matte curing layer is 1.0-1.8 μm , and the thickness of the imaging layer is 1.2-1.5 μm ; the depth of the laser patterns is 0.8-1.2 μm , and the depth of the laser patterns is smaller than the thickness of the imaging layer.

P33441

CARD

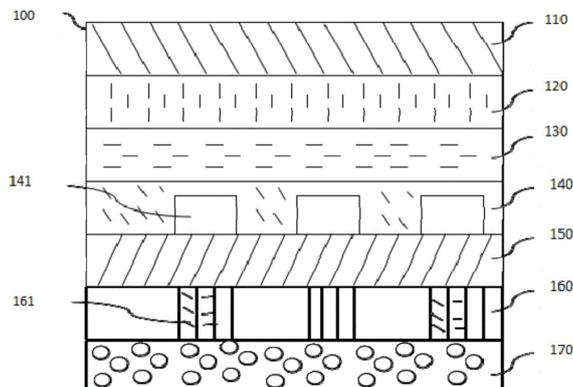
CN213167454U

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

Priority Date: 07/07/2020

WEAR-RESISTANT AND ULTRAVIOLET-RESISTANT HOLOGRAPHIC ANTI-COUNTERFEITING FILM AND HOLOGRAPHIC ANTI-COUNTERFEITING CARD

The utility model provides a wear-resistant and ultraviolet-resistant holographic anti-counterfeiting film, which is of a layered structure and sequentially comprises a base film, a release layer, an imaging layer, a dielectric layer, a glue layer, an ultraviolet-resistant layer and a background color layer from top to bottom; the ultraviolet-resistant layer covers the upper surface of the imaging layer, and a holographic anti-counterfeiting pattern is arranged in the imaging layer; the background color layer is arranged between the dielectric layer and the adhesive layer below the imaging layer; at least more than two color blocks are arranged in the background color layer according to the holographic anti-counterfeiting pattern sleeve position, so that the holographic anti-counterfeiting pattern presents at least more than two colors. The ultraviolet-resistant layer can reflect ultraviolet rays so as to protect the resin at the lower layer of the ultraviolet-resistant layer and the holographic anti-counterfeiting pattern information on the anti-counterfeiting card from being irradiated by the ultraviolet rays; the background color layer is composed of a plurality of color blocks, and different color resins can be arranged at specific positions through sleeve coating and water washing according to the holographic effect, so that the same holographic anti-counterfeiting pattern has different colors.



CLAIM 1. The wear-resistant ultraviolet-resistant holographic anti-counterfeiting film is of a layered structure and sequentially comprises a base film (110), a release layer (120), an imaging layer (140), a dielectric layer (150) and an adhesive layer (170) from top to bottom, and is characterized by further comprising an ultraviolet-resistant layer (130) and a background color layer (160); the ultraviolet-resistant layer (130) covers the upper surface of the imaging layer (140), and a holographic anti-counterfeiting pattern (141) is arranged in the imaging layer (140); the background color layer (160) is arranged between the dielectric layer (150) and the adhesive layer (170) below the imaging layer; at least two or more color blocks (161) are arranged in the background color layer (160) according to the holographic anti-counterfeiting pattern registration, so that the holographic anti-counterfeiting pattern (141) presents at least two or more colors.

P33455

PRINTING – LABEL

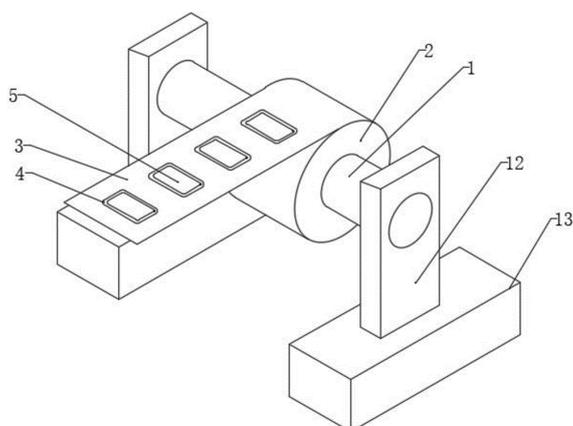
CN213042545U

SUPMAKE PRINTING

Priority Date: 05/08/2020

ANTI-FAKE, ANTI-DISMANTLING AND ANTI-OPENING LABEL

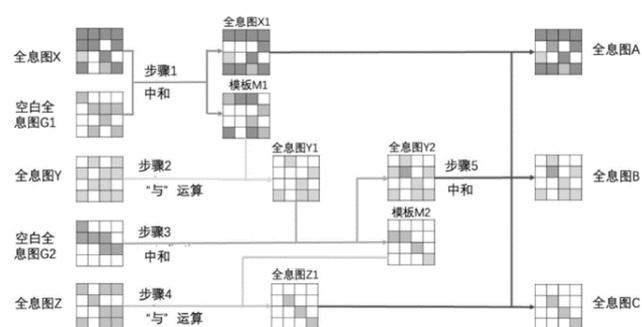
The utility model discloses an anti-fake, prevent tearing open, prevent opening label, including the bull stick, the surface of bull stick is provided with the rotary drum, the surface of rotary drum is provided with bottom base paper, the surface of bottom base paper is provided with the film, the upper surface of film is provided with the label, the surface of bull stick is provided with the support column, the lower extreme fixedly connected with base of support column. According to the anti-counterfeiting, anti-dismantling and anti-opening label, the display anti-counterfeiting layer is arranged on the upper surface of the printing material layer, and the gold stamping holographic film is arranged on the display anti-counterfeiting layer, so that the anti-counterfeiting and anti-dismantling label is difficult to imitate, and the anti-counterfeiting grade of the label is improved; in addition, through at the stealthy anti-fake layer of printing material layer lower surface, further promote the anti-fake grade and the imitation degree of difficulty of label, effectively improved the anti-fake grade of label, through toughening layer, two-layer about through the label, wrap up the label, increase the toughness of label, avoid being torn the label by the outsider, guaranteed the authenticity of label.



OPTICAL ENCRYPTION METHOD BASED ON METASURFACE HOLOGRAPHIC TECHNOLOGY

The invention relates to an optical encryption method based on a metasurface holographic technology, and belongs to the field of micro-nano optics and information encryption. The micro holographic display integrating the liquid crystal and the metasurface is formed by combining the liquid crystal and the improved spatial light modulator, can realize regional electric control on a two-dimensional plane, and is light, thin and small. The three-image correlation algorithm can generate three binary phase holograms which have a mathematical inclusion relationship, and the three holograms are in one-to-one correspondence with the three voltage distribution maps. Three voltage distribution diagrams are loaded on the micro holographic display integrating the liquid crystal and the metasurfaces in sequence, and three basic diagrams for subsequent decoding can be reproduced in a far field. And further referring to the ciphertext and the ciphertext query table, the plaintext information can be restored. The optical encryption method has certain safety, can cover various types of plaintext contents, and can be used for information encryption and safe transmission processes of specific occasions and specific objects.

CLAIM 1. An optical encryption method based on a metasurface holographic technology is characterized in that: the method comprises the following steps: the method comprises the following steps: the information sender generates a holographic phase map A, B, C using a three-map correlation algorithm; the three-graph association algorithm is based on a Gerchberg-Saxton (GS) diffraction algorithm, also relates to an iterative process, and generates three binary phase holograms forming a mathematical inclusion relation through the three-graph association algorithm, namely if the three binary phase holograms are A, B, C respectively, two phase values are contained



And the phase value is Is the largest in hologram a and the smallest in hologram C, and is between the two in hologram B, the phase profiles A, B, C are said to be associated; the method of generating the associated holographic phase map A, B, C is as follows, all of which are binary phase holograms: (1) inputting original images X', Y' and Z' of three target holograms, calculating by using a traditional GS binary phase holographic algorithm to obtain three corresponding holograms X, Y and Z, then inputting two blank images, and obtaining two holograms G1 and G2 which do not contain any available information by using the same method, wherein five holograms are used as initial images and are unrelated with each other; (2) neutralizing the X obtained in the step (1) with G1 to obtain a hologram X1 and a template M1; neutralization refers to increasing or decreasing the phase values contained in the input holograms in a controlled proportion so that the input holograms are mixed in phase; because the hologram has certain robustness, the original image X' of the target hologram can still be reproduced by X1 at the moment; (3) the stencil M1 obtained in hologram Y and (2) is ANDed to obtain an intermediate phase image Y1, i.e. the region with the same phase is Reserved, differently switched to phase (4) In order to further generate association with the hologram Z, a blank hologram G2 is introduced, G2 and Y1 obtained in (3) are subjected to neutralization operation, and a hologram Y2 and a template M2 are obtained; because the hologram has certain robustness, Y2 can still reproduce the original image Y' of the target hologram at the moment; and operation is carried out on the third hologram Z and the template M2 to obtain a hologram Z1; i.e. the regions of the same phase are Reserved, differently switched to phase (5) X1, Y2 and Z1 have been generated with a certain relationship, but the phases of the X1, Y2 and Z1 are not strictly satisfied The number of pixels of (a) mathematically satisfies an inclusion relation; the three images need to be subjected to the last neutralization operation to be correlated, and three correlated binary holographic phase images A, B,C; Step two: the sender of the information uses the two phase values contained in the holographic phase map A, B, C obtained in step one And generating energization profiles a', B', C' in place of the voltage values V1 and V2 to which the pixel should be applied; the generated electrifying distribution maps A', B' and C' strictly correspond to the sequence of the holographic phase map A, B, C, and the electrifying positions with voltage values V1 in the three corresponding electrifying distribution maps A', B' and C' are ensured to be gradually reduced, wherein the maximum is in the A' and the minimum is in the C'; thirdly, combining the integrated liquid crystal and the micro holographic display or the spatial light modulator with the metasurface according to the electrifying distribution maps A', B' and C' obtained in the second step, obtaining basic diagrams 1, 2 and 3 according to the descending order of the electrifying positions, and arranging and combining the basic diagrams for later use; arranging and combining the three basic graphs, and using three-digit characters to represent the combination serial numbers of the three basic graphs, wherein the characters only have numbers of 0 and 1; wherein 0 represents unselected and 1 represents selected; step four: and the information receiver refers to the ciphertext query table to obtain plaintext information according to the ciphertext combination basic graph.

P33470

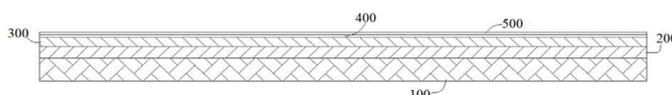
CN112750358

Priority Date: 30/12/2020

SENCUANG PAPER SHANGHAI

FROSTED HOLOGRAPHIC ANTI-COUNTERFEITING PAPER AND PREPARATION PROCESS THEREOF

The frosted holographic anti-counterfeiting paper comprises a frosting layer, a transparent layer, a holographic anti-counterfeiting layer, a base material layer and a fiber paper layer which are sequentially arranged from outside to inside, wherein the frosting layer comprises a plurality of frosted particles with colors, and the colors of the frosted particles are superposed with the colors of the holographic anti-counterfeiting layer. Through with the colour of dull polish granule with the colour coincidence of holographic anti-fake layer for holographic pattern can not receive the influence, and can not cause destruction to the anti-fake information in the holographic anti-fake layer, has both made holographic anti-fake paper have the dull polish and felt and guaranteed holographic anti-fake effect, and is more practical.



CLAIM 1. The frosted holographic anti-counterfeiting paper is characterized in that: the anti-fake frosting paper comprises a frosting layer (500), a transparent layer (400), a holographic anti-fake layer (300), a base material layer (200) and a fiber paper layer (100), wherein the frosting layer (500) comprises a plurality of frosted particles with colors, and the colors of the frosted particles coincide with the colors of the holographic anti-fake layer (300).

P33473

PRINTING

CN112721518

Priority Date: 28/12/2020

ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT

THERMAL TRANSFER FILM, PREPARATION METHOD AND APPLICATION

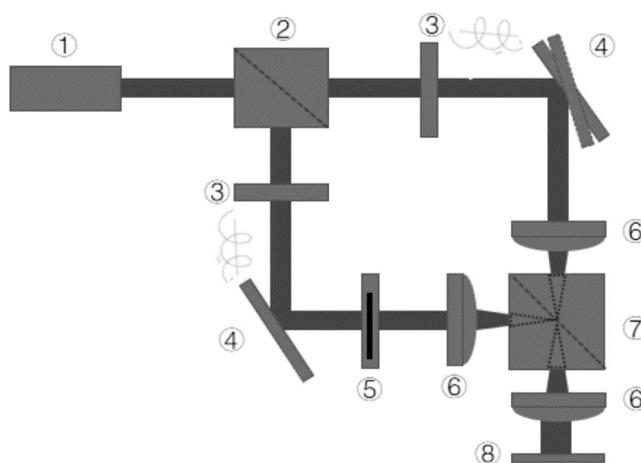
The invention provides a thermal transfer film, a preparation method and application. A thermal transfer film comprising, in order: the holographic film comprises a base film layer, a release type mould pressing layer, a holographic layer, a dielectric layer, a color printing layer, an aluminum coating layer and a hot melt adhesive layer. The medium layer is arranged by a vacuum evaporation method, so that the holographic layer is protected from being filled with ink, the color pictures and texts of the color printing layer are not covered, and the aesthetic feeling of the heat transfer film is improved. The embossed cursor is molded while the holographic layer is arranged; when the color printing is set, the embossed cursor is printed for the second time, so that the positioning error between the holographic layer and the color printing layer is less than 0.5 mm.



CLAIM 1. A thermal transfer film, comprising, arranged in order: the holographic film comprises a base film layer, a release type mould pressing layer, a holographic layer, a dielectric layer, a color printing layer, an aluminum coating layer and a hot melt adhesive layer.

ANTI-COUNTERFEITING MANUFACTURING SYSTEM AND METHOD THEREOF

The invention relates to the technical field of anti-counterfeiting, and discloses an anti-counterfeiting manufacturing system and an anti-counterfeiting manufacturing method, which are used for realizing holographic anti-counterfeiting based on liquid crystal polymer. The system comprises: an interference generating device based on Mach Zehnder; a coupling lens system in which each lens has an equal focal length and a confocal point is formed in the BS; the spatial light modulator is arranged on one beam splitting path and is arranged in front of a corresponding lens in the coupling lens system; forming corresponding emergent light patterns according to different loaded images; the driving mechanism is used for driving the first reflecting mirror or the second reflecting mirror on the other beam splitting optical path except the spatial light modulator to rotate; the controller is used for establishing a mapping relation between different rotating positions of the first reflecting mirror or the second reflecting mirror and different images loaded by the spatial light modulator, and recording different patterns in a sample in a time-sharing manner according to the mapping relation; the sample was provided with an alignment layer and a liquid crystal polymer layer sensitive to phase information of the incident direction of the interfering light.



CLAIM 1. A security manufacturing system, comprising: the Mach-Zehnder-based interference generation device divides a collimated light beam into two light beams of P light and S light by PBS, one light beam is reflected to BS through a first reflector, the other light beam is reflected to the BS through a second reflector, and the BS synthesizes the two light beams into emergent interference light; a lens is respectively arranged between the BS and the first reflecting mirror and the second reflecting mirror, and the coupled lens system is formed by the lens and another lens arranged on an emergent interference light optical path between the BS and the sample; each of the lenses is of equal focal length and forms a confocal point in the BS; the spatial light modulator is arranged on one beam splitting path and is arranged in front of a corresponding lens in the coupling lens system; forming corresponding emergent light patterns according to different loaded images; a driving mechanism for driving the first mirror or the second mirror on the other beam splitting optical path except the spatial light modulator to rotate; the controller is connected with the driving mechanism and the spatial light modulator and is used for establishing a mapping relation between different rotating positions of the first reflecting mirror or the second reflecting mirror and different images loaded by the spatial light modulator and recording different patterns in the sample in a time-sharing manner according to the mapping relation; the sample is provided with an alignment layer and a liquid crystal polymer layer which are sensitive to phase information in the incident direction of the interference light.

Click on the title to return to table of contents

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

P33359

BANKNOTE – CARD – RELIEF – MICROLENS – PLASMONIC NANOSTRUCTURES

WO202184247

Priority Date: 29/10/2019

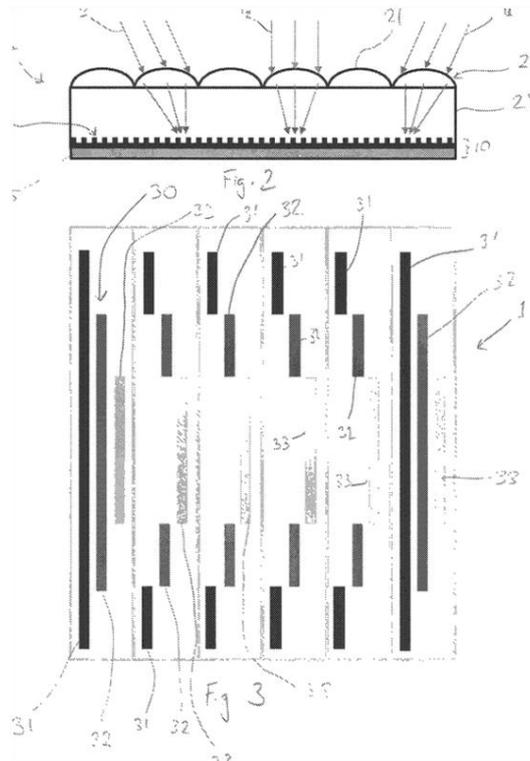
DE LA RUE INTERNATIONAL

METHOD OF FORMING A SECURITY DEVICE

A method of forming a security device is provided. The method comprises providing a substrate comprising an array of plasmonic nanostructures, providing a first array of sampling elements over the substrate, and irradiating one or more regions of the array of plasmonic nanostructures through the first array of sampling elements with electromagnetic radiation so as to modify the geometry of the plasmonic nanostructures in the one or more regions and thereby modify the optical response of the array of plasmonic nanostructures in the one or more region. The one or more regions define an array of image elements configured for viewing through an array of sampling elements such that an optically variable effect is exhibited by the array of sampling elements and the array of image elements in combination in dependence upon the viewing angle.

PROCÉDÉ DE FORMATION D'UN DISPOSITIF DE SÉCURITÉ

La présente invention concerne un procédé de formation d'un dispositif de sécurité. Le procédé comprend la fourniture d'un substrat comprenant un réseau de nanostructures plasmoniques, la fourniture d'un premier réseau d'éléments d'échantillonnage sur le substrat, et l'irradiation d'une ou de plusieurs régions du réseau de nanostructures plasmoniques à travers le premier réseau d'éléments d'échantillonnage avec un rayonnement électromagnétique de façon à modifier la géométrie des nanostructures plasmoniques dans la ou les régions et à modifier ainsi la réponse optique du réseau de nanostructures plasmoniques dans la ou les régions. La ou les régions définissent un réseau d'éléments d'image conçus pour être visualisés à travers un réseau d'éléments d'échantillonnage de telle sorte qu'un effet optiquement variable soit présenté par le réseau d'éléments d'échantillonnage et le réseau d'éléments d'image en combinaison en fonction de l'angle de visualisation.



MAGNETIC ASSEMBLIES AND PROCESSES FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING ORIENTED NON-SPHERICAL MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES

The present invention relates to the field of magnetic assemblies and processes for producing optical effect layers (OELs) comprising magnetically oriented non-spherical magnetic or magnetizable pigment particles on a substrate. In particular, the present invention relates to magnetic assemblies processes for producing said OELs as anti-counterfeit means on security documents or security articles or for decorative purposes.

ENSEMBLES MAGNÉTIQUES ET PROCÉDÉS DE PRODUCTION DE COUCHES À EFFET OPTIQUE COMPRENANT DES PARTICULES DE PIGMENTS MAGNÉTIQUES OU MAGNÉTISABLES NON SPHÉRIQUES ORIENTÉES

La présente invention concerne le domaine des ensembles magnétiques et des procédés de production de couches à effet optique (OEL) comprenant des particules de pigments magnétiques ou magnétisables non sphériques à orientation magnétique sur un substrat. En particulier, la présente invention concerne des procédés d'ensembles magnétiques pour produire lesdits OEL en tant que moyens anti-contrefaçon sur des documents de sécurité ou des articles de sécurité ou à des fins décoratives.

CLAIM 1. A magnetic assembly (x00) for producing an optical effect layer (OEL) on a substrate (x20), said magnetic assembly (x00) being configured for receiving the substrate (x20) in an orientation at least partially parallel to a first plane (P) and further comprising: a) a first magnetic-field generating device (x30) comprising at least four first dipole magnets (x31) having their North poles pointing in a same direction and having their magnetic axes oriented to be substantially parallel to the first plane (P), said first dipole magnets (x31) being spaced apart from each other, wherein each of the first dipole magnets (x31) is arranged on an intersection of at least two substantially parallel straight lines o ($i = 1, 2, \dots$) and at least two substantially parallel straight lines P_j ($j = 1, 2, \dots$), the straight lines a , and P_j forming a grid, wherein at least two first dipole magnets (x31) are disposed on one of the straight lines a , and at least two other first dipole magnets (x31) are disposed on another one of the straight lines OC_i , wherein the magnetic axes of the first dipole magnets (x31) are oriented substantially parallel to the substantially parallel straight lines o , and wherein the first dipole magnets (x31) of said first magnetic-field generating device (x30) are partially or fully embedded in a first supporting matrix (x32); and b) a second magnetic-field generating device (x40) comprising one or more second dipole magnets (x41) having their magnetic axes oriented to be substantially parallel to the first plane (P) and wherein the one or more second dipole magnets (x41) are partially or fully embedded in a second supporting matrix (x42); wherein the second magnetic-field generating device (x40) is disposed below the first magnetic-field generating device (x30), and wherein each straight line a and a vector sum H of the magnetic axes of the one or more second dipole magnets (x41) are substantially non-parallel and substantially non-perpendicular with respect to each other.

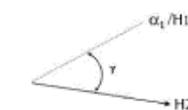
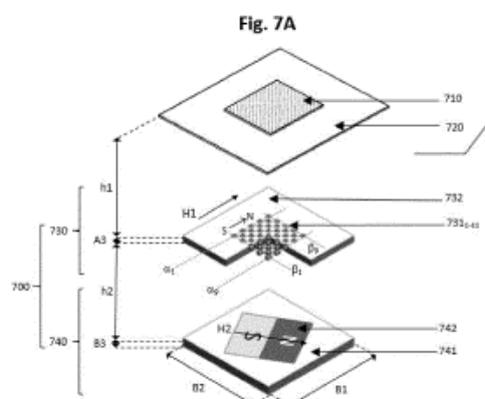
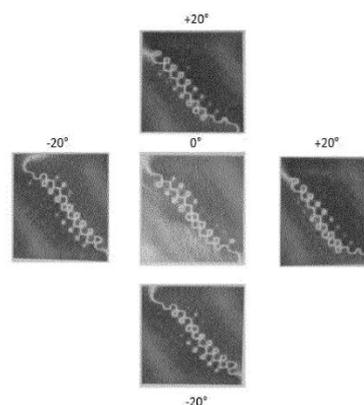


Fig. 9B-2

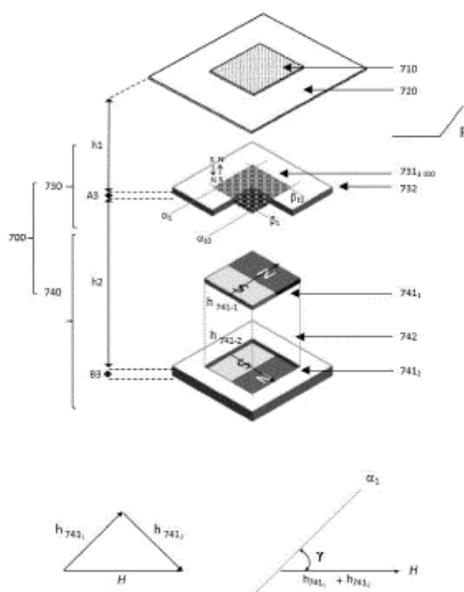


MAGNETIC ASSEMBLIES AND PROCESSES FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING ORIENTED NON-SPHERICAL MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES

The present invention relates to the field of magnetic assemblies and processes for producing optical effect layers (OELs) comprising magnetically oriented non-spherical magnetic or magnetizable pigment particles on a substrate. In particular, the present invention relates to magnetic assemblies processes for producing said OELs as anti-counterfeit means on security documents or security articles or for decorative purposes.

ENSEMBLES MAGNÉTIQUES ET PROCÉDÉS DE PRODUCTION DE COUCHES À EFFET OPTIQUE COMPRENANT DES PARTICULES DE PIGMENTS MAGNÉTIQUES OU MAGNÉTISABLES NON SPHÉRIQUES ORIENTÉES

La présente invention concerne le domaine des ensembles magnétiques et des procédés de production de couches à effet optique (OEL) comprenant des particules de pigments magnétiques ou magnétisables non sphériques à orientation magnétique sur un substrat. En particulier, la présente invention concerne des ensembles magnétiques et des procédés pour produire lesdits OEL en tant que moyens anti-contrefaçon sur des documents de sécurité ou des articles de sécurité ou à des fins décoratives.



CLAIM 1. A magnetic assembly (x00) for producing an optical effect layer (OEL) on a substrate (x20), said magnetic assembly (x00) being configured for receiving the substrate (x20) in an orientation at least partially parallel to a first plane (P) and above the first plane (P) and further comprising: a) a first magnetic-field generating device (x30) comprising at least four first dipole magnets (x31) having their magnetic axes oriented to be substantially perpendicular to the first plane (P), wherein each of the first dipole magnets (x31) is arranged on an intersection of at least two substantially parallel straight lines o ($i = 1, 2, \dots$) and at least two substantially parallel straight lines P_j ($j = 1, 2, \dots$), the straight lines o , and P_j forming a grid, wherein at least two first dipole magnets (x31) are disposed on one of the straight lines o and at least two other first dipole magnets (x31) are disposed on another one of the straight lines o , wherein, on each straight line o_i and on each straight line P_j , neighboring first dipole magnets (x31) have their North pole pointing in an opposite direction and, wherein the first dipole magnets (x31) of said first magnetic-field generating device (x30) are partially or fully embedded in a first supporting matrix (x32); and b) a second magnetic-field generating device (x40) comprising one or more second dipole magnets (x41) having their magnetic axes oriented to be substantially parallel to the first plane (P) and wherein the one or more second dipole magnets (x41) are partially or fully embedded in a second supporting matrix (x42); wherein the second magnetic-field generating device (x40) is disposed below the first magnetic-field generating device (x30), and wherein each straight line o , and a vector sum H of the magnetic axes of the one or more second dipole magnets (x41) are substantially non-parallel and substantially non-perpendicular with respect to each other.

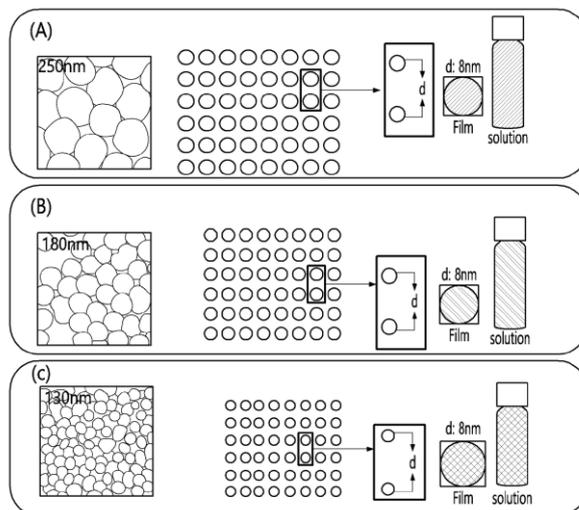
FORGERY AND ALTERATION PREVENTING MEANS COMPRISING PHOTONIC CRYSTAL MATERIAL COMPLEX

The present invention provides a forgery and alteration preventing means comprising a photonic crystal material complex, wherein the photonic crystal material complex is discolored according to a physical change applied to the photonic crystal material complex. The forgery and alteration preventing means including the photonic crystal material complex according to the present invention can advantageously make forgery and alteration difficult and can be simply manufactured. In addition, the forgery and alteration preventing means including the photonic crystal material complex according to the present invention advantageously enables more precise identification of forgery and alteration by changing a temperature thereof by simply pressing same by hand or by generating frictional heat.

MOYEN DE PRÉVENTION DE FALSIFICATION ET D'ALTÉRATION COMPRENANT UN COMPLEXE DE MATÉRIAU À CRISTAUX PHOTONIQUES

La présente invention concerne un moyen de prévention de falsification et d'altération comprenant un complexe de matériau à cristaux photoniques, le complexe de matériau à cristaux photoniques étant décoloré selon un changement physique appliqué au complexe de matériau à cristaux photoniques. Le moyen de prévention de falsification et d'altération comprenant le complexe de matériau à cristaux photoniques selon la présente invention peut avantageusement rendre difficiles la contrefaçon et l'altération et peut être fabriqué de manière simple. De plus, le moyen de prévention de falsification et de modification comprenant le complexe de matériau à cristaux photoniques selon la présente invention permet avantageusement une identification plus précise de la contrefaçon et de l'altération en changeant une température de celui-ci simplement en pressant celui-ci avec la main ou en produisant de la chaleur de frottement.

[51]



CLAIM 1. A forgery/alteration protective means comprising a photonic crystal material composite comprising photonic crystal particles and a binder bonded together with said photonic crystal particles, wherein the photonic crystal material composite changes color according to a physical change applied to the photonic crystal material composite, characterized in that the binder is a material which has an intrinsic colour or changes colour when the temperature changes, means for preventing gastric tampering.

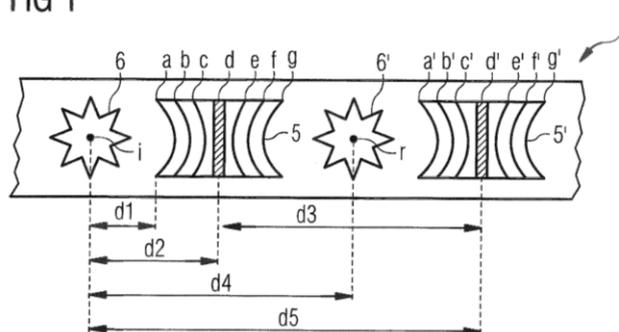
SECURITY ELEMENT AND VALUE DOCUMENT HAVING SECURITY FEATURES THAT CAN BE CHECKED VISUALLY AND BY MACHINE AND THAT HAVE A MUTUAL SPATIAL RELATIONSHIP

The invention relates to a security element (1) in the form of a strip, thread or patch, which security element comprises a machine-readable code and at least one visually perceptible, optically variable security feature (6). The machine-readable code is arranged in at least two mutually spatially separated regions of the security element, which form a first code region (5) and a second code region (5'), and is based on at least one IR substance, which absorbs in the IR wavelength range and is transparent in the visible range. The optically variable security feature (6) is arranged in a third region of the security element, which third region is spatially separated from the first code region (5) and the second code region (5') and has a spatial relationship to the first code region (5) and to the second code region (5'). The invention further relates to a value document (3) having a register-true applied security element (1); to a method for producing the value document (3); and to a method for checking the authenticity of the value document (3).

ÉLÉMENT DE SÉCURITÉ ET DOCUMENT DE VALEUR DOTÉ DE SIGNES DE SÉCURITÉ CONTRÔLABLES VISUELLEMENT ET PAR MACHINE QUI SONT EN RELATION SPATIALE LES UNS AVEC LES AUTRES

L'invention concerne un élément de sécurité (1) se présentant sous forme de bande, de fil ou de pastille et comportant un code pouvant être lu par machine et au moins un signe de sécurité (6) détectable visuellement et variable optiquement. Le code qui peut être lu par machine est disposé dans au moins deux zones de l'élément de sécurité, séparées spatialement l'une de l'autre, qui forment une première zone de code (5) et une seconde zone de code (5'), et est à base d'au moins une substance IR qui est absorbée dans le domaine spectral infrarouge et est transparente dans le domaine spectral visible. Le signe de sécurité (6) optiquement variable est disposé dans une troisième zone de l'élément de sécurité, laquelle est séparée spatialement de la première zone de code (5) et de la deuxième zone de code (5') et est en relation spatiale avec la première et la deuxième zone de code (5, 5'). L'invention concerne également un document de valeur (3) qui comporte l'élément de sécurité (1) appliqué de manière précise en termes de repérage, un procédé de fabrication du document de valeur (3) ainsi qu'un procédé d'authentification du document de valeur (3).

FIG 1



CLAIM 1. A security element in the form of a strip, thread or patch, comprising a machine-readable code and at least one visually detectable, optically variable security feature, wherein the machine-readable code is arranged in at least two spatially separated regions of the security element which form a first code region and a second code region and is based on at least one IR substance, which absorbs in the IR wavelength range and is transparent in the visible wavelength range, and wherein the optically variable security feature is arranged in a third region of the security element, which is spatially separated from the first code region and the second code region and is spatially related to the first and the second code region.

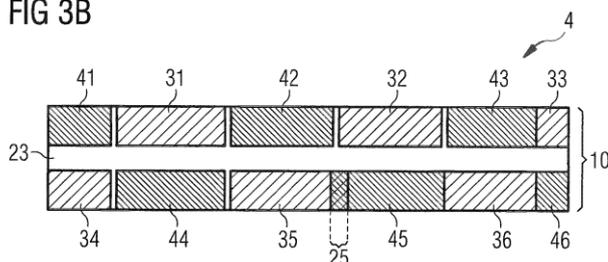
SECURITY ELEMENT HAVING MACHINE-READABLE IR CODE

The invention relates to a security element having an optically variable security feature and a machine-readable security feature, which are arranged at least partially one above the other, the security element being transparent or translucent in the visible light spectrum and the machine-readable security element forming a code. The machine-readable security feature is a combination of at least two different substances, a first IR substance and a second IR substance, the first IR substance being arranged in a first area of the security element and the second IR substance being arranged in a second area of the security element, and wherein the first IR substance absorbs in a first IR wavelength range and the second IR substance absorbs in a second IR wavelength range. The invention also relates to a value document having such a security element.

ÉLÉMENT DE SÉCURITÉ AYANT UN CODE IR LISIBLE PAR MACHINE

L'invention concerne un élément de sécurité présentant une caractéristique de sécurité optiquement variable et un élément de sécurité lisible par machine, qui sont disposés au moins partiellement l'un au-dessus de l'autre, l'élément de sécurité étant transparent ou translucide dans le spectre de lumière visible et l'élément de sécurité lisible par machine formant un code. La caractéristique de sécurité lisible par machine est une combinaison d'au moins deux substances différentes, une première substance infrarouge (IR) et une seconde substance IR, la première substance IR étant disposée dans une première zone de l'élément de sécurité et la seconde substance IR étant disposée dans une seconde zone de l'élément de sécurité, et la première substance IR absorbant dans une première plage de longueurs d'onde IR et la seconde substance IR absorbant dans une seconde plage de longueurs d'onde IR. L'invention porte également sur un document de valeur comportant un tel élément de sécurité.

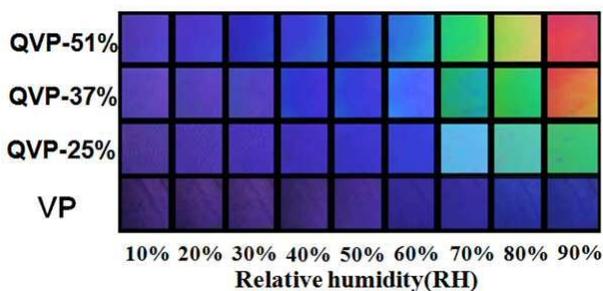
FIG 3B



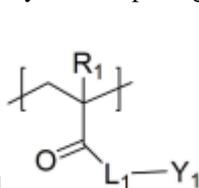
CLAIM 1. A security element having an optically variable security feature and a machine-readable security feature, which are arranged at least partially one above the other, wherein the security element is transparent or translucent for wavelengths of visible light at least in the region of the optically variable security feature, characterized in that the machine-readable security feature is a combination of at least two different substances, a first IR substance and a second IR substance, wherein the first IR substance is present in a first surface region of the Security element and the second IR substance is arranged in a second surface region of the security element different from the first surface region and the first IR substance absorbs in a first IR wavelength region and the second IR substance absorbs in a second IR Wavelength range which is mechanically distinguishable from the first IR wavelength range.

COLOR CONVERSION PHOTONIC CRYSTAL STRUCTURE AND USE THEREOF

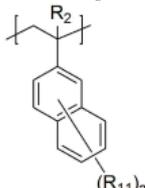
The present invention relates to a color conversion photonic crystal structure and a use thereof. according to the present invention, it is possible to provide a color conversion photonic crystal structure in which a color can be visually determined according to a change in humidity, which is an external stimulus, and to provide a photonic crystal color conversion humidity sensor having high sensitivity, a color conversion film for preventing forgery, and the like using the same.



CLAIM 1. An optical film, comprising: alternately stacked first refractive index layers comprising a first polymer exhibiting a first refractive index; and second refractive index layers comprising a second polymer exhibiting a second refractive index, wherein the first refractive index is different from the second refractive index, and one of the first polymer and the second polymer is a polymer comprising structural units represented by Formulae 1 and 2 below;

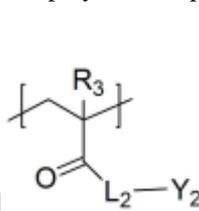


[Formula 1]

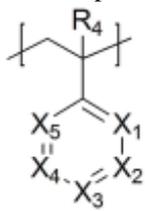


[Formula 2]

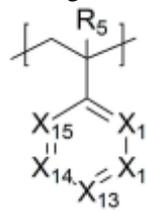
And the other is a polymer comprising structural units represented by the following formulas (3) to (5),



[Formula 3]



[Formula 4]



[Formula 5]

wherein the polymer comprises 30 to 60% of the structural unit represented by the formula (5) with respect to the total proportion of all the structural units: [Formula 2] In Formulae 1 and 2 above, R1 And R2Are each independently hydrogen or C1-C5alkyl; R11Are each independently hydroxy, halogen, nitro, C1-C5alkyl or C1-C5alkoxy; L1Is -O-or -NH-; Y1Is substituted or unsubstituted benzoylphenyl, said substitution is one substituted with one or more substituents selected from hydroxy, halogen, nitro, C1-C5 alkyl and C1-C5 alkoxy; a is an integer selected from 0 to 7, and when a is an integer of 2 or more, R11May be the same as or different from each other; [Formula 4] [Formula 5] In Formulas 3-5 above, R3 To R5Are each independently hydrogen or C1-C5alkyl; L2Is -O-or -NH-; Y2Is substituted or unsubstituted benzoylphenyl, said substitution being substituted with one or more substituents selected from hydroxy, halogen, nitro, C1-C5 alkyl and C1-C5 alkoxy; and X1 To X5Are each independently -N=or -CR=wherein X1 To X5Is -N=and said R is hydrogen, C1-C20alkyl, C3-C20cycloalkyl, C6-C20aryl, or a combination thereof; and X11 To X15Each independently represents N+R'X- Or -CR "=wherein X11 To X15At least one of N+R'X-Wherein R'is hydrogen or C1-C20 alkyl, wherein R "is hydrogen, C1-C20 alkyl, C3-C20 cycloalkyl, C6-C20 aryl, or a combination thereof, and wherein X-Is a monovalent anion.

P33380

CARD – WINDOW

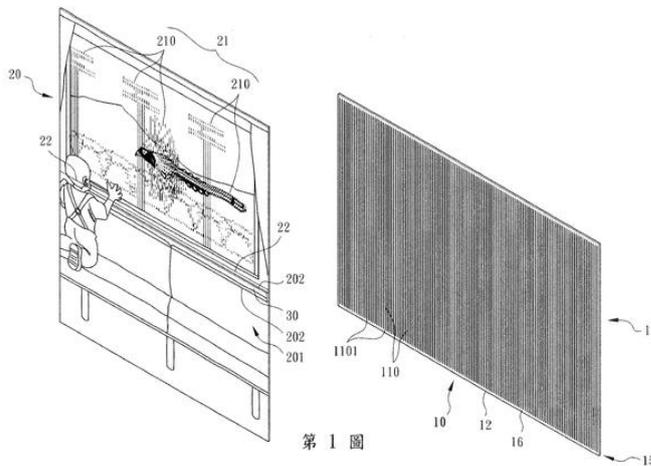
TWM611350

JIAN, XIAO-QI

Priority Date: 28/09/2020

IMPROVED CARD STRUCTURE THAT RESULTS IN A CONTINUOUS MULTIVARIATE PATTERN

The present invention relates to a card improvement structure for producing a continuously variable pattern, comprising a grating portion, a card portion, and a grating guide portion. Wherein, the grating portion is provided with at least half a transparent viewing window having a plurality of distantly stacked patterns; The card portion is provided with a plurality of distantly stacked patterns. When the translucent window of the grating moves in a default orientation above the multi-bit stack pattern, i. e., away from one side of the card by the grating, a visual effect of a continuous multi-bit or stereoscopic image composite of the hetero-bit stack pattern and the multi-bit stack pattern is produced; Characterized in that between the surface of the card having the pattern of overlap and the grating portion, there is provided a grating guide portion parallel to the direction of displacement of the rostral pattern, by the effect of providing stable guidance to the grating in response to translation of the pattern of overlap of a plurality of positions, so that the grating portion can be easily operated in conjunction with displacement of the pattern of overlap of the plurality of positions without deflection.



CLAIM 1. A card improvement structure for producing a continuous multivariate pattern, comprising a grating portion and a card portion; the grating portion being provided with a viewing window that is semi-transparent and has a plurality of distanced patterns, and the card portion being provided with a plurality of distanced patterns arranged in a plurality of distanced patterns relative to the distanced patterns; characterized in that: the grating portion and the card portion are provided with a grating guide portion, which guides the grating portion to be displaced in the direction of the distanced pattern arrangement of the card portion.

P33413

PATENT OF THE MONTH
HOLOGRAM – BANKNOTE – CARD

EP3825139

CENTRO GRAFICO DG

Priority Date: 22/11/2019

ANTICOUNTERFEIT MULTILAYER DEVICE

The present invention refers to an anticounterfeit multilayer device (1) comprising:- a shift color layer (2) comprising one or more photonic crystals;- a holographic layer (3) comprising a holographic structure (4) occupying all the holographic layer (3) or partially occupying the holographic layer (3) so that the holographic layer (3) comprises one or more portions (5) devoid of the holographic structure (4);- a reflective layer (6); wherein the shift color layer (2) overlaps the holographic layer (3) and the holographic layer (3) overlaps the reflective layer (6).

CLAIM 1. Anticounterfeit multilayer device (1) comprising: - a color shift layer (2) comprising one or more photonic crystals; - a holographic layer (3) comprising a holographic structure (4) occupying all the holographic layer (3) or partially occupying the holographic layer (3) so that the holographic layer (3) comprises one or more portions (5) devoid of the holographic structure (4); - a reflecting layer (6); wherein the color shift layer (2) overlaps the holographic layer (3) and the holographic layer (3) overlaps the reflecting layer (6).

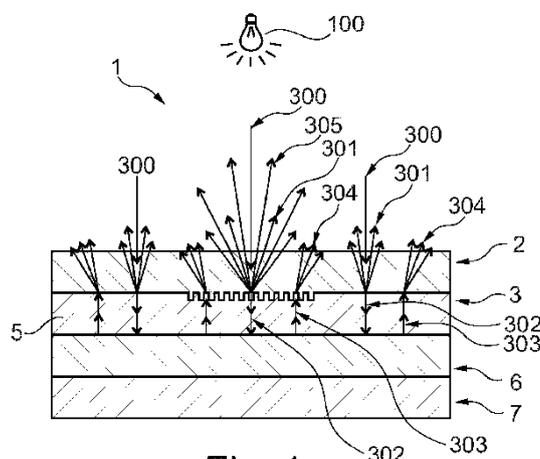


Fig. 1

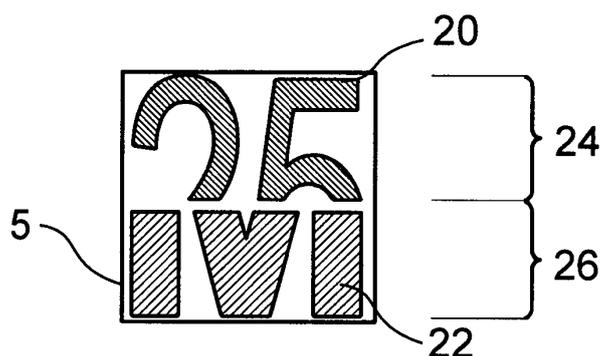
SECURITY ELEMENT HAVING TILT-DEPENDENT MOTIF DEPICTION AND METHOD FOR PRODUCTION THEREOF

The invention relates to a security element for production of value documents, such as bank notes (2), cheques or the like, which security element has a structure which presents a first and a second motif (20, 22) which change appearance when the security element (4) is tilted over a tilt angle range (11), wherein the structure comprises first microelements (15), which are arranged according to a first pattern (17) and present the first motif (20), and second microelements (16), which are arranged according to a second pattern (18) and present the second motif (22), and the first and second pattern (17, 18) are nested within each other on a surface region (5) of the security element, wherein the first microelements (15) present the first motif (20) such that the first motif (20) is wholly visible in the surface region (5) within the tilt angle range (11) at a specific starting tilt position (8) and, when the tilt position (12) changes, is visible only in a part (24) of the surface region (5) which decreases as the tilt increases and, upon reaching a specific ending tilt position (10), is no longer visible at all, and the second microelements (16) present the second motif (22) only in the remainder (26) of the surface region (5) remaining in relation to the part (24) of the surface region (5), wherein the motif (22) is not visible at all at in the surface region (5) at the starting tilt position (8) and is wholly visible in the surface region (5) at the ending tilt position (10).

ÉLÉMENT DE SÉCURITÉ AYANT UNE REPRÉSENTATION DE MOTIF DÉPENDANT DE L'INCLINAISON ET SON PROCÉDÉ DE PRODUCTION

La présente invention concerne un élément de sécurité pour la production de documents de valeur, tels que des billets de banque (2), des chèques ou analogues, ledit élément de sécurité présentant une structure qui comporte un premier et un second motif (20, 22) qui changent d'aspect lorsque l'élément de sécurité (4) est incliné sur une plage d'angle d'inclinaison (11), la structure comprenant des premiers micro-éléments (15), qui sont agencés selon un premier agencement (17) et présentent le premier motif (20), et des seconds micro-éléments (16), qui sont agencés selon un second agencement (18) et présentent le second motif (22), et les premier et second agencements (17, 18) étant emboîtés l'un dans l'autre sur une région de surface (5) de l'élément de sécurité, les premiers micro-éléments (15) présentant le premier motif (20) de sorte que le premier motif (20) est totalement visible dans la région de surface (5) à l'intérieur de la plage d'angle d'inclinaison (11) à un emplacement d'inclinaison de début (8) spécifique et, lorsque la position d'inclinaison (12) change, est visible uniquement dans une partie (24) de la région de surface (5) qui diminue à mesure que l'inclinaison augmente et, lorsqu'il atteint un emplacement d'inclinaison de fin (10) spécifique, n'est plus visible en tout, et les seconds micro-éléments (16) présentant le second motif (22) uniquement dans le reste (26) de la région de surface (5) restant par rapport à la partie (24) de la région de surface (5), le motif (22) n'étant pas visible du tout dans la région de surface (5) au niveau de l'emplacement d'inclinaison de début (8) et étant entièrement visible dans la région de surface (5) à l'emplacement d'inclinaison de fin (10).

CLAIM 1. A security element for producing value documents, such as bank notes (2), checks or the like, comprising - a structure presenting a first and a second motif (20, 22) which change their appearance when the security element (4) is tilted over a tilt angle range (11), wherein - the structure comprises first microelements (15), which are arranged according to a first pattern (17) and present the first motif (20), and second microelements (16), which are arranged according to a second pattern (18) and present the second motif (22), and - the first and the second pattern (17, 18) are nested in one another on a surface region (5) of the security element, characterized in that - the first microelements (15) present the first motif (20) in such a way that, characterized in that the first motif (20) is completely visible within the tilt angle range (11) in the surface region (5) at a specific starting tilt position (8) and is only visible in a part (24) of the surface region (5) which decreases with increasing tilt when the tilt position (12) is changed and is no longer visible at all when a specific end tilt position (10) is reached, and - the second microelements (16) present the second motif (22) only in the remainder (26) of the surface region (5) remaining with respect to the part (24) of the surface region (5), wherein the second motif (22) is not visible at all in the surface region (5) in the starting tilt position (8) and is completely visible in the surface region (5) in the end tilt position (10).



P33424

POLYMER BANKNOTE

DE102019008021

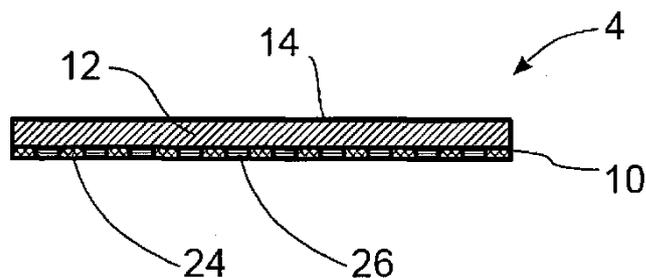
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Priority Date: 19/11/2019

PRODUCTION METHOD FOR A SECURITY ELEMENT AND SECURITY ELEMENT

The invention relates to a production method for a security element (4) for producing value documents, such as banknotes (2), checks or the like, wherein the production method comprises the following steps: providing a polymer film (12) and forming a laterally structured microfibril structure (13) in the polymer film (12) by the action of standing light waves (16, 16 b) by interference of a reference radiation with a modulated object radiation to form a location-dependent crosslinking in the polymer film (12) and development with a solvent, so that the polymer film (12) produces a colored optically variable motif in a plan view of the security element (4).

CLAIM 1. A production method for a security element (4) for producing value documents, such as banknotes (2), checks or the like, wherein the production method comprises the following steps: - providing a polymer film (12) and - forming a laterally structured microfibril structure (13) in the polymer film (12) by the action of standing light waves (16, 16 b) by interference of a reference radiation with a modulated object radiation to form a location-dependent crosslinking in the polymer film (12) and development with a solvent, so that the polymer film (12) produces a colored optically variable motif in a plan view of the security element (4).



P33439

SECURITY PAPER – INCLUSIONS

CN213173144U

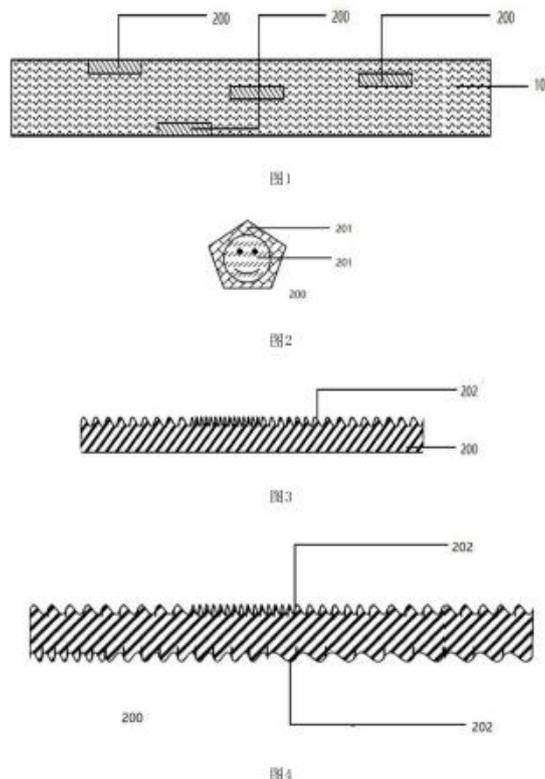
SHANGHAI GUANZHONG OPTICAL TECHNOLOGY

Priority Date: 11/08/2020

ANTI-COUNTERFEITING PAPER AND CIGARETTE PAPER

The utility model provides an anti-counterfeit paper and cigarette paper, include: a sheet of paper having an upper surface and a lower surface; and at least part of the micro sheets are embedded between the upper surface and the lower surface and hidden in the paper. The utility model discloses a with between a plurality of microchip embedding upper surface and the lower surface, hide in the paper, make the method of making this anti-counterfeit paper more complicated, be unfavorable for others' imitation, greatly increased anti-counterfeit performance of anti-counterfeit paper. Meanwhile, when the anti-counterfeiting paper is identified, the paper can be torn, whether the interior of the paper is provided with the microchip or not is checked, and the anti-counterfeiting paper in the patent is proved if the microchip exists in the paper. Thereby further playing a better anti-counterfeiting effect.

CLAIM 1. A security paper, comprising: a sheet of paper having an upper surface and a lower surface; and at least part of the micro sheets are embedded between the upper surface and the lower surface and hidden in the paper.



P33457

RELIEF – MICROLENS

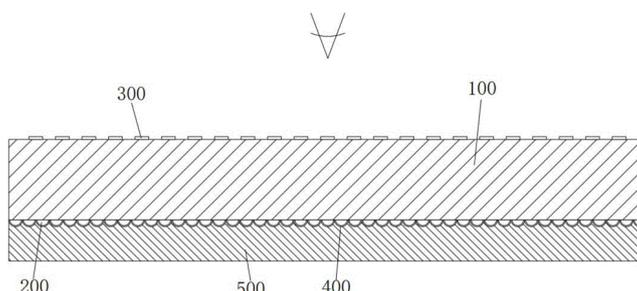
CN112835136

Priority Date: 19/03/2021

SHENZHEN XIKADE TECHNOLOGY

MICRO-LENS ARRAY FILM AND MANUFACTURING METHOD THEREOF

A micro-lens array film and a manufacturing method thereof relate to the technical field of anti-counterfeiting. Wherein the microlens array film includes: a substrate; a microlens array layer disposed on one side of the substrate; the micro image-text array layer is arranged on one side, far away from the micro lens array layer, of the substrate, and the period of the micro image-text array is matched with that of the micro lens array; and the reflecting layer is arranged on the surface of the micro-lens array layer and is used for reflecting the image formed by the micro-image-text array layer through the micro-lens array layer so as to realize the view of the micro-image-text on one side of the micro-image-text array. By adopting the technical scheme, the micro-lens array film has the advantages that the micro-lens array film can be packaged and installed on the side where the micro-lens is located, the content of micro-graphics can be checked on the side of the micro-graphics, the micro-graphics are clear, and the thickness is thinner.



CLAIM 1. A microlens array film, comprising: a substrate (100); a microlens array layer (200) disposed on one side of the substrate (100); a micro image-text array layer (300) arranged on one side of the substrate (100) far away from the micro lens array layer (200), wherein the micro image-text array period is matched with the micro lens array period; and the number of the first and second groups, the reflection layer (400) is arranged on the surface of the micro-lens array layer (200), and the reflection layer (400) is used for reflecting the image formed on the micro-image-text array layer (300) through the micro-lens array layer (200) so as to realize that the micro-image-text is viewed on one side of the micro-image-text array layer (300).

P33464

PRINTING – MAGNETISM

CN112793323

Priority Date: 03/12/2020

SHENZHEN ZHONGLISHENG PACKAGING TECHNOLOGY

PRINTING METHOD OF MAGNETIC OPTICALLY VARIABLE INK

The invention discloses a printing method of magnetic optically variable ink, which comprises the following steps: mixing UV light-curable ink and magnetic paint together to form magnetic light-variable ink; coating the magnetic optically variable ink on a printing stock; carrying out local curing on the magnetic optically variable ink on the printing stock by using an ultraviolet laser beam, wherein the locally cured magnetic optically variable ink forms first information; carrying out magnetic orientation on the magnetic optically variable printing ink on the printing stock, wherein the magnetic optically variable printing ink with the magnetic orientation forms second information; and curing the magnetic optically variable ink on the printing stock. The printing method of the magnetic optically variable ink can increase printing information, enrich visual effect and improve anti-counterfeiting performance.

CLAIM 1. The printing method of the magnetic optically variable ink is characterized by comprising the following steps of: mixing UV light-curable ink and magnetic paint together to form magnetic light-variable ink; coating the magnetic optically variable ink on a printing stock; carrying out local curing on the magnetic optically variable ink on the printing stock by using an ultraviolet laser beam, wherein the locally cured magnetic optically variable ink forms first information; carrying out magnetic orientation on the magnetic optically variable printing ink on the printing stock, wherein the magnetic optically variable printing ink with the magnetic orientation forms second information; and curing the magnetic optically variable ink on the printing stock.

P33475

PRINTING – INK – BANKNOTE

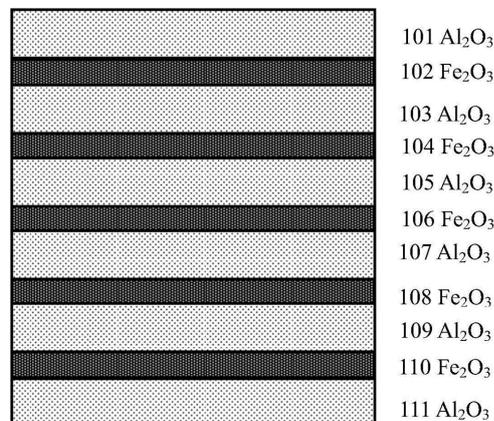
CN112708288

UNIVERSITY OF XIAMEN

Priority Date: 21/05/2020

MAGNETIC STRUCTURE COLOR FILM

The invention discloses a magnetic structural color film, which comprises a multilayer interference magnetic structural color film, wherein the multilayer interference magnetic structural color film comprises a magnetic non-metal medium film material layer and a non-magnetic full-medium transparent material layer, the magnetic non-metal medium film material layer is made of a magnetic oxide material and has a high refractive index, and the magnetic non-metal medium film material layer is used as a magnetic functional film layer and a high refractive index medium layer which can participate in color regulation and brightness regulation. It has the following advantages: the structural color film can provide optical illusion images with motion characteristics according to the inclination of the images or the change of the positions of light sources irradiating the images, and simultaneously ensure that pigment flakes formed by the films have obvious optical color changing characteristics, magnetic response functions and human-friendly characteristics.



CLAIM 1. A magnetic structural color film, characterized by: the multilayer interference magnetic structure color film comprises a magnetic non-metal medium film material layer and a non-magnetic full-medium transparent material layer, wherein the magnetic non-metal medium film material layer is made of a magnetic oxide material and has a high refractive index, and the magnetic non-metal medium film material layer is used as a magnetic functional film layer and a high refractive index medium layer capable of participating in color regulation and brightness regulation.

P33480

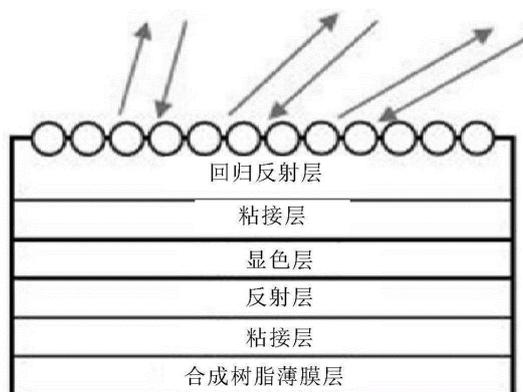
NBST - XINWEI ZHIFANG

CN112698435

Priority Date: 23/10/2019

ANTI-COUNTERFEITING CHANGING DEVICE CONTAINING RETRO-REFLECTIVE MATERIAL

The invention provides an anti-counterfeiting modification device containing a retro-reflective material, which comprises a plurality of layers, wherein the layers comprise a retro-reflective layer, and the layers comprising the retro-reflective layer are irradiated with light to distinguish whether false modification exists or not. The anti-counterfeiting modification device containing the retro-reflective material identifies the QR code under the illumination on state, further confirms whether the material is modified or not, can further and accurately confirm whether the material is modified or not through the processes, and has the advantage of simple and convenient manufacture.



CLAIM 1. An anti-counterfeiting modification device containing a retro-reflective material, the method comprises the following steps: a plurality of layers comprising a retro-reflective layer; a plurality of layers including the retro-reflective layer are irradiated with light to discriminate whether or not a false alteration is made.

P33483

BANKNOTE

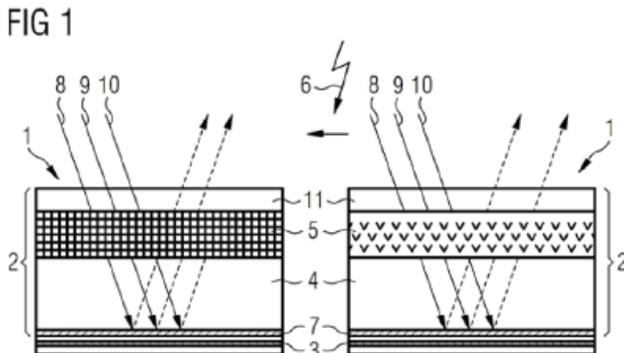
AT-523060

HUECK FOLIEN

Priority Date: 12/05/2020

SECURITY ELEMENT

In the case of a security element which comprises a substrate and an optically variable multilayer structure and which can be written on by means of the action of a laser, the multilayer structure comprises a spacer layer and a phase change material layer. The security element thereby allows the generation of high-resolution, two-color image information that makes reproduction difficult.



P33485

PRINTING

AR-116201

POLSKA WYTWORNIA PAPIEROW WARTOSCIOWYCH

Priority Date: 10/06/2019

SECURITY DOCUMENT WITH A SECURITY ELEMENT, A METHOD OF PRODUCING IT AND A SECURITY ELEMENT

The present refers to a security document 100 with a security element 101 placed locally or over the entire surface of a laminated or non-laminated substrate, comprising at least one marking region composed of at least one layer of printing ink that contains optically variable interference pigments and fluorescent pigments and / or dyes or a layer of printing ink that contains optically variable interference pigments and that are free of additives that change the absorption spectrum of the printing ink layer, the region of Marking comprises a laser marking applied by laser radiation, which is visually recognizable on the basis of an irreversible change in the interference properties of the printing ink layer containing optically variable interference pigments and pigments and / or fluorescent dyes or ink layer print containing optically variable interference pigments, and based on a transformation n, within the laser market, from an original color that shows a change depending on the angle of observation in another color that does not show any change depending on the angle of observation.

Furthermore, the present refers to a method of producing a security document, as well as the present refers to a security element placed on a laminated or non-laminated security document 100.

Click on the title to return to table of contents

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

N7779

TR202009031U

Priority Date: 11/06/2020

HAKAN ALAN

HOLOGRAM CURTAIN SYSTEM

The invention relates to the hologram curtain system (1), which enables the appearance of different motif patterns within a certain area, on glass-enclosed surfaces such as meeting rooms in homes and workplaces, or on building exteriors, instead of curtains, blinds, and enables the creation of different moving-still holograms when desired.

N7782

PL2019431600

Priority Date: 24/10/2019

**MPACK POLAND SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA
SPOLKA KOMANDYTOWA**

METHOD OF MARKING A PLASTIC PRODUCT WITH A HOLOGRAM AND A DEVICE FOR MARKING A PLASTIC PRODUCT WITH A HOLOGRAM

The subject of the invention is a method of marking a plastic product (2) with a hologram and a device (11) for marking a plastic product with a hologram, where marking means a repeatable method of enriching the product (2) with an individual and distinguishable structure on the surface of the product (2). The invention is applicable to products (2) made of plastics, in particular intended for industrial applications in the food, cosmetic, medical and chemical industries. The method of marking a plastic product (2) with a hologram, in which the image of the hologram is created with high accuracy on the product (2), consists in directly creating the image of the hologram on the product (2), with the first creation of a stamp (3) with the pattern of the original hologram and as a dedicated stamp (3) engraving, then the stamp (3) engraving is transferred to the product (2) in a mirror image by stamping it directly with the stamp (3). The product (2), on which the stamp (3) acts, is in particular made of polyethylene which is the target material layer for the stamping operation (3), the product (2) being formed spatially by extrusion into a tube shape in a previous process. limited access to the interior and fixes its shape, and only the cooled tube product (2) is deposited in this process in the socket (4) dedicated to the product.

The product (2) is deposited on the anvil (5), then the product wall (2) is supported on this anvil (5), while from the outside of the product wall (2), the sonotrode (6) approaches the product wall (2) which, before it is pressed against the wall of the product (2), is made to vibrate with a frequency F ranging from 20 kHz to 35 kHz and a vibration amplitude A ranging from 10 μm to 20 μm oriented substantially perpendicular to the wall of the product (2) in support area, and then the product (2) is plasticized in the pressure area (20) of the end wall of the sonotrode (6) by pressing the sonotrode (6) against the wall of the product (2) for the time T_1 ranging from 0.1 s to 0.5 s, at the same time maintaining the vibration and pressure P_1 between the sonotrode (6) and the anvil (5) in the range from 1.53 MPa to 3.06 MPa. Then the vibrations of the sonotrode (6) are turned off, still pressing it against the wall of the product (2), which cools the wall of the product (2) and preserves the transferred hologram gravity on it, but this time the sonotrode (6) is pressed against the wall of the product (2) with pressure P_2 in the range from 3.0 Mpa to 9.18 MPa, for the T_2 time in the range from 0.1 s to 0.5 s, after which the sonotrode (6) is moved away and ceases to support the product wall (2) on the anvil (5).

Then, the product (2) is taken out of the seat (4), the anvil (5) is pulled out of it and sent to the next processing station. Both the anvil (5) and the sonotrode (6) are shaped to the spatially formed curvature of the product wall (2), while the engraving as a mirror image of the hologram is applied to the stamp (3), selected from the anvil (5) and the sonotrode (6), importantly: at least on the anvil (5) within its support area coinciding with the pressure area (20) of the sonotrode (6). The subject of the application is also a device for marking the product with a hologram.

Click on the title to return to table of contents

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

N7772

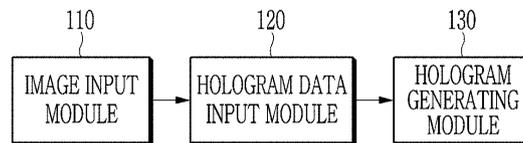
US20210149340

Priority Date: 19/11/2019

ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

METHOD FOR GENERATING HOLOGRAM

A method of generating a hologram includes receiving an input image representing a 3D object, defining a first phase value for a first pixel data such that spatio-temporally identical pixels with respect to the input image have the same phase, defining a second phase value for a second pixel data such that spatio-temporally identical pixels with respect to the input image have the same phase, and generating a multi-view hologram using the first phase value and the second phase value.



CLAIM 1. A method for generating a hologram, comprising: receiving an input image representing a 3D object; defining a first phase value for a first pixel data such that spatio-temporally identical pixels with respect to the input image have the same phase; defining a second phase value for a second pixel data such that spatio-temporally identical pixels with respect to the input image have the same phase; and generating a multi-view hologram using the first phase value and the second phase value.

N7773

US20210149339

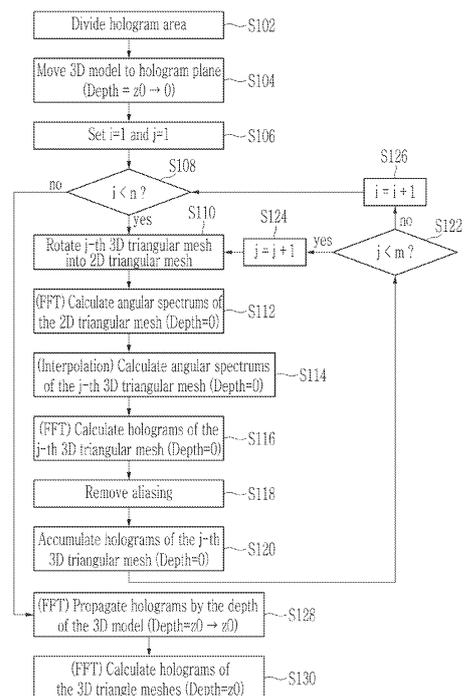
Priority Date: 19/11/2019

ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

METHOD AND APPARATUS FOR SYNTHESIZING HIGH RESOLUTION COMPUTER GENERATED HOLOGRAM BASED ON MESH

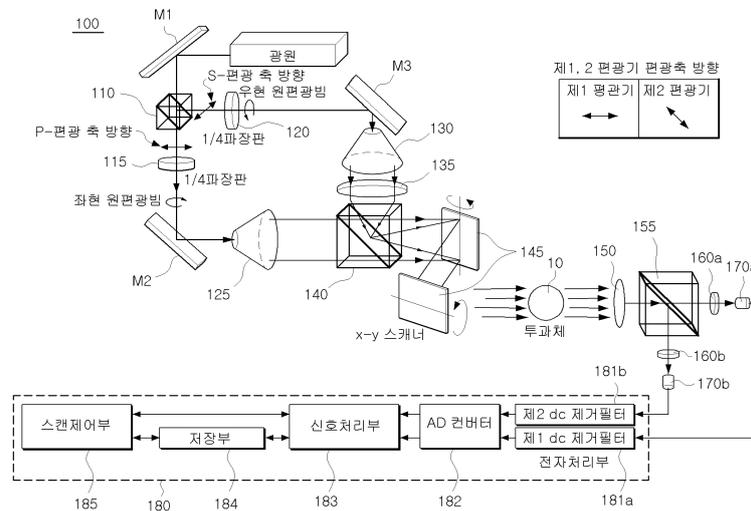
An apparatus for synthesizing ultra-high resolution computer generated holograms based on mesh propagates a plurality of 3D meshes constituting the 3D model to a hologram plane, divides an entire angular spectrum area corresponding to a set maximum diffraction angle into a plurality of partial angular spectrum areas, sequentially calculates and accumulates angular spectrums of the plurality of 3D meshes for each of the plurality of partial angular spectrum areas, and generates holograms for the 3D model from the angular spectrums accumulated for each of the plurality of partial angular spectrum areas.

CLAIM 1. A method for synthesizing ultra-high resolution computer generated holograms based on mesh that synthesizes holograms for a 3D (three-dimensional) model in a mesh-based ultra-high resolution computer generated hologram synthesis apparatus, the method comprising: propagating a plurality of 3D meshes constituting the 3D model to a hologram plane; dividing an entire angular spectrum area corresponding to a set maximum diffraction angle into a plurality of partial angular spectrum areas; sequentially calculating and accumulating angular spectrums of the plurality of 3D meshes for each of the plurality of partial angular spectrum areas; and generating holograms for the 3D model from the angular spectrums accumulated for each of the plurality of partial angular spectrum areas.



GEOMETRIC PHASE SCANNING HOLOGRAPHY SYSTEM FOR TRANSMITTERS

The invention relates to a geometrical phase scanning holographic system for a transmissive body. According to the present disclosure, there is provided an optical system including: a first beam splitter configured to form an interference beam by superimposing a plane wave of a left-handed circularly polarized light and a spherical wave of a right-handed circularly polarized light; a scanning unit configured to scan a transmissive body, which is a transmissive object, using the interference beam; a second beam splitter configured to receive the beam transmitted through the transmissive body and separate the received beam into a first output beam and a second output beam; First and second polarizers that polarize the first and second output beams, respectively, and first and second photodetectors that detect the respective output beams that have passed through the first and second polarizers. According to the present invention, it is possible to obtain a complex hologram for a transmissive body without double image noise and background noise by using a polarization geometry without using a complex modulation device for modulating an optical signal, Since no additional light modulation device is required, the complexity of the structure can be reduced, the size and weight of the light modulation device can be reduced, and the light modulation device can be applied to a mobile device sensitive to energy consumption.



CLAIM 1. An image forming apparatus, comprising: a first beam splitter configured to superimpose a plane wave of left-handed circularly polarized light and a spherical wave of right-handed circularly polarized light to form an interference beam; a scanning unit configured to scan a transmissive body, which is a transmissive object, using the interference beam; a second beam splitter configured to receive the beam transmitted through the transmissive body and separate the received beam into a first output beam and a second output beam; First and second photodetectors for generating first and second current signals corresponding to intensities of the first and second output beams passed through the first and second polarizers, respectively; and an electronic processing unit for processing the first and second current signals to generate a complex hologram of the object, Wherein the electronic processing unit comprises: first and second dc removal filters configured to remove a dc component, which is a dc bias component, from the first and second current signals, respectively, and input the removed dc component to an ad converter; an ad converter configured to convert the first and second current signals, in which the dc component is filtered, into a digital signal; A signal processing unit for generating a complex hologram of the object from the converted digital signal; a storage unit for storing the complex hologram; and a scan control unit for generating a control signal for changing the position of the scanning means each time hologram processing for an arbitrary position of the object is completed.

N7789

KR20210048996

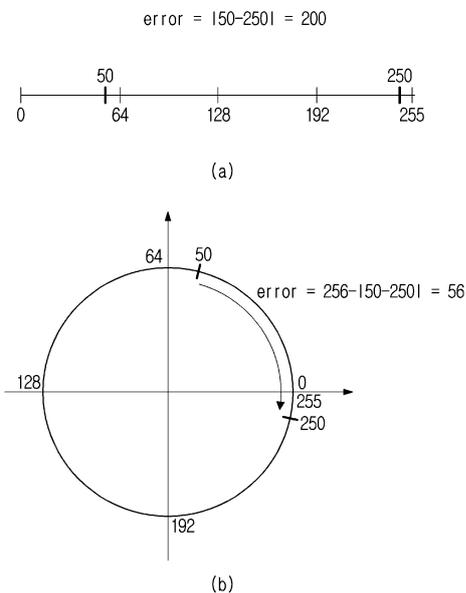
Priority Date: 24/10/2019

KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

DEVICE AND METHOD FOR ERROR MEASUREMENT OF A PHASE HOLOGRAM

The present disclosure relates to an apparatus and method for measuring a phase hologram error, and more particularly, to a technique for setting a maximum error value in consideration of a characteristic of a phase hologram and measuring an error in a quantization step. A method of measuring a phase hologram error according to the present disclosure includes: two-dimensionally imaging phase data extracted from complex hologram data based on an arbitrary n bit; and measuring an error of a phase hologram based on the two-dimensionally imaged phase data. The error of the phase hologram is based on a maximum quantization value determined based on the n bits, and may be measured according to a magnitude comparison with a maximum error value determined based on the $n - 1$ bits.

CLAIM 1. Two-dimensionally imaging phase data extracted from complex hologram data on the basis of an arbitrary n bit; and measuring an error of a phase hologram on the basis of the two-dimensionally imaged phase data, Wherein the error of the phase hologram is based on a maximum quantization value determined based on the n bits and is measured according to a magnitude comparison with a maximum error value determined based on the $n - 1$ bits.



N7807

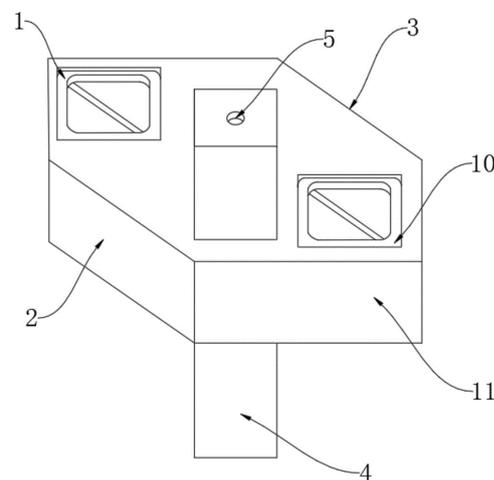
CN213209825U

Priority Date: 29/07/2020

QINGDAO UNIVERSITY OF SCIENCE & TECHNOLOGY

OPTICAL DEVICE FOR HOLOGRAPHIC INTERFEROMETRY

The utility model discloses an optical device for holographic interferometry, including the beam splitter, the lower terminal surface fixed mounting of beam splitter has the optical glass casing, the first speculum of outside fixed mounting of optical glass casing, the outside fixed mounting of optical glass casing has the second mirror, the lower extreme fixed mounting of optical glass casing has the liquid diffusion groove, the solution filling opening has been seted up at the inside top in liquid diffusion groove. This an optical device for holographic interferometry, at the staff's use holographic interferometry's optical device's in-process, and through setting up that first reflector cross-section and optical glass casing two intersect be 135 degrees and second reflector cross-section should be less than 135 degrees with the biggest angle that optical glass casing two intersect formed, can directly with the light beam dispersion to first reflector and second reflector on for the staff is not needing the angle of adjustment instrument, this practicality that has improved the device greatly, convenient to use.



CLAIM 1. An optical device for holographic interferometry, comprising a beam splitter (1), characterized in that: the lower terminal surface fixed mounting of beam splitter (1) has optical glass casing (11), the first speculum of outside fixed mounting (2) of optical glass casing (11), the outside fixed mounting of optical glass casing (11) has second speculum (3), the lower extreme fixed mounting of optical glass casing (11) has liquid diffusion groove (4), solution filling opening (5) have been seted up at the inside top of liquid diffusion groove (4), solution egress opening (6) have been seted up to the inside bottom of liquid diffusion groove (4), fixed mounting has micropore metal partition (9) between solution egress opening (6) and solution filling opening (5), the lower extreme fixed mounting of micropore metal partition (9) has constant current room (7), the outside fixed mounting of liquid diffusion groove (4) has optical glass casing (11), the inside fixed mounting of liquid diffusion groove (4) has diffusion room (8), the upper end face of the optical glass shell (11) is fixedly provided with a beam combiner (10).

N7823

CN112837390

Priority Date: 08/02/2021

NANJING UNIVERSITY OF POSTS & TELECOMMUNICATIONS

RECONSTRUCTION METHOD AND SYSTEM OF LOW-QUALITY DIGITAL HOLOGRAPHIC IMAGE

The invention discloses a reconstruction method and a system of a low-quality digital holographic image, wherein the method comprises the following steps: calculating an original frequency spectrum of an initial reconstruction image of the original image; iterative computation of gradient growth factors in the horizontal and vertical directions of the original frequency spectrum is carried out on the basis of continuous gradient threshold convergence; obtaining a gradient growth factor based on iterative computation, and simultaneously computing a prediction spectrum from the horizontal direction and the vertical direction; calculating a reconstruction spectrum of the holographic image based on the original spectrum and the predicted spectrum of the initial reconstruction image; and responding to the convergence of the reconstruction spectrum, and processing the reconstruction spectrum of the holographic image by utilizing inverse Fourier transform to obtain the reconstruction image of the holographic image. The invention can reconstruct the low-quality reconstructed digital holographic image, the obtained digital holographic image has comprehensive detail information, and the reconstructed digital holographic image can improve the visual effect of an observer.

CLAIM 1. A method for reconstructing a low-quality digital holographic image, said method comprising the steps of: acquiring an original frequency spectrum of an initial reconstruction image of an original image; iterative computation of gradient growth factors in the horizontal and vertical directions of the original frequency spectrum is carried out on the basis of continuous gradient threshold convergence; obtaining a gradient growth factor based on iterative computation, and simultaneously computing a prediction spectrum from the horizontal direction and the vertical direction; calculating a reconstruction spectrum of the holographic image based on the original spectrum and the predicted spectrum of the initial reconstruction image; and responding to the convergence of the reconstruction spectrum, and processing the reconstruction spectrum of the holographic image by utilizing inverse Fourier transform to obtain the reconstruction image of the holographic image.

N7824

CN112835263

Priority Date: 22/11/2019

BEIJING UNIVERSITY OF TECHNOLOGY

SINGLE-STEP EXPOSURE METHOD AND DEVICE FOR LIQUID CRYSTAL COMPUTER HOLOGRAM

A single-step exposure method and a single-step exposure device for liquid crystal computer holograms can overcome the defects of a mask exposure method adopted by the prior liquid crystal computer hologram manufacture, a mask with the same computer hologram pattern does not need to be manufactured in advance, only one exposure is needed, the arrangement angle of a linear polarizer or a substrate to be exposed does not need to be adjusted midway, the manufacture flow is simplified, the manufacture time is shortened, the manufacture cost is reduced, a fixing device at the mask is simplified, a vacuum adsorption device is not needed to reduce the distance between the mask and the substrate to be exposed, and the large-area damage to photosensitive materials on the surface of the substrate is avoided. The method comprises the following steps: constructing a liquid crystal calculation hologram exposure device; putting a substrate to be exposed coated with a photosensitive material and adjusting parameters, wherein the parameters comprise a spatial position and a pitching angle, the plane mirror and the substrate to be exposed are orthogonally contacted to form a Luohy mirror structure, the input electric signal of the spatial light modulator is adjusted, and the input electric signal is not loaded in a region corresponding to a half of the light beam incident to the substrate; and (6) carrying out exposure.

CLAIM 1. A single-step exposure method of liquid crystal computer hologram is characterized in that: which comprises the following steps: (1) constructing a liquid crystal calculation hologram exposure device; (2) putting a substrate to be exposed coated with a photosensitive material and adjusting parameters, wherein the parameters comprise a spatial position and a pitching angle, the plane mirror and the substrate to be exposed are orthogonally contacted to form a Luohy mirror structure, the input electric signal of the spatial light modulator is adjusted, and the input electric signal is not loaded in a region corresponding to a half of the light beam incident to the substrate; (3) and (6) carrying out exposure.

N7833

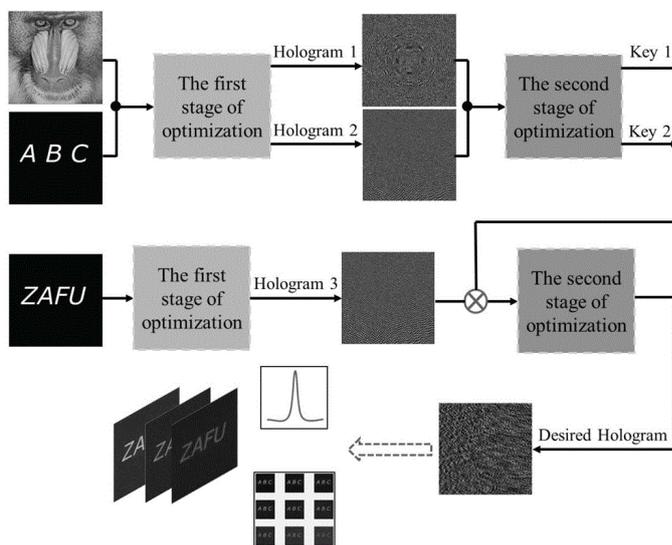
CN112765624

Priority Date: 19/01/2021

ZHEJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY

AUTHENTICATABLE PHASE-ONLY HOLOGRAM GENERATION METHOD BASED ON PHASE OPTIMIZATION AND SPARSE CONSTRAINT

The invention discloses an authenticatable phase-only hologram generation method based on phase optimization and sparse constraint, which comprises the following steps: s1, selecting three images as a hidden image, a reference image and a host image respectively, and generating pure phase holograms corresponding to the hidden image, the reference image and the host image respectively under sparse constraint conditions by utilizing phase optimization; and S2, respectively carrying out secondary phase optimization on the pure phase holograms corresponding to the hidden image and the reference image to respectively obtain optimized pure phase holograms, embedding the phase information of the pure phase holograms optimized for the hidden image and the reference image into the pure phase hologram of the host image and fixing the phase information, and carrying out secondary phase optimization on the pure phase hologram of the host image again to obtain the final authenticatable pure phase hologram. The invention can effectively encrypt the hidden image and can obtain good authentication effect.



N7840

CN112731783

Priority Date: 16/12/2020

SUN YAT SEN UNIVERSITY

HIGH-FLUX SINGLE-PIXEL HOLOGRAPHIC IMAGING METHOD AND SYSTEM

The invention provides a high-flux single-pixel holographic imaging method, which comprises the following steps: laser emitted by the laser source is divided into signal light and reference light after passing through the polarization beam splitter; the signal light is modulated to a first frequency through a first modulator, then mapped on a DMD to directly modulate a binary intensity pattern, and then mapped to a sample through a direct conjugate surface of an optical lens system and then enters a beam splitter; the reference light is modulated to a second frequency by a second modulator and then guided to the beam splitter by the reflecting mirror; the signal light and the reference light are subjected to beam combination interference on a beam splitter, and a high-speed oscillation coherent signal is obtained through beat frequency in the interference; and focusing the light after the beam combination interference on a single-pixel detector, and processing the light by a data acquisition and signal processing unit to obtain a complete image. According to the invention, the signal light and the reference light are respectively modulated, so that the signal light and the reference light are interfered in the beam splitter and simultaneously generate a high-speed oscillation coherent signal, namely a beat frequency signal, which changes along with time, so as to replace slow and tedious step-by-step phase shift measurement and improve the imaging speed.

CLAIM 1. A high-flux single-pixel holographic imaging method is characterized by comprising the following steps:

- s1: laser emitted by the laser source is divided into signal light and reference light after passing through the polarization beam splitter;
- s2: the signal light is modulated to a first frequency through a first modulator, then mapped on a DMD to directly modulate a binary intensity pattern, and then mapped to a sample through a direct conjugate surface of an optical lens system and then enters a beam splitter; the reference light is modulated to a second frequency by a second modulator and then guided to the beam splitter by the reflecting mirror;
- s3: the signal light and the reference light are subjected to beam combination interference on a beam splitter, and a high-speed oscillation coherent signal is obtained through beat frequency in the interference;
- s4: and focusing the light after the beam combination interference on a single-pixel detector, and processing the light by a data acquisition and signal processing unit to obtain a complete image.

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

N7804

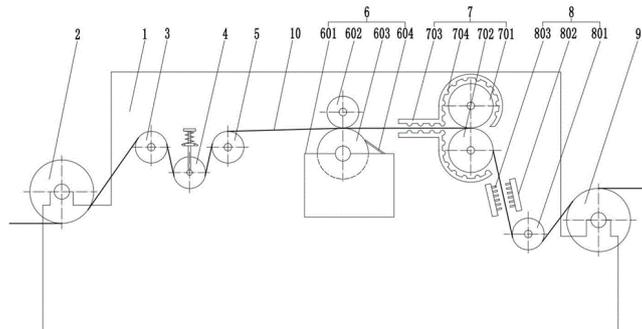
CN213228001U

Priority Date: 12/08/2020

SHAOXING DEXIN PACKAGING MATERIAL

HOLOGRAPHIC MOLDING PRESS

The utility model discloses a holographic moulding press, including workstation and membrane, the workstation left and right sides respectively is equipped with unreels roller and wind-up roll, it sets gradually the first deflector roll on the workstation along membrane direction of transmission to unreel to be equipped with between roller and the wind-up roll, the tension roll, the second deflector roll, coating unit and molding device, coating unit includes first mould pressing roller, first mould pressing roller below is equipped with the coating roll, the coating roll below is equipped with the coating bath, the coating roll is half soaked in the coating bath, the coating roll right side is equipped with installs the ascending scraper blade in coating bath upper portion and slope, scraper blade upper portion is equipped with the rubber strip, the rubber strip is tangent with the coating roll, still be equipped with the unloading hole of intercommunication scraper blade upper and lower surface on the scraper blade. The utility model discloses the coating roll will remain under the coating on the coating roll hangs through the scraper blade after rotatory coating at every turn, guarantees that the coating roll surface is still clean before the coating next time, simple structure, and is with low costs, and the practicality is good.



CLAIM 1. A holographic molding press, characterized by: including workstation (1) and membrane (10), workstation (1) each side is equipped with unreels roller (2) and wind-up roll (9), it sets gradually first deflector roll (3), tension roll (4), second deflector roll (5), coating device (6) and molding device (7) on workstation (1) to unreel to be equipped with between roller (2) and wind-up roll (9) along membrane (10) direction of transfer, coating device (6) include first molding press roller (602), first molding press roller (602) below is equipped with coating roll (603), coating roll (603) below is equipped with coating groove (601), coating roll (603) half soaks in coating groove (601), coating roll (603) right side is equipped with installs in coating groove (601) upper portion and upwards scraper blade (604) of slope, scraper blade (604) upper portion is equipped with rubber strip (605), rubber strip (605) are tangent with coating roll (603), still be equipped with down feed hole (606) on intercommunication scraper blade (604) upper and lower surface on scraper blade (604), molding device (7) include second embossing roller (701), second embossing roller (701) below is equipped with holographic version roller (702), be equipped with around the surface of second embossing roller (701) and holographic version roller (702) respectively and separate heat exchanger (703), separate heat exchanger (703) inboard surface and be equipped with heatable heating coil (704).

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

N7754

WO2021101264

Priority Date: 22/11/2019

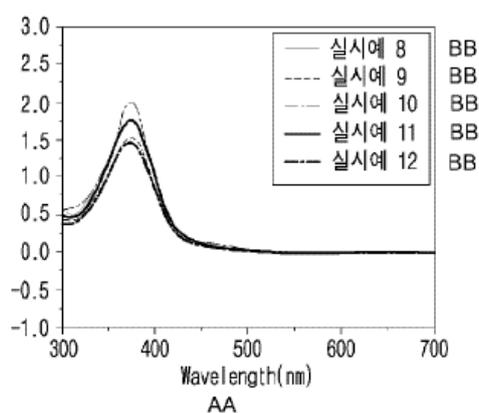
KRICT KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY
- KYUNGPOOK NATIONAL UNIVERSITY INDUSTRY ACADEMIC
COOPERATION FOUNDATION

AZOBENZENE COMPOUND COMPRISING NITROGEN-CONTAINING HETEROAROMATIC, AND BLUE HOLOGRAM RECORDING COMPOSITION COMPRISING SAME

The present invention relates to an azobenzene compound, a hologram recording composition comprising same, a hologram recording medium, a hologram recording material using same, and a method for hologram recording or hologram re-recording. The azobenzene monomer compound of the present invention shows photoisomerization at a long wavelength and has a high birefringence index portion which can magnify a refractive index change even by a small dose of radiation, and thus a polymer comprising the azobenzene monomer compound can be usefully used as a material for recording/re-recording a hologram by laser irradiation.

COMPOSÉ AZOBENZÉNIQUE COMPRENANT UN GROUPE HÉTÉROAROMATIQUE CONTENANT DE L'AZOTE ET COMPOSITION D'ENREGISTREMENT D'HOLOGRAMME BLEU COMPRENANT CELUI-CI

La présente invention concerne un composé azobenzénique, une composition d'enregistrement d'hologramme comprenant celui-ci, un support d'enregistrement d'hologramme, un matériau d'enregistrement d'hologramme utilisant celui-ci et un procédé pour l'enregistrement d'un hologramme ou le réenregistrement d'un hologramme. Le composé monomère azobenzénique selon la présente invention présente une photoisomérisation à une grande longueur d'onde et a une partie à indice de biréfringence élevé qui permet d'amplifier un changement d'indice de réfraction même par une petite dose de rayonnement, et ainsi, un polymère comprenant le composé monomère azobenzénique peut être utilisé de manière utile en tant que matériau pour l'enregistrement/réenregistrement d'un hologramme par irradiation par laser.



AA ... Wavelength(nm)

BB ... Example

CLAIM 1. An azobenzene monomer represented by the following formula (1): (Formula 1) Wherein in the above general formula (1), R 1Is hydrogen or a straight-chain or branched-chain C 1-20Alkyl, wherein n is an integer from 1 to 4; R 2Is a 5 to 10 membered heteroaryl containing at least one nitrogen; L is a straight or branched chain C 1-20Alkylene; and Q is a photocrosslinkable functional group containing at least one radically polymerizable double bond in the molecule.

N7755

WO2021100654

Priority Date: 19/11/2019

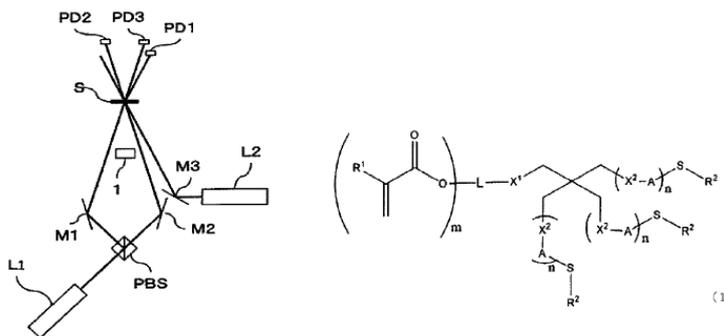
MITSUBISHI CHEMICAL

COMPOUND, POLYMERIZABLE COMPOSITION, POLYMER, HOLOGRAPHIC RECORDING MEDIUM, OPTICAL MATERIAL AND OPTICAL COMPONENT

A compound which is represented by formula (1). (In the formula, R1 represents a hydrogen atom or a methyl group; R2 represents an optionally substituted aromatic ring group or an alkyl group that is substituted by an optionally substituted aromatic ring group; X1 represents a (thio)ester bond, a (thio)carbonate bond, a (thio)amide bond, a (thio)urethane bond, a (thio)urea bond, a (thio)ether bond, an oxygen atom, a sulfur atom or an optionally substituted nitrogen atom; X2 represents an oxygen atom, a sulfur atom or an optionally substituted nitrogen atom; A represents an optionally substituted divalent group; L represents an optionally substituted linking group having a valence of (m + 1); m represents an integer from 1 to 3; and n represents 0 or 1.)

COMPOSÉ, COMPOSITION POLYMÉRISABLE, POLYMÈRE, SUPPORT D'ENREGISTREMENT HOLOGRAPHIQUE, MATÉRIAU OPTIQUE ET COMPOSANT OPTIQUE

La présente invention concerne un composé représenté par la formule (1). (Dans la formule, R1 représente un atome d'hydrogène ou un groupe méthyle ; R2 représente un groupe cyclique aromatique éventuellement substitué ou un groupe alkyle qui est substitué par un groupe cyclique aromatique éventuellement substitué ; X1 représente une liaison (thio)ester, une liaison (thio)carbonate, une liaison (thio)amide, une liaison (thio)uréthane, une liaison (thio)urée, une liaison (thio)éther, un atome d'oxygène, un atome de soufre ou un atome d'azote éventuellement substitué ; X2 représente un atome d'oxygène, un atome de soufre ou un atome d'azote éventuellement substitué ; A représente un groupe divalent éventuellement substitué ; L représente un groupe de liaison éventuellement substitué ayant une valence de (m + 1) ; m représente un nombre entier de 1 à 3 ; et n représente 0 ou 1.)



CLAIM 1. A compound represented by Formula (1) below: [wherein, R1 represents a hydrogen atom or a methyl group; R2 represents an optionally substituted aromatic ring group or an alkyl group substituted with an optionally substituted aromatic ring group; and X1 represents a (thio) ester bond, a (thio) carbonate bond, a (thio) amide bond, a (thio) urethane bond, a (thio) urea bond, or a (thio) ether bond; Or oxygen, sulphur or a nitrogen atom which may have a substituent; X2 is oxygen, sulphur or a nitrogen atom which may have a substituent; A is a divalent group which may have a substituent; L is a linking group which may have a substituent; m is an integer of 1 ~ 3; and n is 0 or 1.]

N7758

WO202195400

SONY

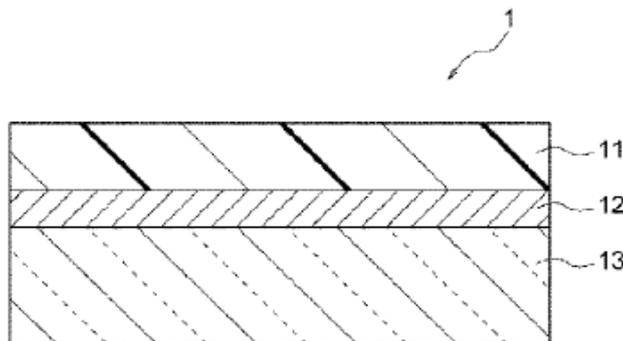
Priority Date: 11/11/2019

COMPOSITION FOR HOLOGRAPHIC RECORDING, HOLOGRAPHIC RECORDING MEDIUM, HOLOGRAM, AND OPTICAL DEVICE AND OPTICAL COMPONENT BOTH INCLUDING SAME

The present invention provides a composition for holographic recording which renders excellent diffraction characteristics possible, a holographic recording medium, a hologram, and an optical device and an optical component both including the hologram. The present invention can provide a composition for holographic recording comprising at least a radical-polymerizable monomer and a matrix resin and giving holographically recorded films which, when examined by atomic force microscopy (AFM), give cross-sectional images each having a diffraction grating structure that shows material density differences observable by the AFM.

COMPOSITION POUR ENREGISTREMENT HOLOGRAPHIQUE, SUPPORT D'ENREGISTREMENT HOLOGRAPHIQUE, HOLOGRAMME, AINSI QUE DISPOSITIF OPTIQUE ET COMPOSANT OPTIQUE COMPRENANT CELUI-CI

La présente invention concerne une composition pour l'enregistrement holographique qui rend possible d'excellentes caractéristiques de diffraction, un support d'enregistrement holographique, un hologramme ainsi qu'un dispositif optique et un composant optique comprenant tous deux l'hologramme. La présente invention peut fournir une composition pour l'enregistrement holographique comprenant au moins un monomère polymérisable par voie radicalaire et une résine matricielle et donnant des films enregistrés holographiquement qui, lorsqu'ils sont examinés par microscopie à force atomique (AFM), donnent des images en coupe transversale ayant chacune une structure de réseau de diffraction qui présente des différences de densité de matériau observables par l'AFM.



CLAIM 1. A hologram recording composition comprising: at least a radically polymerizable monomer; and a matrix resin, wherein a cross-sectional image of a hologram recording film observed by atomic force microscopy (AFM) has a diffraction grating structure indicating that there is a material density difference observable by the AFM.

N7760

WO202194046

BMW - BAYERISCHE MOTOREN WERKE

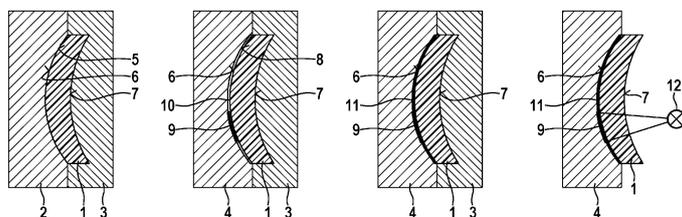
Priority Date: 11/11/2019

METHOD FOR PRODUCING A CURVED SUBSTRATE WAFER WITH A HOLOGRAM, RESULTING SUBSTRATE WAFER WITH HOLOGRAM AND A WAFER COMPOSITE CONTAINING THE SAME, IN PARTICULAR A VEHICLE WAFER

The invention relates to a method for producing a bent substrate wafer with a hologram, comprising the following steps: - producing a bent substrate wafer from plastic by shaping, injection moulding or injection embossing between a first mould half which defines a predetermined desired geometry of a substrate surface, and a second mould half separably fixed to the first mould half; - removing the first mould half from the second mould half, in which the produced substrate wafer remains, and applying a holographic master in the form of a thin film to a surface of the first or a further mould half defining the desired geometry; - fixing the first or further mould half with the hologram master to the second mould half in such a way that an empty gap of a predetermined constant thickness remains between the hologram master and the substrate surface and filling this gap with a hologram recording material, in particular a liquid photopolymer; - exposing the hologram recording layer formed thereby between the substrate surface and the hologram master with a coherent light to form a hologram defined by the hologram master.

PROCÉDÉ PERMETTANT DE PRODUIRE UN PANNEAU DE SUBSTRAT INCURVÉ AYANT UN HOLOGRAMME, PANNEAU DE SUBSTRAT RÉSULTANT AYANT UN HOLOGRAMME ET STRATIFIÉ CONTENANT UN TEL PANNEAU DE SUBSTRAT, EN PARTICULIER UNE VITRE DE VÉHICULE

L'invention se rapporte à un procédé permettant de produire un panneau de substrat incurvé ayant un hologramme comprenant les étapes suivantes consistant : - à produire un panneau de substrat incurvé en matière plastique en formant, au moyen d'un moulage par injection ou d'un moulage par injection-compression entre une première moitié de moule, qui définit une géométrie souhaitée prédéfinie d'une surface de substrat, et une seconde moitié de moule, qui est fixée de manière amovible à la première moitié de moule ; - à retirer la première moitié de moule de la seconde moitié de moule, dans lequel reste le panneau de substrat produit, et à appliquer une matrice holographique sous la forme d'une couche mince sur une surface de la première moitié de moule, ou d'une moitié de moule supplémentaire, qui définit la géométrie souhaitée ; - à fixer la première moitié de moule ou la moitié de moule supplémentaire ayant la matrice holographique sur la seconde moitié de moule de telle sorte qu'un espace vide d'une épaisseur constante prédéterminée reste entre la matrice holographique et la surface de substrat, et à remplir cet espace avec un matériau de réception d'hologramme, en particulier un photopolymère liquide ; - à exposer la couche de réception d'hologramme formée de ce fait entre la surface de substrat et la matrice holographique avec une lumière cohérente pour former un hologramme défini par la matrice holographique.



CLAIM 1. Method for producing a curved substrate wafer (1) having a hologram, in particular a holographic optical element, having the steps of: - producing (S1) a curved substrate wafer (1) from plastic by shaping, injection moulding or injection embossing between a first mould half (2) which defines a predetermined desired geometry of a substrate surface (6), and a second mould half (3) separably fixed to the first mould half (2); - removing the first mould half (2) from the second mould half (3), in which the produced substrate wafer (1) remains, and applying a holographic master (9) in the form of a thin layer to a surface (5; 8) of the first or a further mould half (2; 4); - fixing (S2) the first or further mould half (2; 4) with the hologram master (9) to the second mould half (3) in such a way that an empty gap (10) of a predetermined constant thickness remains between the hologram master (9) and the substrate surface (6), and filling (S3) this gap (10) with a hologram recording material, in particular a liquid photopolymer; - exposing (S5) the hologram recording layer (11) formed thereby between the substrate surface (6) and the hologram master (9) with a coherent light to form a hologram defined by the hologram master (9).

METHOD FOR PRODUCING A HOLOGRAM ON A CURVED SUBSTRATE PLATE, RESULTING SUBSTRATE PLATE WITH HOLOGRAM AND A LAMINATE, IN PARTICULAR A VEHICLE WINDSCREEN, CONTAINING SAID SUBSTRATE PLATE

The invention relates to a method for producing a hologram on a curved substrate plate, comprising the following steps: - Providing a curved substrate plate having a substrate surface, the actual geometry of which is subject to a tolerance deviation with respect to a predetermined desired geometry; - providing an inflatable cushion with a cushion surface that can be deformed under the effect of pressure and is pre-formed into the predetermined desired geometry or with a predetermined deviation therefrom; - applying a holographic master in the form of a flexible thin layer to the deformable cushion surface and applying a hologram-recording layer, in particular a liquid photopolymer, to the substrate surface; - pressing or placing the holographic master onto the hologram-recording layer by means of the cushion surface deformed to the actual geometry, thereby achieving full surface-area contact between them with a substantially constant predetermined layer thickness of the hologram-recording layer, and exposing the hologram-recording layer in this hologram-recording arrangement to form a hologram. (Figure 2)

PROCÉDÉ DE PRODUCTION D'UN HOLOGRAMME SUR UNE PLAQUE DE SUBSTRAT INCURVÉE, PLAQUE DE SUBSTRAT OBTENUE AVEC L'HOLOGRAMME, ET STRATIFIÉ, EN PARTICULIER UN PARE-BRISE DE VÉHICULE, CONTENANT LADITE PLAQUE DE SUBSTRAT

L'invention concerne un procédé permettant de produire un hologramme sur une plaque de substrat incurvée, ledit procédé comprenant les étapes suivantes consistant à : fournir une plaque de substrat incurvée ayant une surface de substrat dont la géométrie réelle est soumise à un écart de tolérance par rapport à une géométrie souhaitée prédéterminée ; fournir un coussin gonflable avec une surface de coussin qui peut être déformée sous l'effet de la pression et qui est préformée dans la géométrie souhaitée prédéterminée ou avec un écart prédéterminé ; appliquer un maître holographique sous la forme d'une couche mince souple sur la surface du coussin déformable, puis appliquer une couche d'enregistrement d'hologramme, en particulier un photopolymère liquide, sur la surface du substrat ; presser ou placer le maître holographique sur la couche d'enregistrement d'hologramme au moyen de la surface du coussin déformée selon la géométrie réelle, ce qui permet d'obtenir un contact pleine surface entre eux avec une épaisseur de couche prédéterminée sensiblement constante de la couche d'enregistrement d'hologramme, puis exposer la couche d'enregistrement d'hologramme dans cet agencement d'enregistrement d'hologramme pour former un hologramme. (Figure 2)

CLAIM 1. Method for producing a hologram, in particular a holographic optical element, on a curved substrate wafer (1), comprising the steps of: providing (S1) a curved substrate wafer (1) having a substrate surface (2), the actual geometry of which is subject to a tolerance deviation with respect to a predetermined desired geometry;

Providing (S2) an inflatable cushion (5) having a cushion surface (6) which can be deformed by the action of pressure and which is preformed to the predetermined desired geometry or with a predetermined deviation therefrom,

Applying (S3) a holographic master (4) in the form of a flexible thin layer to the deformable pad surface (6);

Applying (S4) a hologram recording layer (3), in particular a liquid photopolymer layer, to the substrate surface (2); pressing or applying the hologram master (4) against the hologram recording layer (3) by means of the pad surface (6) deformed to the actual geometry, thereby achieving a continuous surface contact therebetween with a substantially constant predetermined layer thickness of the hologram recording layer (3); and exposing (S7) the hologram recording layer (3) in this hologram recording arrangement with a coherent light for forming a hologram defined by the hologram master (4) in the hologram recording layer (3).

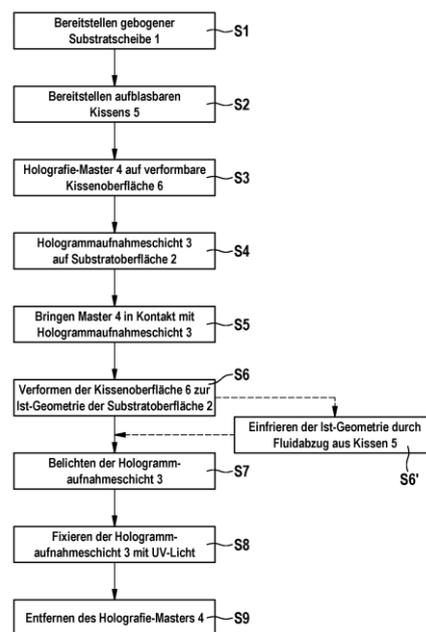
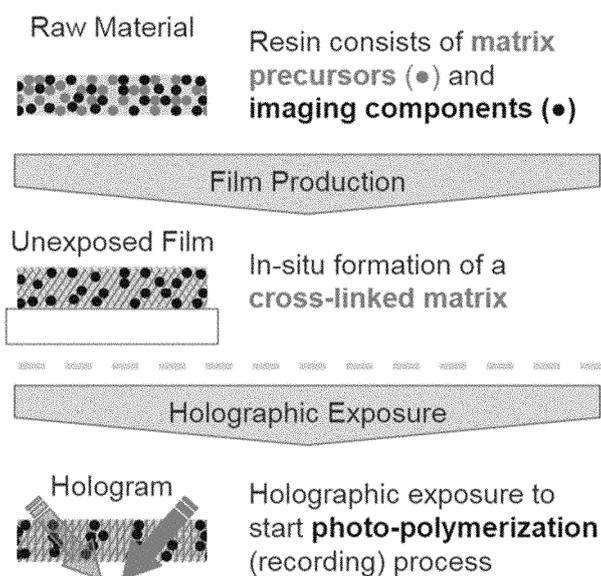


Fig. 1

- S1 Providing curved substrate plate 1
- S2 Providing inflatable cushion 5
- S3 Applying holographic master 4 to deformable cushion surface 6
- S4 Applying holographic-recording layer 3 to substrate surface 2
- S5 Bringing master 4 into contact with hologram-recording layer 3
- S6 Deforming the cushion surface 6 to form the actual geometry of the substrate surface 2
- S6' Freezing the actual geometry by withdrawing fluid from cushion 5
- S7 Exposing the hologram-recording layer 3
- S8 Fixing the hologram-recording layer 3 with UV light
- S9 Removing the holographic master 4

THIOPHOSPHATE AND PHOSPHINE SULFIDE DERIVATIZED MONOMERS AND POLYMERS FOR VOLUME BRAGG GRATINGS

The disclosure provides recording materials including thiophosphate derivatized monomers and polymers for use in volume Bragg gratings, including, but not limited to, volume Bragg gratings for holography applications. Several structures are disclosed for thiophosphate derivatized monomers and polymers for use in Bragg gratings applications, leading to materials with higher refractive index, low birefringence, and high transparency. The disclosed thiophosphate derivatized monomers and polymers thereof can be used in any volume Bragg gratings materials, including two-stage polymer materials where a matrix is cured in a first step, and then the volume Bragg grating is written by way of a second curing step of a monomer.



CLAIM 1. A compound of Formula I: wherein in Formula I: X is O, S, or Se; Ar is at each independent occurrence an optionally substituted aryl substituent; R is at each independent occurrence hydrogen or a substituent comprising one or more groups selected from optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, hydroxy, halo, cyano, trifluoromethyl, trifluoromethoxy, nitro, trimethylsilyl, optionally substituted epoxide, optionally substituted glycidyl, optionally substituted acrylate, optionally substituted methacrylate, -ORa, -SRa, -OC(O)-Ra, -N(Ra)₂, -C(O)Ra, -C(O)ORa, -C(O)SRa, -SC(O)Ra, -OC(O)ORa, -OC(O)N(Ra)₂, -C(O)N(Ra)₂, -N(Ra)C(O)ORa, -N(Ra)C(O)Ra, -N(Ra)C(O)N(Ra)₂, -N(Ra)C(NRa)N(Ra)₂, -N(Ra)S(O)tRa, -S(O)tRa, -S(O)tORa, -S(O)tN(Ra)₂, -S(O)tN(Ra)C(O)Ra, -O(O)P(ORa)₂, and -O(S)P(ORa)₂; n is independently at each occurrence an integer from 0 to 7; t is 1 or 2; Ra is independently selected at each occurrence from hydrogen, optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl; and wherein the compound of Formula I comprises at least one R substituent comprising at least one polymerizable or crosslinkable group.

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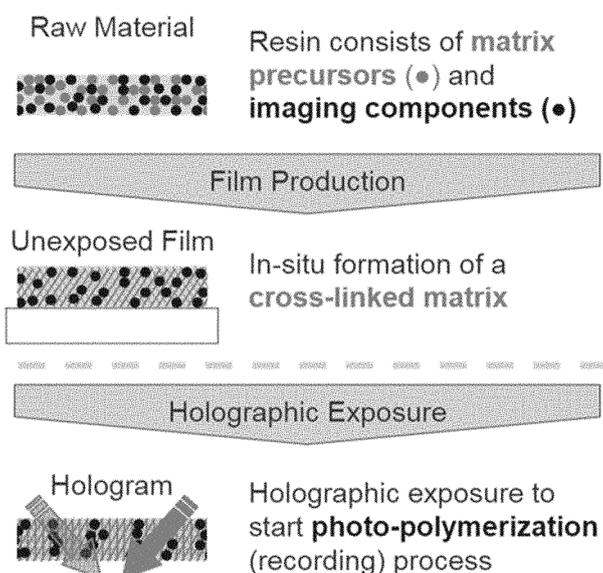
US20210155599

Priority Date: 27/11/2019

FACEBOOK TECHNOLOGIES

AROMATIC SUBSTITUTED ALKANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS

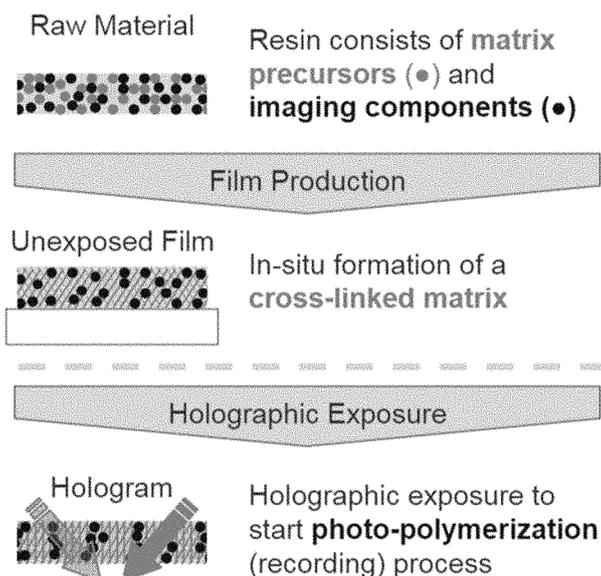
The disclosure provides recording materials including aromatic substituted alkane-core derivatized monomers and polymers for use in volume Bragg gratings, including, but not limited to, volume Bragg gratings for holography applications. Several structures are disclosed, including Formula I. When used in Bragg gratings applications, the monomers and polymers disclosed lead to materials with higher refractive index, low birefringence, and high transparency. The disclosed derivatized monomers and polymers can be used in any volume Bragg gratings materials, including two-stage polymer materials where a matrix is cured in a first step, and then the volume Bragg grating is written by way of a second curing step of a monomer.



CLAIM 1. A compound of Formula I: wherein in Formula I: Alk is an optionally substituted C1-12 alkyl core; Ar is an optionally substituted aryl substituent; at each independent occurrence, R is hydrogen or a substituent comprising one or more groups selected from optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, hydroxy, halo, cyano, trifluoromethyl, trifluoromethoxy, nitro, trimethylsilyl, optionally substituted epoxide, optionally substituted glycidyl, optionally substituted acrylate, optionally substituted methacrylate, -ORa, -SRa, -OC(O)-Ra, -N(Ra)₂, -C(O)Ra, -C(O)ORa, -C(O)SRa, -SC(O)Ra, -OC(O)ORa, -OC(O)N(Ra)₂, -C(O)N(Ra)₂, -N(Ra)C(O)ORa, -N(Ra)C(O)Ra, -N(Ra)C(O)N(Ra)₂, -N(Ra)C(NRa)N(Ra)₂, -N(Ra)S(O)tRa, -S(O)tRa, -S(O)tORa, -S(O)tN(Ra)₂, -S(O)tN(Ra)C(O)Ra, -O(O)P(ORa)₂, and -O(S)P(ORa)₂; m is an integer from 1 to 8; n is independently at each occurrence an integer from 0 to 5; t is 1 or 2; each Ra is independently selected from hydrogen, optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl; and wherein the compound of Formula I comprises at least one R substituent comprising at least one polymerizable or crosslinkable group.

ANTHRAQUINONE DERIVATIZED MONOMERS AND POLYMERS FOR VOLUME BRAGG GRATINGS

The disclosure provides recording materials including anthraquinone derivatized monomers and polymers for use in volume Bragg gratings, including, but not limited to, volume Bragg gratings for holography applications. Several structures are disclosed for anthraquinone derivatized monomers and polymers for use in Bragg gratings applications, leading to materials with higher refractive index, low birefringence, and high transparency. The disclosed anthraquinone derivatized monomers and polymers thereof can be used in any volume Bragg gratings materials, including two-stage polymer materials where a matrix is cured in a first step, and then the volume Bragg grating is written by way of a second curing step of a monomer.



CLAIM 1. A compound of Formula I: wherein in Formula I: A, B, and C are independently at each occurrence selected from optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl, wherein A and B are fused, and B and C are fused; R is at each independent occurrence hydrogen or a substituent comprising one or more groups selected from optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, hydroxy, halo, cyano, trifluoromethyl, trifluoromethoxy, nitro, trimethylsilyl, optionally substituted epoxide, optionally substituted glycidyl, optionally substituted acrylate, optionally substituted methacrylate, -ORa, -SR, -OC(O)-Ra, -N(Ra)₂, -C(O)Ra, -C(O)ORa, -C(O)SRa, -SC(O)Ra, -OC(O)ORa, -OC(O)N(Ra)₂, -C(O)N(Ra)₂, -N(Ra)C(O)ORa, -N(Ra)C(O)Ra, -N(Ra)C(O)N(Ra)₂, -N(Ra)C(NRa)N(Ra)₂, -N(Ra)S(O)tRa, -S(O)tRa, -S(O)tORa, -S(O)tN(Ra)₂, -S(O)tN(Ra)C(O)Ra, -O(O)P(ORa)₂, and -O(S)P(ORa)₂, n is independently at each occurrence an integer from 0 to 5; t is 1 or 2; Ra is independently selected at each occurrence from hydrogen, optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl; and wherein the compound of Formula I comprises at least one R substituent comprising at least one polymerizable or crosslinkable group.

N7770

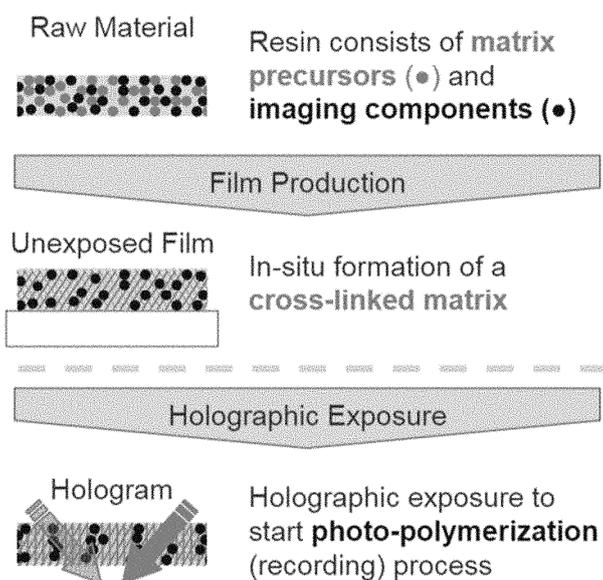
US20210155584

Priority Date: 27/11/2019

FACEBOOK TECHNOLOGIES

AROMATIC SUBSTITUTED METHANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS

The disclosure provides recording materials including aromatic substituted methane-core derivatized monomers and polymers for use in volume Bragg gratings, including, but not limited to, volume Bragg gratings for holography applications. Several structures are disclosed for monomers and polymers for use in Bragg gratings applications leading to materials with higher refractive index, low birefringence, and high transparency. The disclosed derivatized monomers and polymers thereof can be used in any volume Bragg gratings materials, including two-stage polymer materials where a matrix is cured in a first step, and then the volume Bragg grating is written by way of a second curing step of a monomer.



CLAIM 1. A compound of Formula I(a), I(b), or I(c): wherein in Formulas I(a), I(b), and I(c): Ar is at each independent occurrence an optionally substituted aryl substituent; R is at each independent occurrence hydrogen or a substituent comprising one or more groups selected from optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, hydroxy, halo, cyano, trifluoromethyl, trifluoromethoxy, nitro, trimethylsilyl, optionally substituted epoxide, optionally substituted glycidyl, optionally substituted acrylate, optionally substituted methacrylate, -ORa, -SR, -OC(O)-Ra, -N(Ra)₂, -C(O)Ra, -C(O)ORa, -C(O)SRa, -SC(O)Ra, -OC(O)ORa, -OC(O)N(Ra)₂, -C(O)N(Ra)₂, -N(Ra)C(O)ORa, -N(Ra)C(O)Ra, -N(Ra)C(O)N(Ra)₂, -N(Ra)C(NRa)N(Ra)₂, -N(Ra)S(O)tRa, -S(O)tRa, -S(O)tORa, -S(O)tN(Ra)₂, -S(O)tN(Ra)C(O)Ra, -O(O)P(ORa)₂, and -O(S)P(ORa)₂; n is independently at each occurrence an integer from 0 to 7; t is 1 or 2; each of R1, R2, R3, and Ra is independently selected at each occurrence from hydrogen, optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl; and at least one of R, R1, R2, and R3 independently comprises at least one polymerizable or crosslinkable group.

N7771

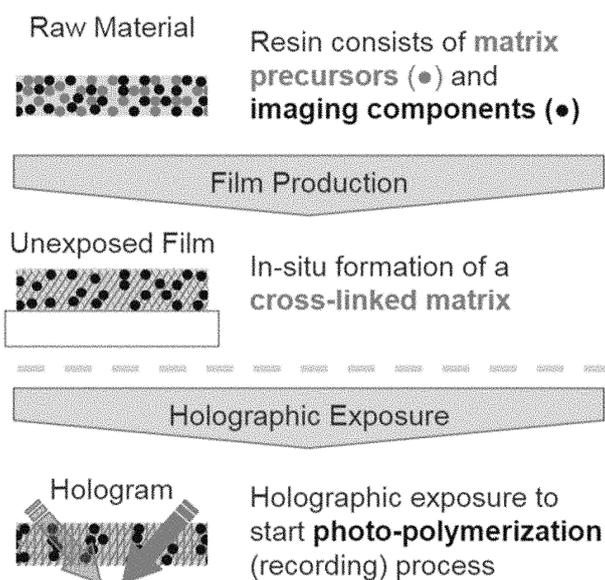
US20210155581

Priority Date: 27/11/2019

FACEBOOK TECHNOLOGIES

AROMATIC SUBSTITUTED ETHANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS

The disclosure provides recording materials including aromatic substituted ethane-core derivatized monomers and polymers for use in volume Bragg gratings, including, but not limited to, volume Bragg gratings for holography applications. Several structures are disclosed for monomers and polymers for use in Bragg gratings applications, leading to materials with higher refractive index, low birefringence, and high transparency. The disclosed derivatized monomers and polymers thereof can be used in any volume Bragg gratings materials, including two-stage polymer materials where a matrix is cured in a first step, and then the volume Bragg grating is written by way of a second curing step of a monomer.



CLAIM 1. A compound of Formula III(a), III(b), III(c), III(d), or III(e): wherein in Formulas III (a), III(b), III(c), III(d), and III(e): Ar is at each independent occurrence an optionally substituted aryl substituent; R is at each independent occurrence hydrogen or a substituent comprising one or more groups selected from optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, hydroxy, halo, cyano, trifluoromethyl, trifluoromethoxy, nitro, trimethylsilyl, optionally substituted epoxide, optionally substituted glycidyl, optionally substituted acrylate, optionally substituted methacrylate, -ORa, -SR, -OC(O)-Ra, -N(Ra)₂, -C(O)Ra, -C(O)ORa, -C(O)SRa, -SC(O)Ra, -OC(O)ORa, -OC(O)N(Ra)₂, -C(O)N(Ra)₂, -N(Ra)C(O)ORa, -N(Ra)C(O)Ra, -N(Ra)C(O)N(Ra)₂, -N(Ra)C(NRa)N(Ra)₂, -N(Ra)S(O)tRa, -S(O)tRa, -S(O)tORa, -S(O)tN(Ra)₂, -S(O)tN(Ra)C(O)Ra, -O(O)P(ORa)₂, and -O(S)P(ORa)₂, n is independently at each occurrence an integer from 0 to 7; t is 1 or 2; each of R1, R2, R3, R4, R5, and Ra is independently selected at each occurrence from hydrogen, optionally substituted alkyl, optionally substituted heteroalkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, and optionally substituted heteroarylalkyl; and wherein the compound of Formula III(a), III(b), III(c), III(d), or III(e) comprises at least one R substituent comprising at least one polymerizable or crosslinkable group.

N7795

KR102241034

HOLOLAB

Priority Date: 18/10/2019

HOLOGRAM REPLICATION METHOD AND SYSTEM

The present invention relates to a hologram replication system. the hologram replication system includes a light source unit 10, a replication unit 20, and a moving unit 30, and replicates a radiator onto a coated object by using, as a reference beam, a spatially multiplexed beam in which a plurality of beams other than one beam are arranged in a space.

CLAIM 1. A hologram replication system, comprising: a light source unit (10); a replication unit (20); and a moving unit (30), wherein a plurality of beams other than one beam are arranged in a space as reference beams to replicate a radiator onto a covering object.

N7799

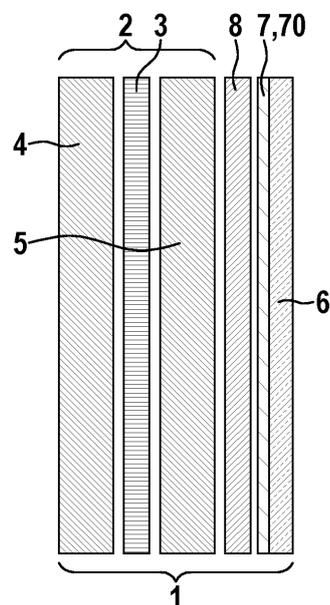
DE102019130022

BMW - BAYERISCHE MOTOREN WERKE

Priority Date: 07/11/2019

METHOD FOR INTEGRATING A HOLOGRAM IN A COMPOSITE PANE WITH A CURVED GEOMETRY, IN PARTICULAR IN A VEHICLE PANE, A RESULTING COMPOSITE PANE AND A VEHICLE CONTAINING THE SAME

The invention relates to a method for integrating a hologram, in particular a holographic optical element, in a composite pane of a predetermined curved geometry, in particular in a vehicle pane, comprising the following steps: - providing a partial composite pane comprising a plurality of already laminated panes, or an individual disc which already has the predetermined curved geometry; - providing a substrate disc with a hologram recording layer applied thereto or embedded therein, in particular of liquid photopolymer, in which the hologram is subsequently produced by a suitable exposure process; and - connecting the substrate wafer thus equipped with the hologram to the individual wafer or the partial composite by means of a connecting layer to form a wafer composite having the predetermined curved geometry by means of a lamination process which protects the hologram, in which the temperature does not exceed a predetermined maximum temperature and/or the pressure does not exceed a predetermined maximum pressure; - wherein the hologram in the wafer composite remains protected from the outside by the substrate wafer in that it is arranged between the substrate wafer and the individual wafer or the partial composite or is embedded in the substrate wafer.



CLAIM 1. Method for integrating a hologram, in particular a holographic optical element, in a composite pane (1) of a predetermined curved geometry, in particular in a vehicle pane, having the steps of: - providing (S1) a partial composite pane (2) which has a plurality of panes (4, 5), or an individual disc (20), which already has the predetermined curved geometry; - providing (S2, S3) a substrate disc (6) with a hologram recording layer (7) applied thereto or embedded therein, in particular made of liquid photopolymer, in which the hologram is subsequently produced by a suitable exposure process; and - connecting (S4) the substrate wafer (6) thus equipped with the hologram to the individual wafer (20) or the partial composite (2) by means of a connecting layer (8) to form a wafer composite (1) having the predetermined curved geometry by a lamination process which protects the hologram, wherein the temperature does not exceed a predetermined maximum temperature and/or the pressure does not exceed a predetermined maximum pressure; - wherein the hologram in the wafer composite (1) remains protected from the outside by the substrate wafer (6) in that it is arranged between the substrate wafer (6) and the individual wafer (20) or the partial composite (2) or is embedded in the substrate wafer (6).

N7815

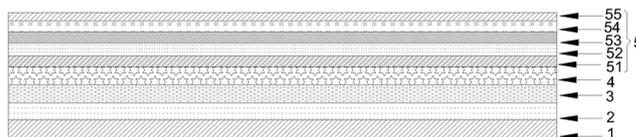
CN213108836U

Priority Date: 03/07/2020

SHENZHEN CHAMPION UNION STICKER PRODUCTS

360-DEGREE PHOTOPOLYMERIZATION HOLOGRAPHIC FILM

The utility model discloses a 360-degree photopolymerization holographic film, which comprises a transparent adhesive layer; the PET layer is coated on the surface of the transparent adhesive layer; the laser layer is hot-stamped on the surface of the PET layer; the color printing layer is printed on the surface of the laser layer, can carry out 360 degrees demonstration to the image, and the aesthetic property is better, has higher market competition, and the stereovision is stronger moreover, and the display effect is better.



CLAIM 1. 360 degree photopolymerization holographic film, characterized by comprising:

a transparent adhesive layer;

the PET layer is coated on the surface of the transparent adhesive layer;

the laser layer is hot-stamped on the surface of the PET layer;

a color printing layer printed on the surface of the laser layer, an

The photopolymer pattern layer is laminated on the surface of the laser layer through a glue coating machine;

the photopolymer pattern layer comprises:

the optical film layer refracts different light rays under the action of illumination;

the nickel plate layer is coated on the optical thin film layer;

the pattern layer is used for mapping the nickel plate layer through computer 3D drawing software to form a pattern;

a photopolymer film layer laminated on a surface of the pattern layer; and

a color layer; consisting of coloured metal or glass particles.

N7825

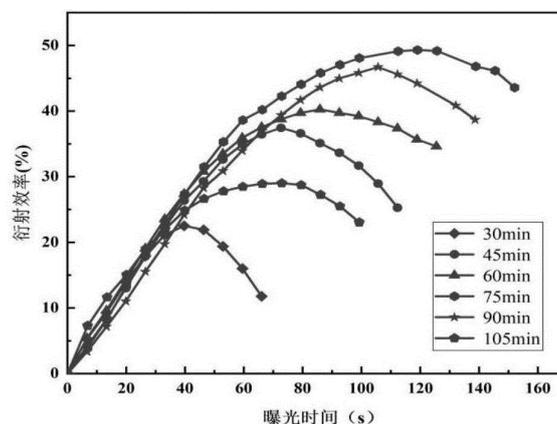
CN112812210

Priority Date: 21/01/2021

FUJIAN NORMAL UNIVERSITY

THERMAL POLYMERIZATION PROCESS OF PQ/PMMA PHOTOPOLYMER MATERIAL, PQ/PMMA PHOTOPOLYMER MATERIAL AND HOLOGRAPHIC OPTICAL DISK THEREOF

The invention discloses a thermal polymerization process of a PQ/PMMA photopolymer material, the PQ/PMMA photopolymer material and a holographic optical disk thereof. The thermal polymerization process comprises the steps of: weighing and proportioning raw materials including MMA, AIBN and PQ according to a preset mass ratio, and oscillating and uniformly mixing the proportioned mixture to obtain a mixed solution of the raw materials; pre-polymerizing and stirring the uniform mixed solution to obtain a viscous substance; and pouring the viscous substance into a mould, baking the viscous substance to change the viscous substance into a solidified PQ/PMMA photopolymer material, and then demoulding. The invention starts from the perspective of a thermal polymerization process for preparing the material, and further improves the optical properties of the material, such as diffraction efficiency, photosensitivity and the like, so that the material can be better applied to optical holographic storage.



CLAIM 1. A thermal polymerization process of PQ/PMMA photopolymer materials, comprising the steps of: mixing the following raw materials: weighing and proportioning MMA, AIBN and PQ according to a preset mass ratio, and oscillating and following the proportioned raw materials to obtain a mixed solution of the raw materials; pre-polymerizing and stirring a mixed solution obtained after the raw materials are mixed to obtain a viscous substance; and pouring the viscous substance into a mould, baking the viscous substance to change the viscous substance into a solidified PQ/PMMA photopolymer material, and then demoulding.

Click on the title to return to table of contents

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

N7763

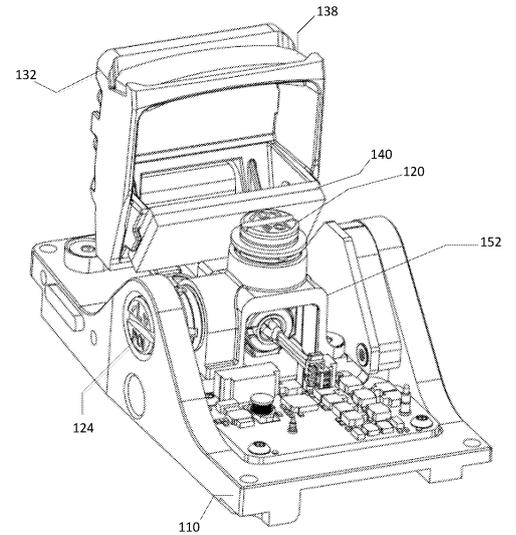
US20210157267
Priority Date: 21/11/2019

EOTECH

POSITION ADJUSTMENT IN HOLOGRAPHIC SIGHT

A holographic sight comprises a base, a support member attached to the base and extending upward therefrom, and a unitary optical component carrier formed with the support member. The support member is flexible and the unitary optical component carrier moveable in horizontal and vertical directions relative to the base. A bridge is attached to the base and forms an opening into which a portion of the unitary optical component carrier extends. A projection is coupled with the bridge and protrudes into the opening to abut the unitary optical component carrier. Extending the projection into the opening increases pressure applied by the projection to the optical component carrier. The increased pressure causes the unitary optical component carrier to be displaced.

CLAIM 1. A holographic sight comprising: a base; a unitary optical component carrier attached to the base, the unitary optical component carrier comprising a plurality of receptacles configured to receive optical components; a bridge attached to the base, the bridge forming an opening, a portion of the unitary optical component carrier extending within the opening; and a first projection coupled with the bridge and protruding from the bridge and into the opening, the first projection abutting the portion of the unitary optical component carrier.



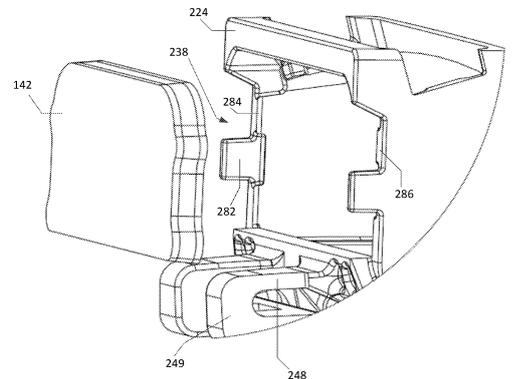
N7765

US20210157119
Priority Date: 21/11/2019

EOTECH

UNITARY CARRIER FOR HOLOGRAPHIC COMPONENTS

A holographic sight comprises a unitary optical component carrier. The unitary optical component carrier may comprise a body with a first receptacle configured to receive a laser diode, a second receptacle configured to receive a mirror, a third receptacle configured to receive a collimating optic, a fourth receptacle configured to receive a grating, and a fifth receptacle configured to receive an image hologram. A laser diode may be received within opposing walls formed by the first receptacle. A mirror may be received in, and abut one or more surfaces of the second receptacle. A collimating optic may be received in, and abut one or more surfaces of the third receptacle. A grating may be received in, and abut one or more surfaces of the fourth receptacle. A hologram image may be received in, and abut one or more surfaces of the fifth receptacle.



CLAIM 1. A chassis for a holographic sight comprising: a base; a support member integrally formed with the base and extending upward from the base; and a unitary optical component carrier integrally formed with the support member, the unitary optical component carrier comprising a first receptacle configured to receive a laser diode, a second receptacle configured to receive a mirror, a third receptacle configured to receive a collimating optic, a fourth receptacle configured to receive a diffraction grating, and a fifth receptacle configured to receive an image hologram.

N7766

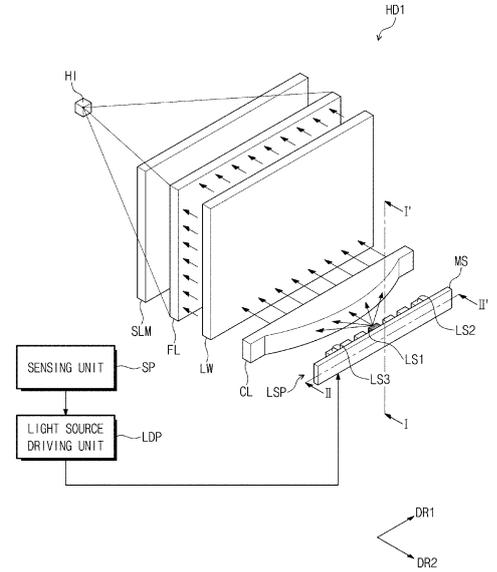
US20210157069
Priority Date: 25/11/2019

SAMSUNG DISPLAY

HOLOGRAM DISPLAY DEVICE

A hologram display device includes a light source unit, a light guide plate, a spatial light modulator, a sensing unit, and a light source driving unit. The light source unit includes a plurality of light sources and emits light when at least one of the plurality of light sources is turned on. The light guide plate converts the light emitted thereto from the light source unit to a planar light beam. The spatial light modulator spatially modulates the planar light beam to produce a hologram image. The sensing unit senses a position of a user watching the hologram image, and the light source driving unit turns on the at least one of the plurality of light sources, based on information on the position of the user obtained by the sensing unit.

CLAIM 1. A hologram display device, comprising: a light source unit comprising a plurality of light sources, wherein the light source emits light when at least one of the plurality of light sources is turned on; a light guide plate which converts the light emitted thereto from the light source unit to a planar light beam; a spatial light modulator which spatially modulates the planar light beam to produce a hologram image; a sensing unit which senses a position of a user; and a light source driving unit which turns on at least one of the plurality of light sources, based on information on the position of the user obtained by the sensing unit.



N7774

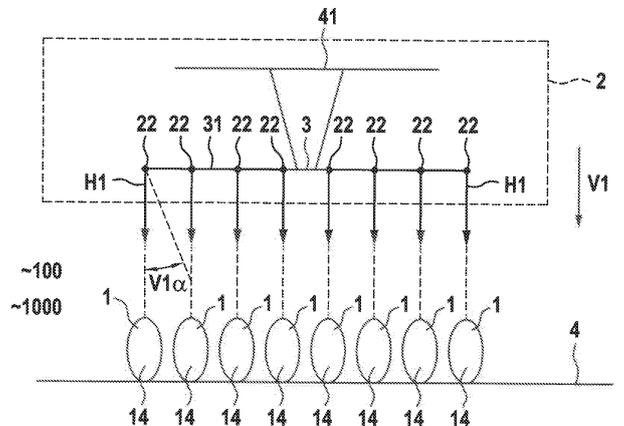
US20210141338
Priority Date: 12/11/2019

GELES ÖZGÜR

DEVICE FOR GENERATING AT LEAST ONE HOLOGRAM

Disclosed a method and device for generating at least one hologram, in particular for hologram-like presentation of game participants, including at least one hologram projection device for generating at least one hologram, at least one storage medium on which at least one previously played football game and/or another playing field game is at least partially stored, and at least one playback element which is in data communication with the storage medium and which supplies the hologram projection device with data to be projected. The data includes at least one data packet containing data of the previously played football game and/or the other playing field game, and including data of a location and/or a time and/or a physical condition of at least one game participant as a function of a playing time during a game are formed. Thus, these data can be reproduced by the hologram projection device, in particular in real time, in order to reproduce the football game and/or the playing field game by the hologram.

CLAIM 1. A method for generating at least one hologram, in particular for hologram-like presentation of game participants, comprising at least one hologram projection device configured for generating at least one hologram, at least one storage medium on which at least one previously played football game and/or another playing field game is at least partially stored, at least one playback element which is in data communication with the storage medium and which is configured to supply the hologram projection device with data to be projected, wherein the data comprise at least one data packet containing data of the previously played football game and/or the other playing field game, and this data comprising data of a location and/or a time and/or a physical condition of at least one game participant as a function of a playing time are formed during a game, so that these data are reproduced by the hologram projection device, in particular in real time, to reproduce the football game and/or the playing field game by the hologram.



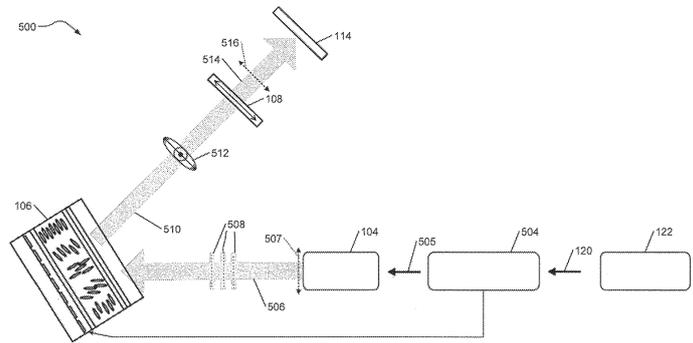
N7775

US20210141223
Priority Date: 07/11/2019

GM GLOBAL TECHNOLOGY OPERATIONS

HOLOGRAPHIC DISPLAY SYSTEMS WITH POLARIZATION CORRECTION AND DISTORTION REDUCTION PROVIDING ENHANCED IMAGE QUALITY

A holographic display system is provided and includes a light source, a holographic projector, and a polarizer. The light source is configured to generate a first light beam. The holographic projector includes a spatial light modulator configured to adjust phases of respective portions of the first light beam to generate a phase hologram beam. The phase hologram beam comprises a first polarization and a second polarization. The polarizer is configured to filter out light having the first polarization from the phase hologram beam to provide at least a portion of a filtered phase hologram beam at a diffuser to generate a holographic image, wherein the filtered phase hologram beam includes light with the second polarization and does not include light with the first polarization.



CLAIM 1. A holographic display system comprising: a light source configured to generate a first light beam; a holographic projector including a spatial light modulator configured to adjust phases of respective portions of the first light beam to generate a phase hologram beam, wherein the phase hologram beam comprises a first polarization and a second polarization; and a polarizer configured to filter out light having the first polarization from the phase hologram beam to provide at least a portion of a filtered phase hologram beam at a diffuser to generate a holographic image, wherein the filtered phase hologram beam includes light with the second polarization and does not include light with the first polarization.

N7776

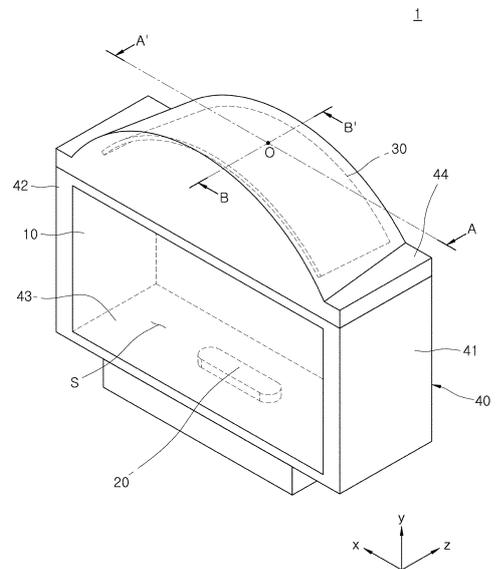
US20210132543
Priority Date: 01/11/2019

FUTURE TECHNOLOGY RESEARCH CENTER - HYUNDAI MOBIS

3D HOLOGRAM IMAGE PRODUCING LAMP FOR VEHICLE

A three-dimensional hologram image producing lamp for a vehicle comprises a light source, a hologram plate displaying a three-dimensional hologram image, a curved slope mirror having a reflecting surface shaped as a parabolic curved surface, facing the light source, and reflecting light, radiated from the light source, toward the hologram plate, and a housing disposed on a lamp receptacle of a vehicle body and having the hologram plate, the light source, and the curved slope mirror mounted thereon.

CLAIM 1 . A three-dimensional hologram image producing lamp for a vehicle, comprising: a light source; a hologram plate displaying a three-dimensional hologram image; a curved slope mirror having a reflecting surface shaped as a parabolic curved surface, facing the light source, and reflecting light, radiated from the light source, toward the hologram plate; and a housing disposed on a lamp receptacle of a vehicle body and having the hologram plate, the light source, and the curved slope mirror mounted thereon.



N7777

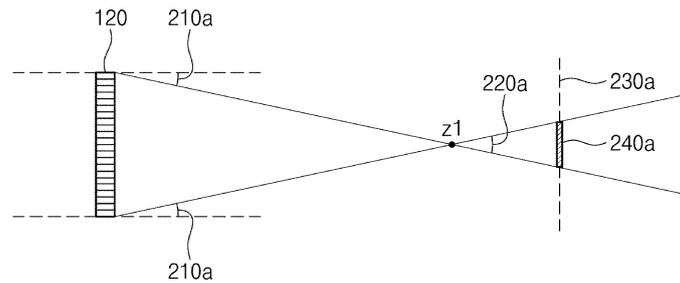
US20210124305

Priority Date: 23/10/2019

ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

HOLOGRAM DISPLAY DEVICE AND METHOD FOR MANUFACTURING THE SAME

Provided are a hologram display device and a method of manufacturing the hologram display device. The hologram display device includes a light source unit that emits light, a spatial light modulator that modulates the light emitted from the light source unit, and a random pinhole panel. The random pinhole panel includes a plurality of pinholes of a random position or a random size and is arranged in line with an output part of the spatial light modulator. In the hologram display device and the method of manufacturing the hologram display device, a position and size of a random pinhole on the random pinhole are not limited to inside each pixel of the spatial light modulator.



CLAIM 1. A hologram display device comprising: a light source unit configured to emit light; a spatial light modulator configured to modulate the light emitted from the light source unit; and a random pinhole panel configured to transmit the modulated light, and wherein the random pinhole panel includes a first pixel including a first pinhole and a second pixel adjacent to the first pixel in a first direction and including a second pinhole, and wherein the first pinhole is expanded to at least a portion of the second pixel.

N7780

TR201904031

Priority Date: 18/03/2019

YUSUF GÜLCAN

GLASSES WITH DIFFICULT NETWORK HOLOGRAM LENS

Glasses (A) used for invention, entertainment, promotion or promotional purposes and enabling the graphic image (30) in the desired pattern, symbol or shape around each light point to be observed holographically through the scattering mesh hologram lens (20) in the eyeglass frame (10). is about.

N7786

KR20210055167

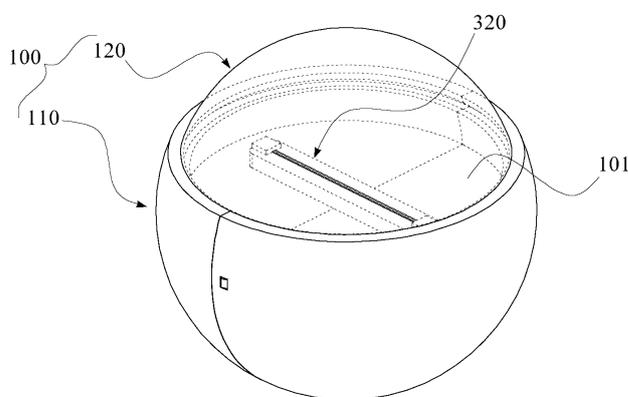
Priority Date: 07/11/2019

LEE, KYUNG EUN

SMART HOLOGRAM DISPLAY APPARATUS BASED ON USER SENSING

The present disclosure has a user-friendly function by actively displaying a hologram displayed according to a user's state or situation, and particularly, the present disclosure can determine safety and health related accidents of 1 furniture and transmit the same to the outside; A smart hologram display apparatus based on user's sensitivity is disclosed, which can provide an interior effect in an aesthetic manner, thereby improving functionality and product competitiveness. The apparatus includes: a device body unit having a predetermined shape; a user detection sensor unit provided in the device body unit and configured to detect an activity state of a user; a hologram display unit provided in the device body unit and configured to display a hologram; A speaker module unit provided in the device body unit and configured to generate sound; a communication module unit provided in the device body unit and configured to communicate with an external device; A user detection sensor unit, a hologram display device unit, a speaker module unit provided in the device body unit; a control circuit module unit configured to control a control operation of the communication module unit; and a power supply unit provided in the device body unit and configured to provide required power.

CLAIM 1. A hologram display device comprising: a device body having a predetermined shape; a user detection sensor unit provided in the device body and configured to detect an activity state of a user; a hologram display unit provided in the device body and configured to display a hologram; A speaker module unit provided in the device body unit and configured to generate sound; a communication module unit provided in the device body unit and configured to communicate with an external device; A user detection sensor unit, a hologram display device unit, a speaker module unit provided in the device body unit; a control circuit module unit configured to control a control operation of a communication module unit; and a power supply unit provided in the device body unit and configured to provide required power.



N7787

KR20210055126

Priority Date: 06/11/2019

HUMENIC

SENSORY COGNITIVE REHABILITATION TRAINING TABLE USING HOLOGRAM AND COGNITIVE REHABILITATION TRAINING METHOD

An immersive cognitive rehabilitation training table using holograms and a cognitive rehabilitation training method are provided. The realistic cognitive rehabilitation training table using holograms includes a base table, a display panel foldably installed on a top plate of the base table, a space panel rotatably installed on an upper end of the display panel, a light source unit configured to irradiate coherent light beams to the display panel to realise light emitted from the top plate of the base table, A hologram generating module configured to implement a hologram object in a training space formed by the spatial panel; a camera installed in the spatial panel and configured to photograph the training space; And a control module configured to analyze the spatial image captured by the camera to recognize a hand of a trainee entering the training space, and generate a designated event when the hand of the trainee overlaps with the hologram object.

CLAIM 1. A holographic display device, comprising: a basic table; a display panel foldably installed on a top surface of the basic table; a space panel rotatably installed on an upper end of the display panel; a hologram generating module configured to implement a hologram object in a training space formed by the top surface of the basic table, the display panel, and the space panel by irradiating coherent light beams to the display panel; A camera installed in the spatial panel and configured to photograph the training space; and a control module configured to analyze a spatial image photographed by the camera to recognize a hand of a trainee entering the training space, and generate a designated event when the hand of the trainee overlaps with the hologram object.

N7788

KR20210051961
Priority Date: 31/10/2019

KIM, DONG-JIN

BIOLOGICAL DATA PROJECTION SYSTEM USING REFLECTIVE HOLOGRAM

The present invention relates to a projection system using a hologram and a system for providing holographic biometric data using the same. More particularly, the present invention relates to a system for projecting biometric data using a hologram, which displays a three-dimensional image produced based on biometric data obtained from a measurer in the form of a hologram. The method includes acquiring biometric data through a biometric information acquisition sensor, reflecting the acquired biometric data in a three-dimensional (3 D) image, and allowing a user to receive his/her biometric information through hologram content through a reflective hologram system.

CLAIM 1. Provided is a system and method for acquiring data through a user's biometric data acquisition unit 200, generating a three-dimensional image 150 after verification through a system control unit 140, projecting the three-dimensional image 150 through an image projection unit 120, and confirming the user's biometric data as a hologram through a reflective hologram system 100 including a stereoscopic image generation unit 130.



N7791

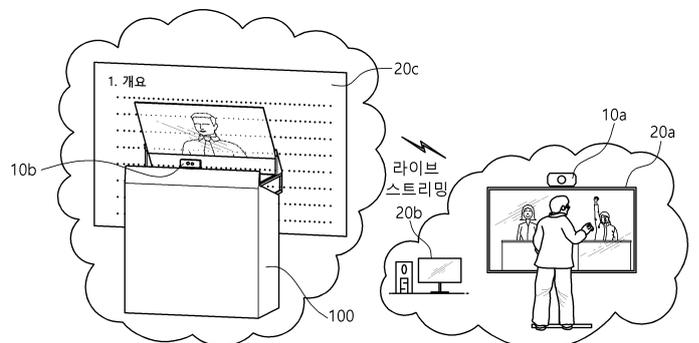
KR102253919
Priority Date: 28/04/2020

DILUSSION

APPARATUS AND METHOD FOR REMOTELY PROVIDING HOLOGRAM IMAGE

The present disclosure relates to an apparatus for remotely providing a hologram image and a method thereof. the apparatus for remotely providing a hologram image includes a presenter image receiver configured to receive a presenter image from a first camera photographing a presenter located at a distance, a hologram image converter configured to convert the received presenter image into a hologram image, A hologram image display unit configured to reflect and display the converted hologram image through the transparent screen, and a participant image acquisition unit configured to acquire a participant image from a second camera mounted to photograph a participant located at a specific location.

CLAIM 1. An image processing apparatus comprising: a presenter image receiving unit configured to receive a presenter image from a first camera photographing a presenter located at a distance; a hologram image converting unit configured to convert the received presenter image into a hologram image; A hologram image display unit configured to reflect and display the converted hologram image through a transparent screen; and a participant image transmission unit configured to transmit a participant image from a second camera mounted to photograph a participant located at a specific location, an image ratio adjuster configured to divide a chest line of a presenter from the converted hologram image and adjust a ratio of the hologram image by matching the divided chest line to a predetermined reference line of the transparent screen; an illuminance detector configured to receive illuminance information collected from an illuminance sensor provided at one side, an image brightness adjustment unit configured to adjust brightness of the hologram image according to the received illuminance information; and an image output unit configured to output the hologram image having the adjusted ratio and brightness to the transparent screen.



N7793

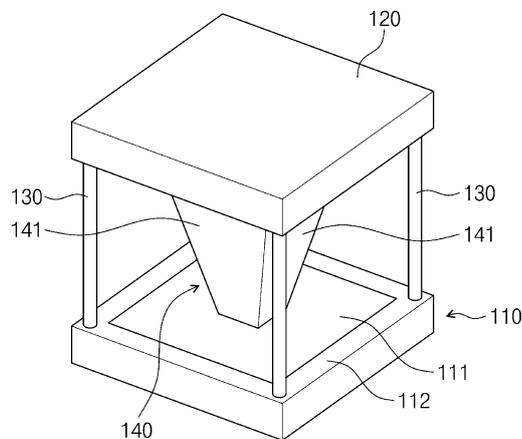
KR102250156

Priority Date: 26/02/2020

AHN, YONG SEOK

PORTABLE HOLOGRAPHIC DEVICE

A portable hologram device is provided. The portable hologram apparatus includes: a base panel configured to be switched between a hologram mode and a portable mode, the base panel including a screen unit configured to output an image and a bezel unit configured to surround the screen unit; a cover panel disposed to face the base panel; A plurality of cover panels disposed between the base panel and the cover panel, wherein the plurality of cover panels are operated to be perpendicular to the base panel and the cover panel in the hologram mode to separate the base panel from the cover panel, A support rod configured to be operated in a horizontal direction with respect to the base panel and the cover panel in the portable mode; and a support member provided between the base panel and the cover panel, And a hologram display unit configured to display an image output to the screen unit as a hologram image in the hologram mode and to be folded into a compressed form by a close contact between the base panel and the cover panel by the support rod in the portable mode.



CLAIM 1. A display device includes a base panel configured to be switched to a hologram mode and a portable mode, the base panel including a screen unit configured to output an image and a bezel unit configured to surround the screen unit, a cover panel disposed to face the base panel, A support rod configured to be operated in a shape perpendicular to the base panel and the cover panel in the hologram mode to separate the base panel and the cover panel from each other, and configured to be operated in a shape horizontal to the base panel and the cover panel in the portable mode; and a support rod provided between the base panel and the cover panel, And a hologram display unit configured to display an image output to the screen unit as a hologram image in the hologram mode and to be folded into a compressed form by a close contact between the base panel and the cover panel by the support rod in the portable mode, wherein both longitudinal ends of the support rod are rotatably coupled to the base panel and the cover panel, The cover panel operates the support rod by rotating clockwise or counterclockwise so that the support rod is perpendicular or horizontal to the base panel and the cover panel, and the hologram display unit is twisted and unfolded or folded according to the operation of the support rod.

N7796

JP6866528

Priority Date: 30/07/2020

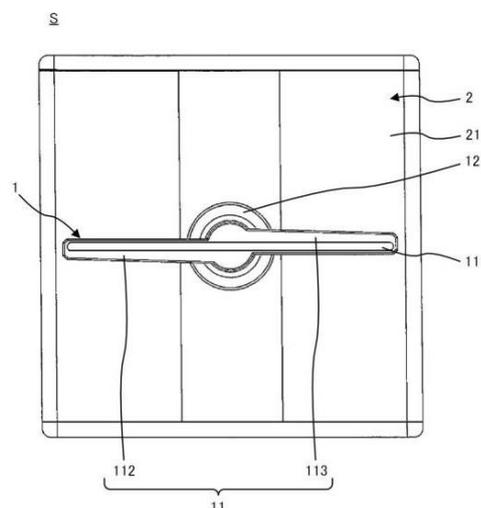
RESEARCH CORPORATION

HOLOGRAPHIC PROJECTION DEVICE

TOPIC: To make it easier to see a projected video in a holographic projection device.

INVENTION: a holographic projection device S includes: a holographic projection fan 1 having a rotatable blade 11 in which a plurality of light sources 111 are disposed, and a base 12 that functions as a rotational axis for the blade 11; A fixing portion 2 on which a side of the base 12 opposite to a side on which the blades 11 are provided is fixed, and on which a rear surface 21, which is a surface on a side of the holographic projection fan 1, is black.

CLAIM 1. A display device comprising: a holographic projection fan including a rotatable blade in which a plurality of light sources are disposed, and a base functioning as a rotational axis of the blade; and a rear surface being a surface on a side of the base opposite to a side on which the blade is provided, the rear surface being a surface on a side of the holographic projection fan being black; First A fixing portion; A second fixing part provided in front of the blade, having a surface parallel to a rotating surface of the blade, and being a disk through which light emitted by the plurality of light sources passes; and And a holographic projection device.



N7797

IN202121011680

Priority Date: 19/03/2021

PAWAR MOHANDAS VISHWANATH - PAWAR ASHA MOHANDAS – PRASANTH HRIDYA K - PARIKH AYUSHI D

PROJECT 2D BLUEPRINTS INTO REAL-WORLD 3D PLANS USING HOLOGRAM HOME

With the fast increasing population, providing proper and safe shelter for the people has become an unrelenting demand. Leading to a massive increase in the construction industry and its reach. Thus, the construction process needs to be made easy and understandable for ordinary people, as they are the built structure's end-users. The construction industry in the world is growing at a considerable rate nowadays with the development in society. People are occupying all the places possible and building their homes or offices there. The industry contributes 55% share in the Steel industry, 15% in the Paint industry and 30% in the Glass industry. This project aims to make construction more straightforward and quicker by creating a holographic projection of the building/ home they want to construct beforehand. This project's software platform would enable users to select the building type from skyscrapers to bungalows. They can select the type of plaster, bricks, cement and all other essential construction utilities and the constructor's help. With these small details, the constructor will use hologram projectors to produce the designs, which the user can customize on their own and build their dream home just as they have imagined. Hence, with the easy construction process, we aim to minimize paper and other stationery items to preserve the environment through the little things. As construction requires many ideas to be presented as paperwork and is quite tedious, using software tools makes it easier for users and the builder.

13. DIAGRAMS:

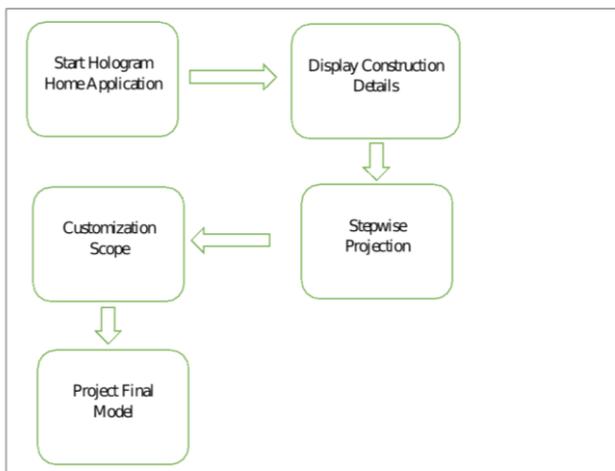


Fig. 1A: Architecture of Hologram Home

CLAIM 1. This invention will provide a visual projection of the designs created by its users in the real world using holograms and various other 3D projectors to understand how the finished construction will look.

N7798

FR3103289

Priority Date: 14/11/2019

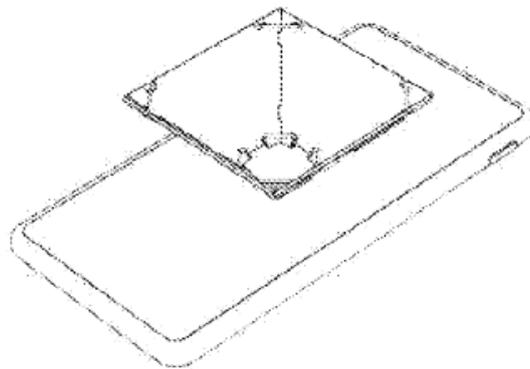
RABEH HATEM - CLAVERIE FRÉDÉRIC PIERRE – KHARBOUCHI
HOUSSAM

HOLOX FOLDABLE HOLOGRAM

Hologram photo and / or video projection device for smartphones and / or tablets. The invention relates to a foldable, mobile hologram photo or video projection device capable of adhering to the screen of the smartphone or tablet and provided with a pocket carrying case. It consists of four transparent trapezoidal panels with notches at the base and top and tabs on one side and notches on the opposite side. The transparent trapezoidal panels are assembled by elastic bands to form an articulated quadrangular pyramid. The invention also consists of a square piece which has four peripheral lugs and a face comprising nano suction cups and a box for storing the quadrangular pyramid. The user places the face with the nano-suction cups on the screen of the smartphone or tablet and then clips the pyramid above to view the photos or videos. Then he folds the pyramid and stores it with the square piece in the case. The device according to the invention is particularly intended for the projection of videos and / or hologram photos for smartphones or tablets as a toy for children and adolescents or for promotional purposes intended for advertising.

HOLOGRAMME PLIABLE HOLOX

Dispositif de projection de photo et/ou vidéo d'hologramme pour les smartphones et/ou les tablettes. L'invention concerne un appareil de projection de vidéos ou de photos d'hologramme pliable, mobile, capable d'adhérer à l'écran du smartphone ou de la tablette et fourni avec un boîtier de transport de poche. Il est constitué de quatre panneaux trapézoïdaux transparent présentant des encoches au niveau de la base et le sommet et des ergots sur un côté et des encoches sur le côté opposé. Les panneaux trapézoïdaux transparent sont assemblés par des élastiques pour former une pyramide quadrangulaire articulée. L'invention est constituée aussi d'une pièce carrée qui comporte quatre ergots périphériques et une face comportant des nano ventouses et un boîtier pour ranger la pyramide quadrangulaire. L'utilisateur pose la face comportant les nano-ventouse sur l'écran du smartphone ou de la tablette puis vient clipser la pyramide au-dessus pour visualiser les photos ou les vidéos. Ensuite, il plie la pyramide et la range avec la pièce carrée dans le boîtier. Le dispositif selon l'invention est particulièrement destiné à la projection des vidéos et ou des photos d'hologramme pour smartphone ou tablette comme étant un jouet pour enfants et adolescent ou à but promotionnel destiné à la publicité.



CLAIM 1. Device for projecting a hologram of videos and/or photos for smartphones or tablets, characterized in that it comprises four transparent trapezoidal panels, a square piece and a casing:

N7800

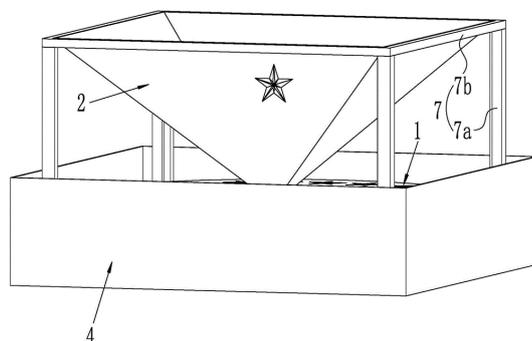
CN213276252U

Priority Date: 02/11/2020

CHONGQING REBO LIGHTING & ELECTRONICS

IMAGE DISC SUITABLE FOR HOLOGRAPHIC PROJECTION AND HIGH-COST-PERFORMANCE HOLOGRAPHIC PROJECTION DISPLAY EQUIPMENT

The utility model discloses an image dish suitable for holographic projection, including the image dish body, have N group's projection source image on the image dish body, every group projection source image comprises four single images that are cross symmetric distribution. The utility model also discloses a high price/performance ratio holographic projection display device, including image disc, formation of image battery of lens, drive arrangement and four light sources, four light sources respectively with four formation of image lens one-to-ones. The image disc suitable for holographic projection and the high-cost-performance holographic projection display equipment adopting the technical scheme have the advantages of novel structure, ingenious design and easiness in implementation, can generate simple dynamic three-dimensional images



which can be continuously and circularly played, can be matched with human-computer interaction at the same time, and has better interaction effect; simple, stable and reliable, durable, low in cost and high in economic and market value.

CLAIM 1. An image disk suitable for holographic projection, comprising: the image disc comprises an image disc body (1), wherein N groups of projection source images are arranged on the image disc body (1), each group of projection source images consists of four single images (1 a) which are symmetrically distributed in a cross shape, 4N single images (1 a) are uniformly distributed on the image disc body (1) in an annular shape, the part of the image disc body (1) with the single images (1 a) can be light-transmitting, and the rest parts are light-proof.

N7801

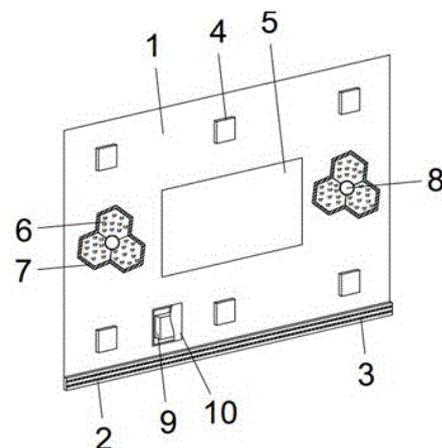
CN213268725U

Priority Date: 09/09/2020

SHENZHEN HONG YUAN CONSTRUCTION PROJECT

ATMOSPHERE DECORATION WALL SURFACE STRUCTURE BASED ON 3D HOLOGRAPHIC TECHNOLOGY

The utility model relates to a wall decoration technical field discloses an atmosphere decoration wall structure based on 3D holographic technique, which comprises a wall body, the lower limb of wall body is equipped with the foot kickboard, the embedded phosphor strip that installs of surface of foot kickboard, the surface of wall body is equipped with the wall lamp along length direction, the wall lamp is including pasting board and sliding connection and be in paste the wall lamp main part on the board, the center of wall body is equipped with 3D holographic projection district, the both sides in 3D holographic projection district are equipped with the sign sticker, the border of sign sticker is equipped with atmosphere lamp area, the inside of sign sticker is equipped with human infrared inductor, the bottom of wall body is equipped with the recess, be equipped with the controller in the recess. The utility model discloses wall structure is decorated to atmosphere's compact structure, the overall arrangement is novel, and the wall third dimension is stronger, and the function is abundant, and the space resource of make full use of wall has realized the art and has beautified the effect.



CLAIM 1. The utility model provides an atmosphere decoration wall structure based on 3D holographic technique, includes wall body (1), its characterized in that: the lower edge of the wall body (1) is provided with a foot kickboard (2), the outer surface of the foot kickboard (2) is embedded with a fluorescent strip (3), the wall lamp is characterized in that a wall lamp (4) is arranged on the surface of the wall body (1) along the length direction and comprises a pasting plate (41) and a wall lamp main body (42) which is connected to the pasting plate (41) in a sliding manner, a 3D holographic projection area (5) is arranged at the center of the wall body (1), identification stickers (6) are arranged on two sides of the 3D holographic projection area (5), an atmosphere lamp belt (7) is arranged around the identification sticker (6), a human body infrared sensor (8) is arranged inside the identification sticker (6), the bottom of the wall body (1) is provided with a groove, a controller (9) is arranged in the groove, the wall lamp (4), the atmosphere lamp belt (7), the human body infrared sensor (8) and the controller (9) are electrically connected.

N7802

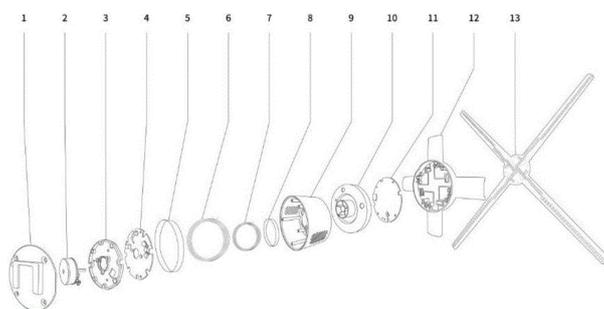
CN213241712U

Priority Date: 09/10/2020

SHENZHEN JIWOKOS TECHNOLOGY

HOLOGRAPHIC ROTARY DISPLAY EQUIPMENT WITH EMERGENCY STOP PROTECTION FUNCTION

The utility model discloses a holographic rotary display device with emergency stop protection function, which comprises a device body, wherein the device body consists of a rotary assembly and a fixed assembly, the rotary assembly comprises a wireless power supply receiving end coil, a wireless power supply receiving end magnetism isolating sheet, a rotary assembly fixing member, a main control panel, a lamp panel fixing member and a LED lamp panel, the fixed assembly comprises a power interface fixing base, a brushless Hall driving motor, a motor and driving panel fixing member, a motor driving panel, a wireless power supply transmitting end magnetism isolating sheet, a wireless power supply transmitting end coil and a fixing member protecting shell, the brushless Hall driving motor comprises a rotor, a stator and a Hall sensor, the stator is fixed on the motor and driving panel fixing member, the rotor is connected with the rotary assembly, the utility model achieves emergency brake protection of a rotary display screen and a device in a rotary working state through algorithm optimization and hardware control, avoid causing secondary injury, reduce personal and property loss etc..



CLAIM 1. The utility model provides a holographic rotary display device with scram protect function, includes the equipment body, its characterized in that: the device body consists of a rotating assembly (14) and a fixed assembly (15), the rotating assembly (14) comprises a wireless power supply receiving end coil (7), a wireless power supply receiving end magnetism isolating sheet (8), a rotating part fixing piece (10), a main control board (11), a lamp panel fixing piece (12) and an LED lamp panel (13), the fixed assembly (15) comprises a power interface fixing base (1), a brushless Hall driving motor (2), a motor and driving board fixing piece (3), a motor driving board (4), a wireless power supply transmitting end magnetism isolating sheet (5), a wireless power supply transmitting end coil (6) and a fixing piece protecting shell (9), the brushless Hall driving motor (2) comprises a rotor, a stator and a Hall sensor, the stator is fixed on the motor and driving board fixing piece (3), the rotor is connected with the rotating assembly (14), and the Hall sensor is electrically connected with the motor driving board (4), the brushless Hall driving motor (2) is fixedly connected with the driving plate fixing piece (3), the motor driving plate (4) comprises a power supply and protection circuit, a single chip microcomputer, a wireless motor driver, a wireless power supply transmitting circuit and an infrared communication conditioning circuit, the motor driving plate (4) is fixed on one side of the motor and driving plate fixing piece (3), the motor driving plate (4) is electrically connected with the brushless Hall driving motor (2) and an ARM processor in the main control board (11) respectively, the wireless power supply transmitting end coil (6) is of a circular ring type hollow structure, the wireless power supply transmitting end coil (6) is fixedly connected to the motor driving plate (4), and the wireless power supply transmitting end magnetic isolation sheet (5) is attached to the outer ring wall of the wireless power supply transmitting end coil (6).

N7803

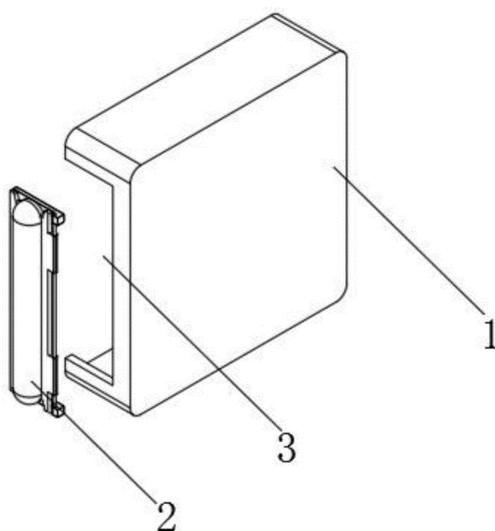
CN213240790U

Priority Date: 25/11/2020

SHENZHEN JIMOKO TECHNOLOGY

PORTABLE HOLOGRAPHIC PROJECTION DISPLAY

The utility model discloses a portable holographic projection display, including display protective housing, the butt joint groove has been set up to display protective housing's lateral wall, and installs interface protective structure in the inslot in butt joint groove, interface protective structure includes U type mount, first connecting hole, connects bull stick, fixed plate, arc protection casing, second connecting hole, first cavity, first depressed groove, rubber protection casing, the fixed cover of rubber and second cavity, and the last lower extreme of U type mount has set up first connecting hole, the built-in connection of U type mount has the fixed plate. A portable holographic projection display, belong to the display field, set up interface protective structure, interface protective structure passes through the activity setting between fixed plate and the U type mount, conveniently opens the arc protection casing, through the setting of arc protection casing and rubber protection casing, the rubber protection casing can protect the kneck, improves the barrier propterty of kneck to a certain extent.



CLAIM 1. A portable holographic projection display, characterized by: comprises a display protective shell (1), wherein a butt joint groove (3) is formed in the side wall of the display protective shell (1), an interface protective structure (2) is installed in the butt joint groove (3), the interface protective structure (2) comprises a U-shaped fixing frame (201), a first connecting hole (202), a connecting rotating rod (203), a fixing plate (204), an arc-shaped protective cover (205), a second connecting hole (206), a first cavity (207), a first concave groove (208), a rubber protective cover (209), a rubber fixing sleeve (210) and a second cavity (211), the upper end and the lower end of the U-shaped fixing frame (201) are provided with the first connecting hole (202), the fixing plate (204) is connected in the frame of the U-shaped fixing frame (201), the convex block of the side wall of the fixing plate (204) is provided with the second connecting hole (206), the arc-shaped protective cover (205) is inserted and connected in the, and first cavity (207) have been set up to the terminal surface of arc protection casing (205), first depressed groove (208) have been set up to the accent of first cavity (207), and the intracavity embedding of first cavity (207) has rubber protection casing (209), and the terminal surface of rubber protection casing (209) has set up second cavity (211), the fixed cover (210) of rubber have been cup jointed to the terminal surface lateral wall of rubber protection casing (209), U type mount (201) and fixed plate (204) are connected through connecting bull stick (203).

N7805

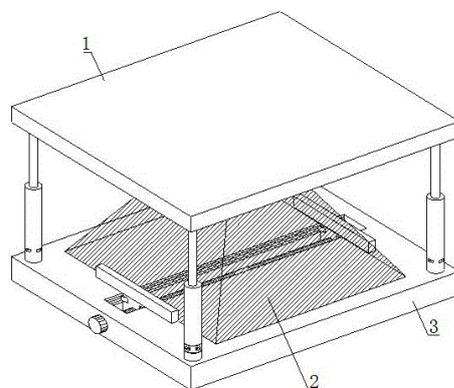
CN213211653U

Priority Date: 24/10/2020

DALIAN COLLEGE OF ART

VOICE EXPLANATION TYPE 3D HOLOGRAPHIC PROJECTION DISPLAY DEVICE FOR ENVIRONMENTAL DESIGN

The utility model discloses an environment design is with pronunciation explanation formula 3D holographically projected display device, including organism, projection cover and supporting mechanism, the projection cover is installed at the lower surface of organism, the supporting mechanism sets up the lower extreme at the projection cover, rotate the sealing ring, when rotating to linking up the position coincidence of groove and logical groove, carry out height control to the lift subassembly, be used for matching the projection cover of installing different size and different functions, enlarge the projection scope of object, after the installation finishes, cooperate the atmospheric pressure of outer pole inside to carry out the supporting action to the organism, reduce the pressure that the projection cover bore, and carry out the centre gripping to the projection cover fixedly, through the centre gripping subassembly including clamp splice and threaded rod, the clamp splice sets up at the both ends of threaded rod, the threaded rod includes first thread district and second thread district, the thread direction of first thread district is opposite with the second thread district, the rotating thread rod carries out centre gripping spacing to the lower extreme of projection cover, the stability of projecting shield installation is improved.



CLAIM 1. The utility model provides an explanation formula 3D holographically projected display device for environmental design, includes organism (1), projecting cage (2) and supporting mechanism (3), the lower surface at organism (1) is installed in projecting cage (2), and supporting mechanism (3) set up the lower extreme at projecting cage (2), its characterized in that: the supporting mechanism (3) comprises a base (31), a clamping assembly (32), a first lifting assembly (33) and a second lifting assembly (34), the clamping assembly (32) is arranged inside the base (31), and the first lifting assembly (33) and the second lifting assembly (34) are arranged at the corners of the upper surface of the base (31).

N7808

CN213199590U

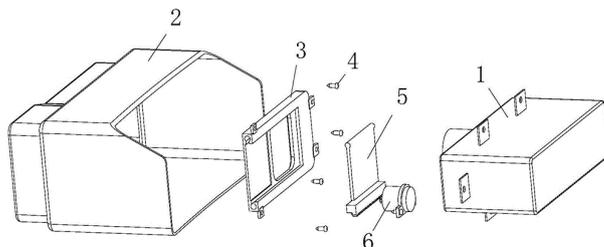
Priority Date: 07/08/2020

GREAT WALL MOTOR

PROJECTION PART PROTECTION STRUCTURE AND AUTOMOBILE HOLOGRAPHIC PROJECTION WARNING DEVICE

The utility model provides a projection part protective structure and holographic projection warning device of car, the utility model discloses a projection part protective structure is arranged in constituting the projection part to locating in the automobile body of vehicle and protects, is equipped with the projection exit hole that the projection light beam that supplies the projection part jets out on the automobile body, just protective structure is including being fixed in the protection casing in the automobile body to and locate the guard gate in the protection casing, the projection part is accepted in the protection casing, and is equipped with the projection light beam via hole that arranges corresponding to the projection exit hole on the protection casing, the guard gate is connected with the drive division transmission of locating in the protection casing, and under ordering about in the drive division, the guard gate can move for the protection casing to open or close the projection light beam via hole. The utility model discloses a projection part protective structure can form certain dustproof and waterproof effect to the projection part, and is favorable to ensuring projection part's normal use.

CLAIM 1. A projection component protection structure for constituting protection of a projection component provided in a body of a vehicle, characterized in that: the vehicle body is provided with a projection exit hole (901) for the projection beam of the projection component to exit, and the projection component protection structure comprises: the protective cover (2) is fixed in the vehicle body, the projection component is accommodated in the protective cover (2), and a projection beam through hole (201) arranged corresponding to the projection exit hole (901) is formed in the protective cover (2); the protective door (5) is arranged in the protective cover (2) and is in transmission connection with a driving part arranged in the protective cover (2), and under the driving of the driving part, the protective door (5) can move relative to the protective cover (2) to open or close the projection beam via hole (201).



N7809

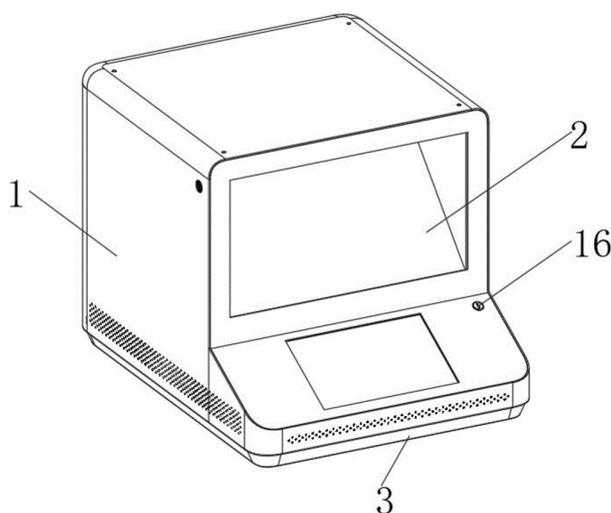
CN213183366U

Priority Date: 28/10/2020

CHANGYUAN TEFA TECHNOLOGY

INTELLIGENT INTERACTION DEVICE BASED ON 3D HOLOGRAPHIC TECHNOLOGY

The utility model discloses an intelligent interaction device based on 3D holographic technology, which comprises an equipment shell, an equipment inner shell and a bottom plate, wherein a holographic projection device which utilizes the interference and diffraction principle to display objects in three dimensions is arranged in the equipment inner shell, the intelligent interaction device which controls the equipment to operate is arranged outside the equipment shell, a foot cup device which fixedly connects the equipment inner shell and the equipment outer shell is arranged on the bottom plate, the intelligent interaction device realizes the fixing function of the whole device through the equipment outer shell, the equipment inner shell and the bottom plate, is convenient for an operator to operate, realizes the function of three-dimensional imaging of objects through the arranged holographic projection device, improves the interestingness of the device, realizes the control function of the whole device through the arranged intelligent interaction device, inserts required data into an electronic port through a U disk and the like for use, the application range of the device is expanded.



CLAIM 1. An intelligent interaction device based on 3D holographic technology comprises an outer equipment shell (1), an inner equipment shell (2) and a bottom plate (3), wherein the outer equipment shell (1) comprises a display platform (4) arranged above and an operation platform (5) arranged below, the inner equipment shell (2) comprises a display frame (6) arranged above and fixing columns (7) arranged below, and the intelligent interaction device is characterized in that: the equipment comprises an equipment inner shell (2), a holographic projection device (8) which is used for displaying an object in a three-dimensional mode by means of interference and diffraction principles is arranged in the equipment inner shell (2), an intelligent interaction device (9) which is used for controlling equipment to operate is arranged outside the equipment outer shell (1), and a foot cup device (10) which is used for fixedly connecting the equipment inner shell (2) and the equipment outer shell (1) is arranged on a bottom plate (3).

N7810

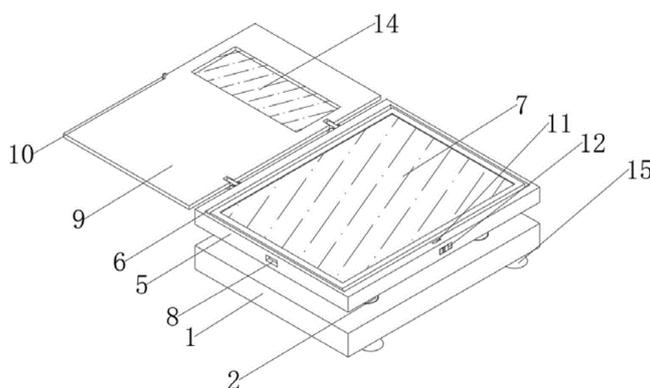
CN213177612U

Priority Date: 22/09/2020

SHENZHEN LIAN YONG POLYTRON TECHNOLOGIES

PANEL COMPUTER BASED ON ANTI-SHAKE HOLOGRAPHIC PROJECTION INTELLIGENT IMAGE

The utility model discloses a panel computer based on anti-shake holographic projection intelligence image, comprising a base plate, the last fixed surface swing joint of bottom plate has the regulating block, the lower fixed surface of regulating block is connected with adjusting bolt, the last fixed surface of regulating block is connected with damping spring, damping spring's last fixed surface is connected with the protective housing, the standing groove has been seted up to the inside of protective housing, the inside swing joint of standing groove has the computer, the wiring groove has been seted up to one side of protective housing. This panel computer based on anti-shake holographic projection intelligence image sets up through the cooperation of regulating block, damping spring and protective housing, and when taking place vibrations, damping spring can offset partly vibrations, reduces the influence of vibrations when to the projection, sets up through the cooperation of regulating block, adjusting bolt and bottom plate, can adjust the adjusting bolt at four angles according to the angle that the panel computer was placed, carries out the rising of difference or reduces.



CLAIM 1. Panel computer based on anti-shake holographic projection intelligence image, including bottom plate (1), its characterized in that: the upper surface of the bottom plate (1) is movably connected with an adjusting block (2), the lower surface of the adjusting block (2) is fixedly connected with an adjusting bolt (3), the upper surface of the adjusting block (2) is fixedly connected with a damping spring (4), the upper surface of the damping spring (4) is fixedly connected with a protective shell (5), a placing groove (6) is arranged in the protective shell (5), a computer (7) is movably connected in the placing groove (6), one side of the protective shell (5) is provided with a wiring groove (8), the back of the protective shell (5) is movably connected with a cover plate (9) through a hinge, a clamping block (10) is fixedly connected with one side of the front surface of the cover plate (9), a clamping groove (11) is formed in one side of the upper surface of the protective shell (5), the inside swing joint of draw-in groove (11) has slider (12), louvre (13) have been seted up to the lower surface of protective housing (5).

N7811

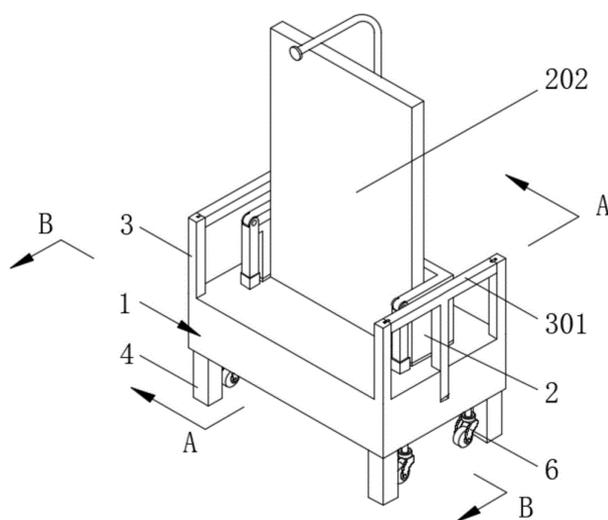
CN213150202U

Priority Date: 09/11/2020

XIN JIANG UNIVERSITY

HOLOGRAPHIC SCREEN DISPLAY DEVICE OF TOURISM PROPAGANDA

The utility model discloses a holographic screen display device for travel propaganda, which comprises a supporting base, a sun-proof net, a holographic screen, supporting columns and four groups of wheels arranged at the bottom end of the supporting base, wherein the supporting base comprises a base box, the base box is of a box body structure, the sun-proof net is arranged at the top end of the base box, the bottom end of the sun-proof net is fixedly connected at the top end of the base box through a connecting frame, the connecting frame is of a U-shaped plate structure, the holographic screen is arranged at the U-shaped opening position of the connecting frame, telescopic columns are arranged at the two ends of the U-shaped opening of the connecting frame, the bottom ends of the telescopic columns penetrate through the base box and are fixedly connected with the bottom end inside the base box, a guide rod is arranged at one side of the sun-proof net far away from the telescopic columns, an anti-falling block is arranged at the top end of the guide rod, a plurality of guide blocks sliding, the movement and the fixation are convenient; and the direct sunlight holographic screen can be avoided.



CLAIM 1. A holographic screen display device for travel propaganda comprises a supporting base (1), a sun-proof net (2), a holographic screen (202), supporting columns (4) and four groups of wheels (6) arranged at the bottom end of the supporting base (1); the method is characterized in that: the supporting base (1) comprises a base box (101), the base box (101) is of a box body structure, the top end of the base box (101) is provided with a sun-proof net (2), the bottom end of the sun-proof net (2) is fixedly connected with the top end of the base box (101) through a connecting frame (201), the connecting frame (201) is of a U-shaped plate-shaped structure, the holographic screen (202) is arranged at the U-shaped opening of the connecting frame (201), both ends of the U-shaped opening of the connecting frame (201) are provided with telescopic columns (203), the bottom end of the telescopic column (203) penetrates through the base box (101) and is fixedly connected with the bottom end in the base box (101), a guide rod (206) is arranged on one side of the sun-proof net (2) far away from the telescopic column (203), the top end of the guide rod (206) is provided with an anti-drop block (208), and the sun screen (2) is provided with a plurality of guide blocks (207) sliding on the guide rod (206); base case (101) side symmetry installs two sets of push rods (301), push rod (301) bottom is articulated with base case (101) side central point, set up the opening of adaptation push rod (301) on base case (101), roller (302) are installed to push rod (301) bottom, two gear (305), two are installed to roller (302) both ends symmetry support column (4) are all installed in gear (305) outside, one side that support column (4) are close to gear (305) is installed connecting plate (404), the teeth of a cogwheel (405) that have adaptation gear (305) are constructed on connecting plate (404).

N7812

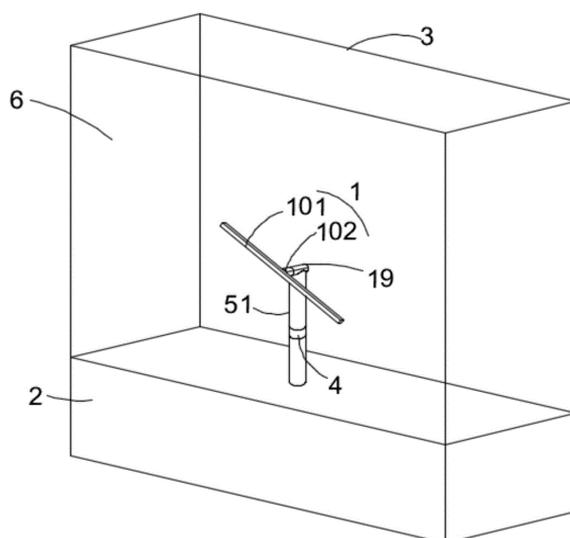
CN213123729U

Priority Date: 23/10/2020

SHENZHEN ENNO OPTOELECTRONICS TECHNOLOGY

HOLOGRAPHIC IMAGE DISPLAY DEVICE BASED ON TOUCH INTERACTION

The utility model relates to a holographic image display device based on touch interaction, which comprises a holographic fan, a base, a transparent cover, a human body tracking sensor and a rotating mechanism; arranging a transparent touch film on the transparent cover, and arranging the holographic fan in the transparent cover; the base is internally provided with an installation cavity for installing a rotating mechanism, and the rotating mechanism comprises a rotating shaft which is vertically arranged and a driving assembly for driving the rotating shaft to rotate; the rotating shaft penetrates into the transparent cover to fix the holographic fan, a first mounting groove for mounting a first induction coil is formed in one end, located in the mounting cavity, of the rotating shaft, and a second induction coil is arranged in the mounting cavity corresponding to the first induction coil; the pivot is located one of translucent cover and serves the second mounting groove that is equipped with and first mounting groove intercommunication, and human tracking sensor sets up in the second mounting groove, integrates human tracking sensor, first induction coil, second induction coil and rotary mechanism through prior art to realize that holographic fan follows personnel and rotate and guarantee best viewing angle, realize human-computer interaction through transparent touch film.



CLAIM 1. A holographic image display device based on touch interaction is characterized by comprising a holographic fan, a base, a transparent cover, a human body tracking sensor and a rotating mechanism for driving the holographic fan to rotate left and right; the transparent cover is arranged on the base, a transparent touch film is arranged on the outer side wall of the transparent cover, and the holographic fan is arranged in the transparent cover; the base is internally provided with an installation cavity for installing the rotating mechanism, and the rotating mechanism comprises a rotating shaft which is vertically arranged and a driving assembly for driving the rotating shaft to rotate; the upper end of the rotating shaft penetrates out of the mounting cavity and extends into the transparent cover, the holographic fan is fixed at the top end of the rotating shaft through a fixing piece, a first mounting groove is formed in one end, located in the mounting cavity, of the rotating shaft, a first induction coil is arranged in the first mounting groove, and a second induction coil is arranged in the mounting cavity and corresponds to the first induction coil; the pivot is located one of in the translucent cover serve be equipped with the second mounting groove of first mounting groove intercommunication, the human tracking sensor sets up in the second mounting groove.

N7813

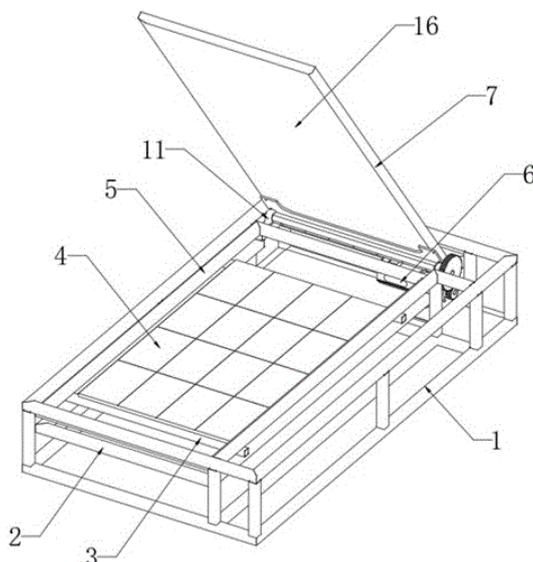
CN213123604U

Priority Date: 10/11/2020

SHANGHAI MANWEI INTELLIGENT TECHNOLOGY

180 DEGREE HOLOGRAPHIC PHANTOM IMAGING ELECTRIC 45 DEGREE OPENING AND CLOSING AUTOMATION DEVICE

The utility model discloses an electronic 45 degrees automation equipment that opens and shuts of 180 degree holographic phantom formation of image relates to holographic imaging device field, has occupation space big, be difficult for moving and the interactive relatively poor problem of experience sense to current holographic imaging device, now proposes following scheme, and it includes the main frame, be provided with the intermediate frame in the main frame, the top of main frame is provided with the top frame, and is located be provided with the display screen mount between intermediate frame and the top frame, the matching is provided with the display screen in the display screen mount, just the inside electric actuator that is provided with of one end of main frame, electric actuator includes the motor support, one side fixedly connected with reduction gear of motor support. The utility model discloses novel structure, the device structure is succinct be convenient for maintain, the simple operation uses in a flexible way and has the science and technology sense, has effectually solved current holographic imaging device and has that occupation space is big, be difficult for moving and interactive experience feels relatively poor problem.



CLAIM 1. The 1.180-degree holographic phantom imaging electric 45-degree opening and closing automation device comprises a main frame (1) and is characterized in that a middle frame (2) is arranged in the main frame (1), a top frame (5) is arranged at the top end of the main frame (1), a display screen fixing frame (3) is arranged between the middle frame (2) and the top frame (5), a display screen (4) is arranged in the display screen fixing frame (3) in a matched mode, an electric device (6) is arranged in one end of the main frame (1), the electric device (6) comprises a motor support (8), a speed reducer (9) is fixedly connected to one side of the motor support (8), a motor (10) is installed at one end, far away from the motor support (8), of the speed reducer (9) in a matched mode, a shaft seat (11) is installed at two sides of one end, close to the motor support (8), of the top frame (5), two sets of be provided with pivot (12) between axle bed (11), just the both ends of pivot (12) are the matching with the shaft hole of two sets of axle beds (11) respectively and cup joint, perisporium fixedly connected with mounting panel (13) of pivot (12), just one side fixedly connected with holographic imaging membrane mount (7) of pivot (12) are kept away from in mounting panel (13), the matching is provided with holographic imaging membrane (16) in holographic imaging membrane mount (7).

N7814

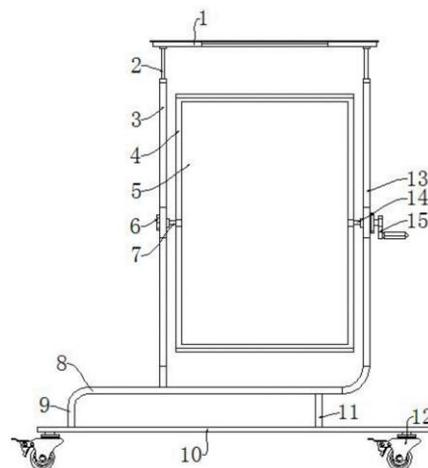
CN213122591U

Priority Date: 11/09/2020

MEIMING TECHNOLOGY XIAMEN

HOLOGRAPHIC THREE-DIMENSIONAL LIQUID CRYSTAL PROJECTION DISPLAY DEVICE

The utility model discloses a holographic three-dimensional liquid crystal projection display device, including the liquid crystal projection screen, first support and second support are installed respectively to the both sides of liquid crystal projection screen, the top cap is installed to the top of first support and second support, the automobile body frame is installed to the below of bracket. The utility model discloses a main body frame is by first support and second support combination, and the one end of second support is provided with the bracket of a body structure, and the bottom and the bracket connection of first support, this kind of design is easy to assemble and is dismantled, all install the top cap through first bracing piece at the top of first support and second support, the combination of conveniently splicing, the automobile body frame is installed to the below of bracket, through its transportation that makes things convenient for controlling means, can be applicable to the projection display of different positions, the flexibility is higher, the liquid crystal projection screen sets up to two-way arc structure, can carry out three-dimensional stereoscopic projection, and can carry out multi-direction demonstration.



CLAIM 1. A holographic three-dimensional stereo liquid crystal projection display device comprises a liquid crystal projection screen (5), and is characterized in that: first support (3) and second support (13) are installed respectively to the both sides of liquid crystal projection screen (5), top cap (1) is installed to the top of first support (3) and second support (13), bracket (8) are installed to the one end of second support (13), automobile body frame (10) are installed to the below of bracket (8).

N7816

CN213092641U

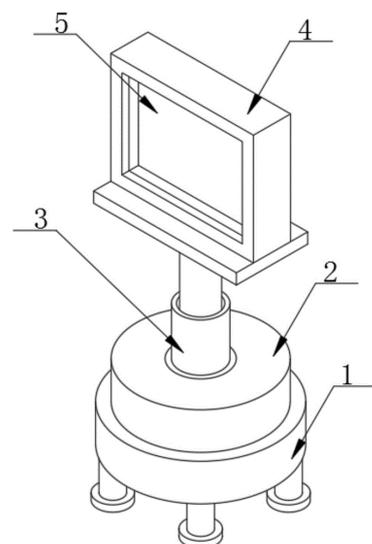
Priority Date: 15/07/2020

SHANGHAI FANQI OPTOELECTRONICS TECHNOLOGY

DIGITAL HOLOGRAPHIC PANORAMIC SAND TABLE SYSTEM

The utility model discloses a holographic panorama sand table system of digitization, including lower base and the last base of setting on base top under, the bottom of lower base inner chamber is equipped with first driving motor, first driving motor's output is connected with first bevel gear, one side of first bevel gear is connected with second bevel gear, one side of second bevel gear is connected with first threaded rod, the one end of first threaded rod is connected with the second threaded rod, the top of second threaded rod is connected with first backup pad, the top of first backup pad is equipped with the lift box, the top of lift box is equipped with the protection box. The utility model discloses a start among the first driving motor for first bevel gear meshing drives second bevel gear and rotates, and second bevel gear drives the second threaded rod through first threaded rod meshing and rotates, thereby makes the second threaded rod drive protection box and inside electronic screen through first backup pad and carries out the angle direction and adjust.

CLAIM 1. The utility model provides a holographic panorama sand table system of digitization, includes subbase (1) and sets up at last base (2) on subbase (1) top, its characterized in that: one end of the bottom of the inner chamber of the lower base (1) is provided with a first driving motor (11) which is vertically arranged, the output end of the first driving motor (11) is connected with a first bevel gear (12), one side of the first bevel gear (12) is engaged with a second bevel gear (13), a first threaded rod (131) is connected at the center of one side of the second bevel gear (13) in a penetrating and rotating way, one end of the first threaded rod (131) is engaged and connected with a second threaded rod (141), the second threaded rod (141) and the first threaded rod (131) are arranged in a staggered manner, the top end of the second threaded rod (141) is connected with a first supporting plate (14), the top of first backup pad (14) is equipped with lift box (6), the top of lift box (6) is equipped with protection box (4), be equipped with electronic screen (5) in protection box (4).



N7817

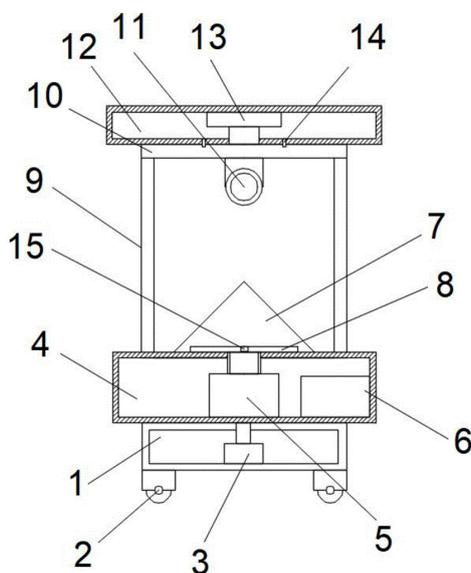
CN213092106U

Priority Date: 27/09/2020

ZHENGZHOU CHUANGSHIDAI NETWORK TECHNOLOGY

3D LASER HOLOGRAPHIC PROJECTION INTERACTIVE DISPLAY PLATFORM

The utility model relates to a holographic projection technical field just discloses an interactive show platform of 3D laser holographic projection, the on-line screen storage device comprises a base, the equal fixed mounting in bottom four corners of base has the universal wheel, the inside bottom side middle end fixed mounting of base has the push rod motor, the motor shaft activity of push rod motor runs through to the top side middle part of base, and spindle nose fixed mounting has the mount pad. The device catches the camera through the motion that sets up, when using, can record the action that the arm upwards waved with downwards earlier, then when the user upwards or waved the arm downwards, motion capture camera discerns this to control the push rod motor through embedded computer, thereby change the height of mount pad, thereby provide better bandwagon effect for this application, and the interactivity of this application is also stronger, arouses user's interest more easily.



CLAIM 1. The utility model provides an interactive show platform of 3D laser holography projection, includes base (1), its characterized in that: universal wheels (2) are fixedly mounted at four corners of the bottom end of the base (1), a push rod motor (3) is fixedly mounted at the middle end of the bottom side of the interior of the base (1), a motor shaft of the push rod motor (3) movably penetrates through the middle of the top side of the base (1), and a mounting seat (4) is fixedly mounted on a shaft head; a laser projector a (5) is fixedly installed on the bottom side inside the installation seat (4), a projection objective of the laser projector a (5) movably penetrates through the top side of the installation seat (4), an embedded computer (6) is fixedly installed on the right side inside the installation seat (4), a projection plate a (7) is fixedly installed in the middle of the top side of the installation seat (4), and a projection plate b (8) is fixedly installed at the front end of the top side of the installation seat (4); supporting rods (9) are fixedly mounted at four corners of the top end of the mounting seat (4), a top plate (10) is fixedly mounted at the top ends of the four supporting rods (9), a motion capture camera (11) is fixedly mounted at the middle end of the bottom side of the top plate (10), a top seat (12) is fixedly mounted at the top end of the top plate (10), a laser projector b (13) is fixedly mounted at the top side inside the top seat (12), and a projection objective lens of the laser projector b (13) movably penetrates through the bottom side of the top seat (12); the infrared detector (14) is fixedly mounted on two sides of the bottom of the top seat (12), and the infrared distance sensor (15) is fixedly mounted in the middle of the top side of the projection plate b (8).

N7818

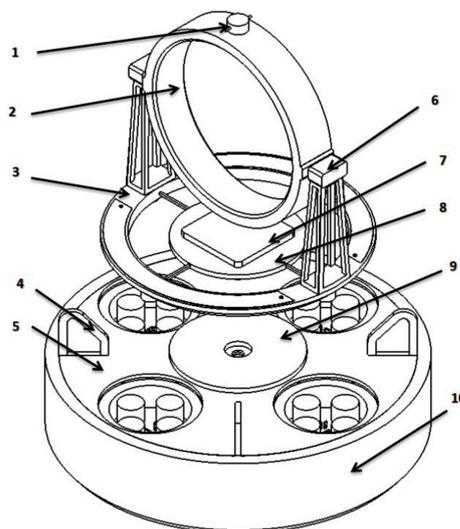
CN213089276U

Priority Date: 14/09/2020

WUXI INSTITUTE OF TECHNOLOGY

MAGNETIC SUSPENSION DEVICE OF HOLOGRAPHIC FAN

The utility model relates to a magnetic suspension technical field relates to a magnetic suspension device of holographic fan. The utility model has the advantages of simple structure, reasonable in design, high durability and convenient use, through the holographic fan of tighrening ring quick positioning, realize the precision positioning, the bolt will be all the fan to be fixed on the tighrening ring, it is fixed firm, it is quick convenient to change, it is applicable in the all the fan location of various models, the clamping subassembly sets up on the magnetic suspension seat, can make the magnetic suspension seat slide to the base top fast, make its normal suspension, can improve the availability factor greatly, can make the work that holographic fan and magnetic suspension device are stable, make the visual effect of holographic fan splendid more, gorgeous.



CLAIM 1. The magnetic suspension device of the holographic fan is characterized by comprising a clamping assembly, a magnetic suspension seat and a base, wherein the magnetic suspension seat is arranged above the base;

the clamping assembly comprises a clamping support and a fastening ring, the clamping support is arranged on the magnetic suspension seat, the fastening ring is arranged on the clamping support, a mounting hole for mounting the holographic fan is formed in the fastening ring, a bolt is arranged on the edge of the fastening ring, and the holographic fan is fixedly connected with the fastening ring through the bolt.

N7819

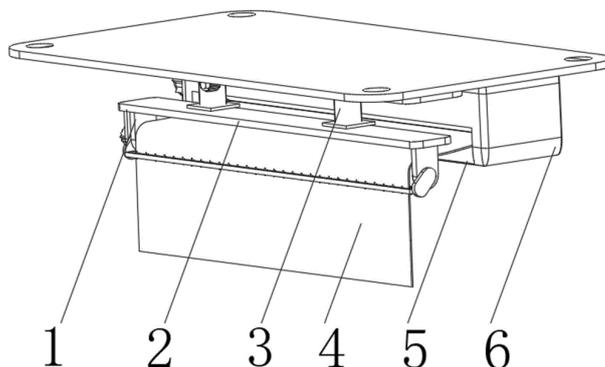
CN213069491U

Priority Date: 04/11/2020

WUHAN NEW PERSPECTIVE OPTOELECTRONIC TECHNOLOGY

NOVEL HOLOGRAPHIC SCREEN

The utility model provides a novel holographic yarn curtain relates to the projection equipment field, including the mounting panel, the bottom of mounting panel is fixed with the guide rail, the bottom of mounting panel is equipped with the sliding plate, and the sliding plate passes through guide rail sliding connection with the mounting panel, the bottom of mounting panel is fixed with push motor, push motor's output is equipped with the lead screw, and lead screw and push motor's output key-type connection, and lead screw and sliding plate swing joint, the bottom of sliding plate is fixed with the lift cylinder. The design of guide roller and lead screw is adopted, the yarn curtain slides out from the accommodating groove when using the yarn curtain, when sliding downwards along the guide roller, the distance between the accommodating box and the guide roller can be adjusted through the adjusting screw rod, the lifting cylinder can control the upper and lower displacement of the guide roller, the stress direction of the yarn curtain can be adjusted through the design, the yarn curtain is prevented from being folded and deformed when being wound, and the economic loss is reduced.



CLAIM 1. A novel holographic screen, includes mounting panel (11), its characterized in that: the bottom of mounting panel (11) is fixed with guide rail (10), the bottom of mounting panel (11) is equipped with sliding plate (21), and sliding plate (21) pass through guide rail (10) sliding connection with mounting panel (11), the bottom of mounting panel (11) is fixed with push motor (9), the output of push motor (9) is equipped with lead screw (18), and the output key-type connection of lead screw (18) and push motor (9), and lead screw (18) and sliding plate (21) swing joint, the bottom of sliding plate (21) is fixed with lift cylinder (3).

N7820

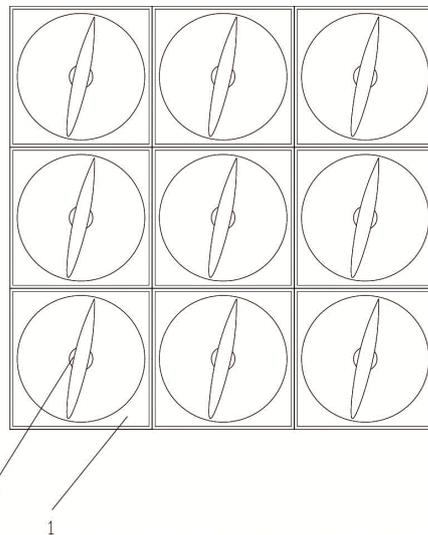
CN213069490U

Priority Date: 16/01/2020

NINGBO HIGH NEW DISTRICT YUANXIA SCIENCE & TECHNOLOGY

HOLOGRAPHIC IMAGE SYSTEM WITH ELECTROCHROMIC FUNCTION

The utility model discloses an use holographic image system of electrochromic function, set up in the holographic image module on ground including at least one, holographic image module top is provided with electrochromic module. The utility model provides a holographic image system applying electrochromic function, which can form images on the ground, has high ornamental value, can randomly change patterns, is very convenient and beautiful, is attractive, and brings beautiful experience to people; in addition, when the solar water heater is not used in the daytime, the solar water heater can conceal itself and avoid the internal structure from being observed.



CLAIM 1. A holographic image system applying electrochromic function is characterized in that: the device comprises at least one holographic image module (1) arranged on the ground, wherein an electrochromic module (5) is arranged at the top of the holographic image module (1); the electrochromic module (5) is a glass plate or a film; the transparent toughened glass (6) at the top of the holographic image module (1) is flush with the ground, and the electrochromic module (5) is attached to the lower part of the transparent toughened glass (6); a processing center is arranged at the inner bottom of the holographic image module (1), and the processing center controls the patterns displayed by the holographic image module (1) and can be connected with an external terminal to realize mutual transmission of signal data; the holographic image modules (1) can display patterns independently, or a plurality of holographic image modules (1) are matched with each other to display patterns.

N7821

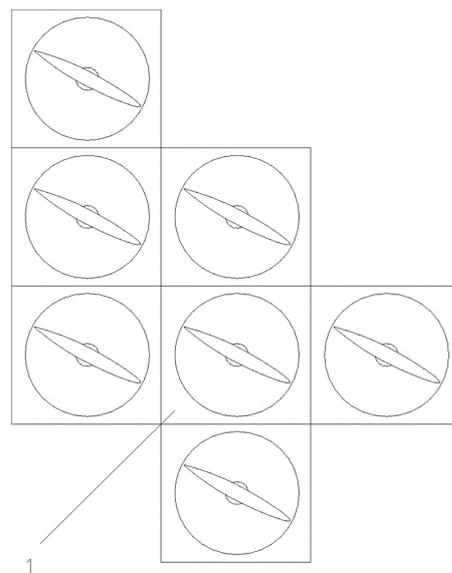
CN213069489U

Priority Date: 16/01/2020

NINGBO HIGH NEW DISTRICT YUANXIA SCIENCE & TECHNOLOGY

HOLOGRAPHIC IMAGE SYSTEM

The utility model discloses a holographic image system, set up in the underground holographic image module including at least one, the holographic image module includes one or more holographic advertisement machine. The utility model provides a holographic image system, which can form images on the ground, has high ornamental value, can randomly replace patterns, is very convenient and beautiful, is attractive and brings beautiful experience to people; when a plurality of holographic image modules are arranged together, the formed image can be controlled to form an integral picture, and the picture has three-dimensional sense and extremely high ornamental value and has good advertising effect when being popularized.



CLAIM 1. A holographic imaging system, comprising: the system comprises at least one holographic image module (1) arranged underground, wherein the holographic image module (1) comprises one or more holographic advertisement machines (2); the holographic image system is provided with a processing center which is connected with and controls the work of the holographic advertisement machine (2); the holographic advertisement machine (2) is rotatably provided with a luminous imaging part (3), and a motor is arranged in the holographic advertisement machine (2) and used for controlling the luminous imaging part (3) to rotate; the processing center controls the pattern displayed by the holographic image module (1) and can be connected with an external terminal to realize data transmission; the hologram module (1) is controlled by the processing center so as to display each individual display pattern or a plurality of display patterns in cooperation with each other.

N7822

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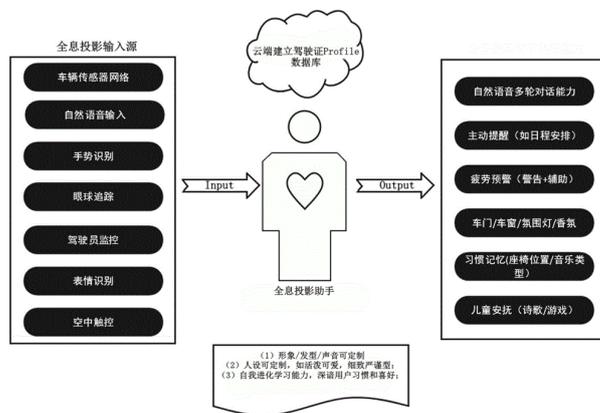
Priority Date: 22/01/2021

ZHONGQI CHUANGZHI TECHNOLOGY

INTELLIGENT CABIN HOLOGRAPHIC PROJECTION SYSTEM AND INTERACTION METHOD THEREOF

The invention discloses an intelligent cockpit holographic projection system and an interaction method thereof, belonging to the field of intelligent cabs of automobiles; the method changes the prior method that the holographic projection can only be activated

by a human button or voice, changes the single-mode input mode when the holographic projection is used, leads the application scene of the holographic projection to be closer to the mode when people and people communicate, and greatly improves the use frequency of the holographic projection technology in terms of breadth and depth; meanwhile, various kinds of effective information of people, vehicles, roads and cloud terminals are introduced in the interactive content, the phenomenon that the input source of the past effective information is single is changed, meanwhile, cloud terminal big data and AIOT technology are utilized, more and more sensor networks outside the vehicles in the vehicles are communicated, the capacity of bottom layer actuators of controllers of all domains is communicated, and the holographic projection technology is enabled through the domain controllers; in addition, the monotonous and invariable character image of the holographic projection system is changed, so that the character of the holographic projection system accords with the preference of a driver.



CLAIM 1. An intelligent cockpit holographic projection system, comprising: the signal input unit is used for inputting holographic projection signals and inputting content signals to the holographic projection system through the internet cloud module, the intelligent equipment module and the sensor module; the control unit receives the content signal through the holographic projection system and outputs a control signal according to a system algorithm; and the execution unit receives the control signal of the holographic projection system through the intelligent cabin and drives various kinds of working equipment in the intelligent cabin.

N7826

CN112804499

Priority Date: 05/02/2021

GUANGDONG SOUTHERN PLANNING & DESIGNING INSTITUTE OF TELECOM CONSULTATION

HOLOGRAPHIC CONSTRUCTION SAFETY MONITORING SYSTEM

The invention is suitable for the technical field of network monitoring, and provides a holographic construction safety monitoring system, which comprises: the construction site front-end module is used for collecting construction site images and data; the cloud management module is connected with the construction site front end module through the wireless communication module and used for processing construction site images and data; the terminal module is connected with the cloud management module through the wireless communication module and is used for performing holographic display on site construction site images; the cloud management module comprises a video data fusion center, the video data fusion center fuses virtual scenes constructed by images and data of a real construction site to form a three-dimensional construction scene, and holographic display is carried out through the terminal module. The intelligent control system is suitable for the complex environment of a construction site to a great extent, provides 'personally on the scene' safe operation experience through holographic display, and effectively restrains the occurrence of engineering construction safety accidents. The invention has the advantages that: the monitoring capability is strong, the safety is good, the experience is good, and the construction guidance is good.

CLAIM 1. A holographic construction safety monitoring system, characterized in that, holographic construction safety monitoring system includes: the construction site front-end module is used for collecting construction site images and data; the cloud management module is connected with the construction site front end module through the wireless communication module and used for processing construction site images and data; the terminal module is connected with the cloud management module through the wireless communication module and is used for performing holographic display on site construction site images; the cloud management module comprises a video data fusion center, the video data fusion center fuses virtual scenes constructed by construction site images and data to form a three-dimensional construction scene, and holographic display is carried out through the terminal module.

N7827

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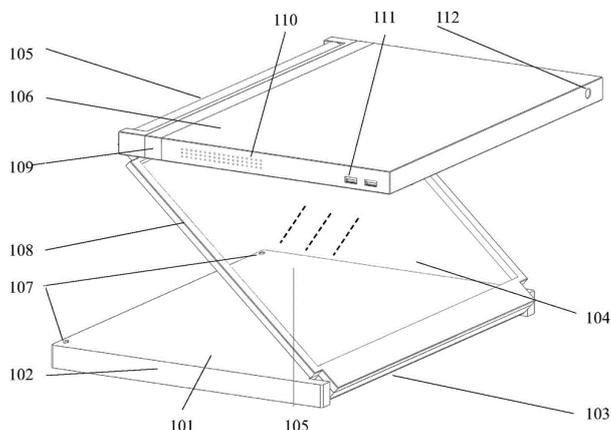
Priority Date: 09/02/2021

SUZHOU PEACH GUTHRIE MDT INFOTECH

IMPLEMENTATION METHOD OF FOLDABLE HOLOGRAPHIC DISPLAY DEVICE

The invention relates to a method for realizing a foldable holographic display device, which comprises an integrated terminal, a projection imaging part and a base, wherein the integrated terminal, the projection imaging part and the base are connected through a limiting damping rotating shaft; the damping rotating shaft has a bidirectional buffering function and a rotation limiting function, so that the device is ensured to have a working state and a folding state, and the damping rotating shaft and the base are respectively arranged in parallel and form an angle of 45 degrees corresponding to the projection imaging part; the invention is suitable for manufacturing a holographic projection display device and can be used for demonstration in the fields of product display, museum exhibition, cultural relic exhibition and the like.

CLAIM 1. A method for realizing a foldable holographic display device is characterized by comprising the following steps: the holographic display device is provided with an integrated terminal, a semitransparent projection imaging component and a base, and is respectively connected through two groups of limiting damping rotating shafts, and the holographic display device has two working forms and a folding form.



N7829

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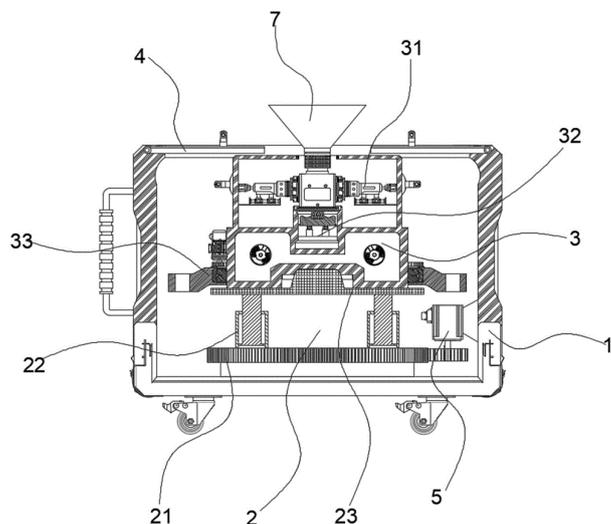
Priority Date: 03/02/2021

HEBEI NORMAL UNIVERSITY FOR NATIONALITIES

3D HOLOGRAPHIC IMAGE PROJECTION EQUIPMENT

The invention discloses 3D holographic image projection equipment which comprises a machine shell, a supporting frame, a fixing component and a projection main body, wherein a plurality of driving wheels which are convenient to move are arranged at the bottom of the machine shell; the fixing component is mutually clamped with the support frame so as to conveniently take and place the fixing component; the upper end face of the shell is provided with two door plates in a bilaterally symmetrical and rotating manner, and the transverse minimum distance between the two door plates and one end of each door plate close to the projection main body is greater than the maximum transverse width of the projection main body; the fixing component can generate micro vibration in the horizontal direction and the vertical direction to the projection main body.

CLAIM 1. A 3D holographic image projection device comprises a machine shell (1), a supporting frame (2), a fixing component (3) and a projection main body (7), wherein a plurality of driving wheels convenient to move are arranged at the bottom of the machine shell (1), the bottom end of the supporting frame (2) is rotatably installed in the middle of the bottom wall of the machine shell (1), the fixing component (3) is arranged at the upper end of the supporting frame (2), and the projection main body (7) is installed in the middle of the fixing component (3); the method is characterized in that: the fixing component (3) is clamped with the support frame (2) so as to conveniently take and place the fixing component (3); the upper end face of the machine shell (1) is provided with two door panels (4) in a bilaterally symmetrical and rotating manner, and the transverse minimum distance between one ends, close to the projection main body (7), of the two door panels (4) is larger than the maximum transverse width of the projection main body (7); the fixing component (3) can generate micro vibration on the projection main body (7) in the horizontal direction and the vertical direction.



N7830

CN112782880

Priority Date: 01/03/2021

BEIJING UNIVERSITY OF TECHNOLOGY

MICRO HOLOGRAPHIC DISPLAY INTEGRATING LIQUID CRYSTAL AND METASURFACE

The invention relates to a micro holographic display integrating liquid crystal and a metasurface, and belongs to the field of micro-nano optics. According to the invention, the metamaterial surface is directly processed on the lower substrate of the improved liquid crystal-based spatial light modulator, so that the nano antenna array is directly immersed in liquid crystal and serves as a main contributor to phase accumulation, and besides the function that the optical field of the traditional device can be adjusted at will, the device is more ultrathin and smaller in size and has a larger field angle and resolution. By combining with a computer holographic generation algorithm, specific two-dimensional voltage distribution is applied to the structure of the micro device, so that local liquid crystal molecules deflect, and the local refractive index environment of the nano antenna is changed, thereby realizing the regulation and control of the complex amplitude of an emergent light field and presenting a high-efficiency dynamic holographic display function in a miniaturized and compact optical system.

CLAIM 1. A micro holographic display integrating liquid crystal and metasurfaces is characterized in that: the metasurface is directly processed on a lower substrate of the liquid crystal-based spatial light modulator, namely the nano antenna array is directly immersed in liquid crystal to form two-dimensional voltage regulation; the spatial light modulator realizes smaller volume, larger field angle and high resolution.

N7832

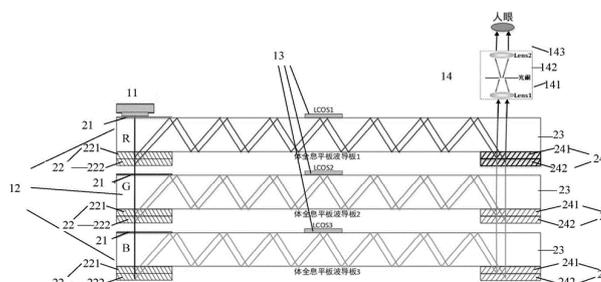
CN112782858

Priority Date: 21/01/2021

GUDONG TECHNOLOGY

THREE-DIMENSIONAL DYNAMIC FULL-COLOR DISPLAY AUGMENTED REALITY HOLOGRAPHIC NEAR-TO-EYE DISPLAY DEVICE

The present disclosure relates to an augmented reality holographic near-to-eye display device for three-dimensional dynamic full-color display, comprising: the LED array light source comprises R, G, B three-color light sources, and the R, G, B three-color light sources are quickly lightened in a time-sharing manner to realize color illumination; the volume holographic slab waveguide group comprises three-layer volume holographic slab waveguides which respectively diffract and transmit R, G, B three-color light and couple out the light to the filtering imaging lens system; the reflective LCOS group comprises a first reflective LCOS1, a second reflective LCOS2 and a third reflective LCOS3, which are respectively attached to the upper surface of each layer holographic slab waveguide and are used for respectively loading three-dimensional calculation digital holograms obtained by encoding and recording wavefront information of three-dimensional objects under each component R, G, B at different angles; and the filtering imaging lens system is used for filtering the incident R, G, B light waves and imaging the light waves carrying the wavefront information of the three-dimensional object on an imaging surface.



CLAIM 1. An augmented reality holographic near-to-eye display device for three-dimensional dynamic full-color display, comprising: the device comprises an LED array light source, a volume holographic flat waveguide group, a reflective LCOS group and a filtering imaging lens system; the LED array light source comprises R, G, B three-color light sources, the R, G, B three-color light sources are lightened quickly in a time-sharing mode to realize color illumination, and the LED array light sources are attached to the upper surface of the upper-most layer holographic panel waveguide of the volume holographic panel waveguide group; the volume holographic slab waveguide group comprises three-layer volume holographic slab waveguides, and the three-layer volume holographic slab waveguides are used for respectively and independently carrying out diffraction transmission on R, G, B three-color light and coupling out the three-color light to the filtering imaging lens system by utilizing the wavelength selectivity of the volume holographic grating; the reflective LCOS group comprises a first reflective LCOS1, a second reflective LCOS2 and a third reflective LCOS3, which are respectively attached to the upper surface of each layer holographic slab waveguide and are used for respectively loading three-dimensional calculation digital holograms obtained by encoding and recording wave front information of three-dimensional objects under different components of R, G, B at different angles; the filtering imaging lens system is used for filtering the incident R, G, B light waves and imaging the light waves carrying the wavefront information of the three-dimensional object on an imaging surface.

N7834

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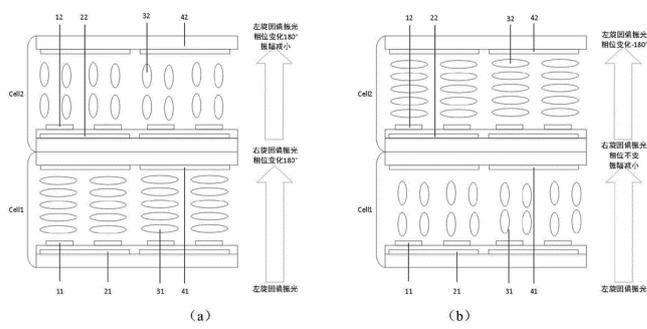
Priority Date: 18/01/2021

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

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

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

CLAIM 1. A liquid crystal holographic display screen capable of realizing amplitude and phase modulation simultaneously is characterized in that: including Cell1 and Cell 2; cell1 includes: the liquid crystal display panel comprises a pixel electrode I, a common electrode I, liquid crystal molecules I and a control electrode I; cell2 includes: a second pixel electrode, a second common electrode, a second liquid crystal molecule and a second control electrode; cell1 and Cell2 are adjacent; the liquid crystal display panel is sequentially arranged into a first common electrode, a first pixel electrode, a first liquid crystal molecule, a first control electrode, a second common electrode, a second pixel electrode, a second liquid crystal molecule and a second control electrode; the first liquid crystal molecule is parallel or vertical to the first pixel electrode; the first liquid crystal molecules and the second liquid crystal molecules are vertical to each other.



N7835

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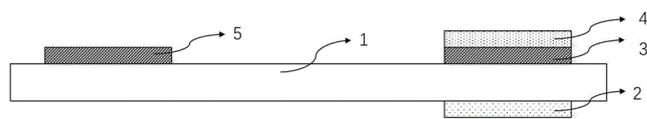
Priority Date: 06/01/2021

SOUTHEAST UNIVERSITY NANJING

COMPACT STRUCTURE'S HOLOGRAPHIC WAVEGUIDE DISPLAY SYSTEM

The invention discloses a compact holographic waveguide display system, which comprises a light source (2), an optical waveguide (1), an in-coupling optical element (3), a reflection type spatial light modulator (4) and an out-coupling optical element (5); the light emitted by the light source is diffracted by the in-coupling optical element, the diffracted light is modulated and reflected by the reflection-type spatial light modulator and enters the optical waveguide, total internal reflection propagation occurs in the optical waveguide, and the light is modulated by the out-coupling optical element and then is guided out of the optical waveguide to enter human eyes. The light emitted by the light source is diffracted by the in-coupling optical element, the diffracted light is modulated and reflected by the reflection-type spatial light modulator and enters the optical waveguide, total internal reflection propagation occurs in the optical waveguide, and the light is modulated by the out-coupling optical element and then is guided out of the optical waveguide to enter human eyes. The system greatly reduces the size of the waveguide display system, reduces aberration, and provides a larger space which can be regulated by the system.

CLAIM 1. A compact holographic waveguide display system, the display system comprising: a light source (2), an optical waveguide (1), an in-coupling optical element (3), a reflective spatial light modulator (4), an outcoupling optical element (5); light emitted by the light source (2) is diffracted through the in-coupling optical element (3), the diffracted light is modulated and reflected through the reflection-type spatial light modulator (4), enters the optical waveguide (1), is transmitted by total internal reflection in the optical waveguide (1), and is modulated by the out-coupling optical element (5) and then is guided out of the optical waveguide to enter human eyes (6).



N7836

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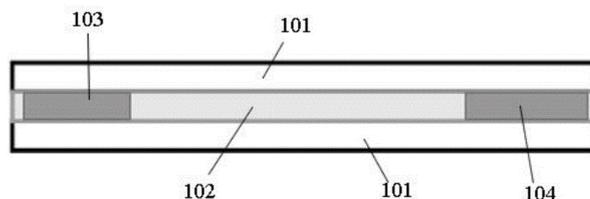
Priority Date: 21/10/2019

HANGZHOU GUANGLI TECHNOLOGY

OPTICAL WAVEGUIDE ELEMENT, METHOD FOR PRODUCING THE SAME, AND HOLOGRAPHIC OPTICAL WAVEGUIDE DISPLAY DEVICE

The present invention relates to an optical waveguide element, a method of manufacturing the same, and a holographic optical waveguide display device. The optical waveguide element comprises a laminate of at least two carriers and a photopolymer film, wherein the photopolymer film is positioned between the at least two carriers; the photopolymer film having at least one light incoupling region and at least one light outcoupling region; the light coupling-in area is not connected with the light coupling-out area; and the positions of the light in-coupling region and the light out-coupling region respectively have a grating structure. The optical waveguide element has high refractive index modulation degree, diffraction efficiency, sensitivity and light transmittance, and has excellent optical waveguide imaging effect.

CLAIM 1. An optical waveguide component, characterized by: comprising a stack of at least two carriers and a photopolymer film, wherein The photopolymer film is positioned between at least two carriers; the photopolymer film having at least one light incoupling region and at least one light outcoupling region; the light coupling-in area is not connected with the light coupling-out area; and is The positions of the light coupling-in area and the light coupling-out area are respectively provided with a grating structure.



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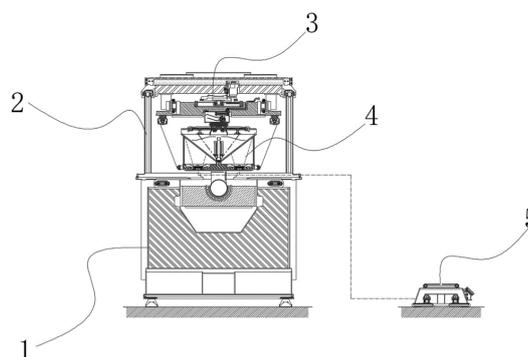
Priority Date: 18/01/2021

SHANDONG WOMENS UNIVERSITY

REAL-TIME INTERACTIVE 3D HOLOGRAPHIC PROJECTION EQUIPMENT

The invention discloses real-time interactive 3D holographic projection equipment which comprises a display workbench, an outer fixing frame body, a projection assembly, an inner rotation adjusting device and an interactive base, wherein the outer fixing frame body is coaxially fixed on the upper end surface of the display workbench; the projection assembly is arranged in the middle of the upper end surface of the display workbench; the projection component projects and reproduces the image recorded in the projector on the projection tower to form a three-dimensional stereo image; an interactive base is communicated outside the projection assembly through a transmission lead, and the interactive base carries out multi-angle data acquisition on a projection object positioned on the interactive base and outputs the data to the projection assembly; the internal rotation adjusting device that installs of external fixation frame, interior rotation adjusting device with the projection subassembly is connected to local deflection is adjusted to the show position and the space show inclination of projection subassembly, makes and is located projection thing on the mutual base carries out multi-angle rotating projection show under being in static state.

CLAIM 1. The utility model provides a holographic projection equipment of real-time interactive 3D, its includes show workstation (1), outer fixed support body (2), projection subassembly (4), interior accent device (3) and mutual base (5) of spiraling, wherein, the lower terminal surface four corners position symmetry of show workstation (1) is equipped with the trapezoidal piece of agreeing with that is used for supporting, show workstation (1) by trapezoidal piece of agreeing with supports to be fixed subaerial, the up end coaxial fixation of show workstation (1) has outer fixed support body (2), its characterized in that: the middle part of the upper end surface of the display workbench (1) is provided with a projection assembly (4); the projection component (4) projects and reproduces the image recorded in the projector on a projection tower to form a three-dimensional stereo image; an interactive base (5) is communicated outside the projection assembly (4) through a transmission lead, and the interactive base (5) carries out multi-angle data acquisition on a projection object positioned on the interactive base and outputs the data to the projection assembly (4); install interior rotary adjusting device (3) in outer fixed support body (2), interior rotary adjusting device (3) with projection subassembly (4) are connected to the show position and the space show inclination of projection subassembly (4) carry out local deflection and adjust, make and be located projection thing on mutual base (5) carries out the multi-angle rotation projection show under being in the static state.



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

N7759

WO202194536

Priority Date: 15/11/2019

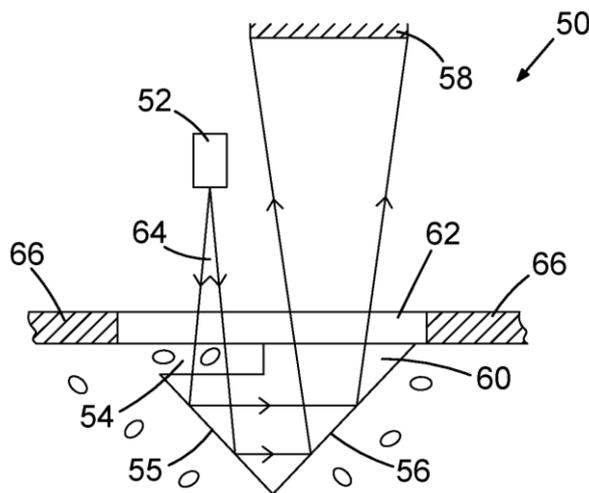
SEE THROUGH SCIENTIFIC

DIGITAL HOLOGRAPHIC MICROSCOPE

The present invention relates to a system and method for digital holographic microscopy. According to an aspect of the invention there is provided an off-axis digital holographic microscope comprising: a light emitter configured to provide a divergent light beam; a sensor positioned to receive light from the light emitter in a first path and a second path, and thereby to detect a holographic image; a reflector positioned partially in the divergent light beam so that light that encounters the reflector extends towards the sensor in the first path, and light that does not encounter the reflector extends towards the sensor in the second path; and a support structure configured to support a sample in the first path or the second path.

MICROSCOPE HOLOGRAPHIQUE NUMÉRIQUE

La présente invention concerne un système et un procédé de microscopie holographique numérique. Selon un aspect de l'invention, l'invention concerne un microscope holographique numérique hors axe comprenant : un émetteur de lumière conçu pour fournir un faisceau de lumière divergent ; un capteur positionné de façon à recevoir la lumière provenant de l'émetteur de lumière dans un premier trajet et dans un second trajet, et pour détecter ainsi une image holographique ; un réflecteur partiellement positionné dans le faisceau de lumière divergent de telle sorte que la lumière qui frappe le réflecteur s'étend vers le capteur dans le premier trajet, et la lumière qui ne frappe pas le réflecteur s'étend vers le capteur dans le second trajet ; et une structure de support conçue pour supporter un échantillon dans le premier trajet ou dans le second trajet.



CLAIM 1. An off-axis digital holographic microscope, comprising: a light emitter configured to provide a divergent light beam; a sensor positioned to receive light from the light emitter in a first path and a second path, and thereby to detect a holographic image; a reflector positioned partially in the divergent light beam so that light that encounters the reflector extends towards the sensor in the first path, and light that does not encounter the reflector extends towards the sensor in the second path; and a support structure configured to support a sample in the first path or the second path.

N7762

WO202186293

Priority Date: 01/11/2019

IZMIR YUKSEK TEKNOLOJI ENSTITUSU

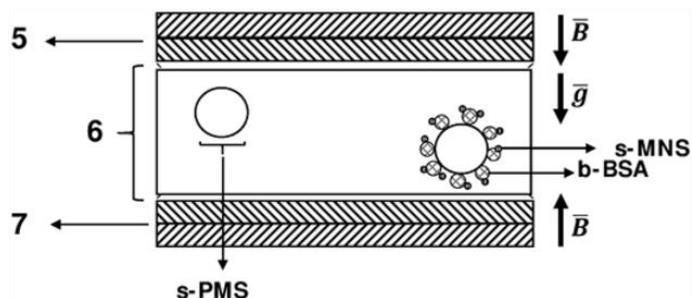
PROTEIN DETECTION USING LENSLESS HOLOGRAPHIC MICROSCOPY IMAGING TECHNIQUE IN A MAGNETIC LEVITATION SETUP

The invention relates to the detection of biomolecules with the lensless holographic microscopy imaging technique integrated into the magnetic levitation platform.

DÉTECTION DE PROTÉINES À L'AIDE D'UNE TECHNIQUE D'IMAGERIE PAR MICROSCOPIE HOLOGRAPHIQUE SANS LENTILLE DANS UNE INSTALLATION À LÉVITATION MAGNÉTIQUE

L'invention concerne la détection de biomolécules à l'aide de la technique d'imagerie par microscopie holographique sans lentille intégrée dans la plateforme de lévitation magnétique.

CLAIM 1. A magnetic levitation platform which detects biomolecules, characterized in that, it comprises top (5) and bottom (7) magnets that is configured as pole opposing scheme with two magnets and a capillary channel (6) to load the sample to be analyzed between said magnets (5,7) in the magnetic levitation setup (2), a lensless holographic microscopy system (3) that involves at least one point light source (8) and at least one image sensor (4) without any optical parts on it (4) that is integrated to the magnetic levitation setup (2).



N7778

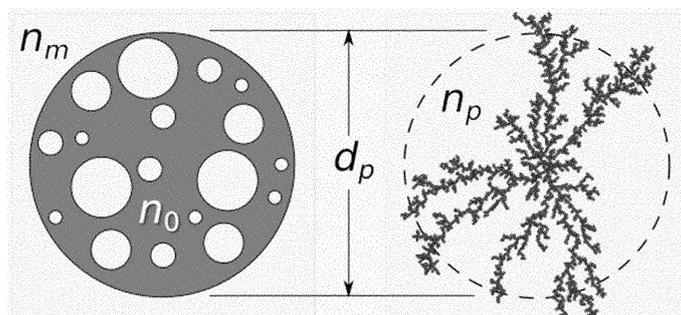
US20210123848

Priority Date: 25/10/2019

NEW YORK UNIVERSITY - SPHERYX

HOLOGRAPHIC CHARACTERIZATION OF IRREGULAR PARTICLES

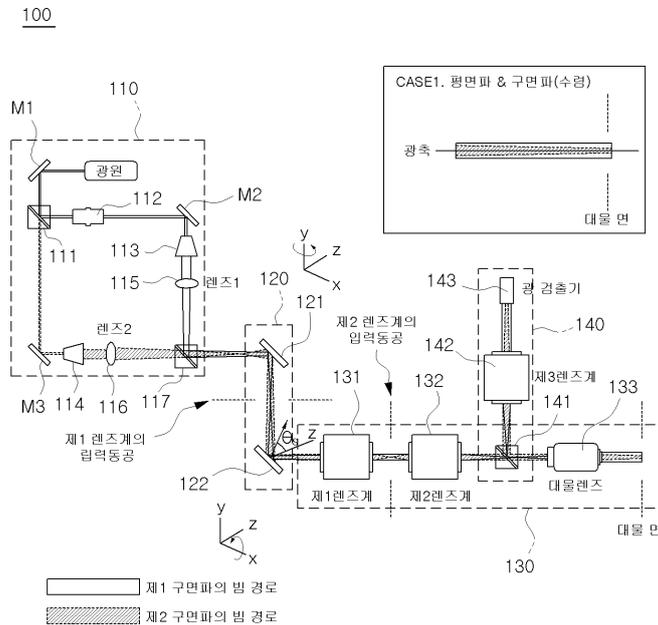
Holographic Video Microscopy analysis of non-spherical particles is disclosed herein. Properties of the particles are determined by application of light scattering theory to holography data. Effective sphere theory is applied to provide information regarding the reflective index of a sphere that includes a target particle. Known particles may be co-dispersed with unknown particles in a medium and the holographic video microscopy is used to determine properties, such as porosity, of the unknown particles.



CLAIM 1 . A method of characterizing the porosity of colloidal particles dispersed in a fluid medium in a sample, comprising: flowing the sample through an observation volume of a holographic microscope; generating a first holographic image based upon holographic video microscopy of the sample within the observation volume at a first time; analyzing the first holographic image for one or more regions of interest corresponding to a porous particle of interest; normalizing the region of interest for a contribution of a wave created by interaction of light with the sample; fitting the normalized region of interest to a light scattering theory; and characterizing one or more properties of pores of the particle of interest.

FLYING OVER BEAM PATTERN SCANNING HOLOGRAM MICROSCOPY DEVICE

The present invention relates to a flying over beam pattern scanning hologram microscope. According to the present invention, there is provided a scanning beam generating unit modulating a phase of a first beam split by a light source, converting the first beam into a first spherical wave through a first lens, converting a second beam into a second spherical wave through a second lens, and then forming a scanning beam by interfering the first and second spherical waves; A scan unit including a horizontal scan mirror and a vertical scan mirror to control a scanning position of the scan beam with respect to the object, the scan unit controlling the incident scan beam in horizontal and vertical directions to transmit the horizontal and vertical scan beams to the projection unit, A projection unit including a plurality of lens systems and an objective lens and projecting the scan beam received from the scan unit onto an objective surface on which the object is located, Wherein the scan beam projected onto the object surface has different patterns according to respective focal positions and cone angle conditions of the first and second spherical waves formed between two scan mirrors. According to the present invention, it is possible to implement a scanning hologram microscope with high resolution at high speed.



CLAIM 1. A scan beam generator configured to modulate a phase of a first beam split by a light source, convert the first beam into a first spherical wave through a first lens, convert a second beam into a second spherical wave through a second lens, and form a scan beam by interfering the first and second spherical waves; A scanning unit including a horizontal scanning mirror and a vertical scanning mirror to control a scanning position of the scan beam with respect to the object, the scanning unit controlling the incident scan beam in horizontal and vertical directions to transmit the horizontal and vertical scan beams to the projection unit, A projection unit configured to project the scan beam received from the scan unit onto an object surface on which the object is located; and a light collecting unit configured to detect a beam reflected or fluorescent from the object and then passed through the object lens again, Wherein the scan beam projected onto the object surface has a different pattern according to angular focal positions and cone angle conditions of the first and second spherical waves formed between two scan mirrors.

N7806

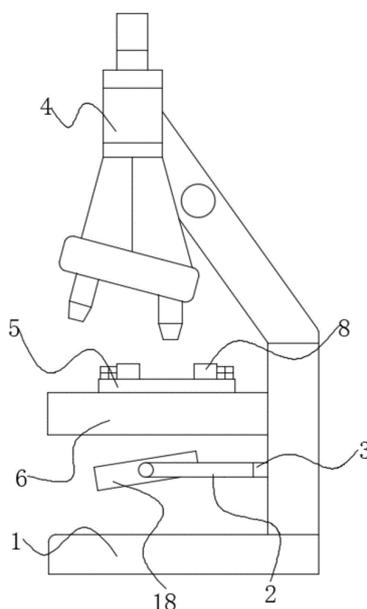
CN213210583U

Priority Date: 17/08/2020

HEBEI BOXIA PHOTOELECTRIC INFORMATION TECHNOLOGY

ADJUSTABLE OBJECTIVE TABLE FOR DIGITAL HOLOGRAPHIC MICROSCOPE

The utility model discloses an adjustable objective table for digital holographic microscope, the on-line screen storage device comprises a base, the fixed surface of base installs the microscope body, and the fixed surface of microscope body is connected with square frame, and the spout has been seted up to the inner wall of square frame, and the inner wall sliding connection of spout has the slider, and the fixed surface of slider is connected with the slide bar, and the sliding surface of slide bar is connected with the cushion cap, and the spring groove has been seted up to the inside of cushion cap, and the inner wall fixed mounting of spring groove has the spring, and the one end fixedly connected with stopper of spring, the surface of stopper slide at the inner. The connecting rod and the pressing rod are arranged, the distance between the connecting rod and the pressing rod is adjusted according to the sizes of different glass slides, the glass slides are favorably fixed and clamped, the connecting rod and the pressing rod are rotated through the first bearing, and the purpose of wide application range is achieved compared with the existing slide clamp.



CLAIM 1. An adjustable objective table for a digital holographic microscope, comprising a base (1), characterized in that: the microscope comprises a base (1), a microscope body (4) is fixedly mounted on the surface of the base (1), a square frame (6) is fixedly connected to the surface of the microscope body (4), a sliding groove (12) is formed in the inner wall of the square frame (6), a sliding block (11) is slidably connected to the inner wall of the sliding groove (12), a sliding rod (9) is fixedly connected to the surface of the sliding block (11), a bearing platform (5) is slidably connected to the surface of the sliding rod (9), a spring groove (15) is formed in the bearing platform (5), a spring (17) is fixedly mounted on the inner wall of the spring groove (15), a limiting block (16) is fixedly connected to one end of the spring (17), the surface of the limiting block (16) slides on the inner wall of the spring groove (15), an upright column (14) is fixedly connected to the surface of the limiting block (16), and the surface of the bearing, the surface mounting of stand (14) has first bearing (13), the fixed surface of first bearing (13) is connected with connecting rod (7), the surface of connecting rod (7) is provided with depression bar (8).

N7839

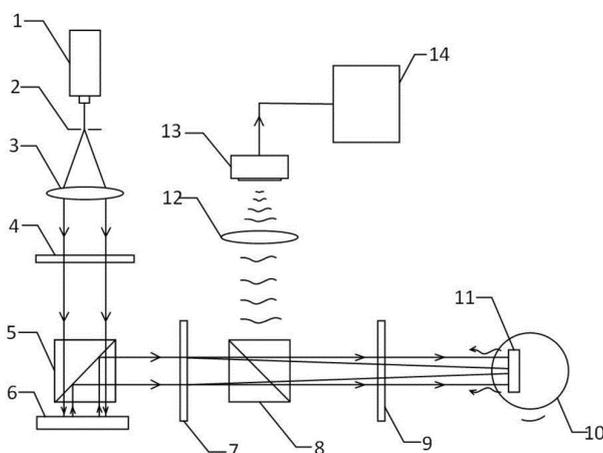
CN112731784

Priority Date: 08/01/2021

KUNMING UNIVERSITY OF SCIENCE & TECHNOLOGY

STATIC OPTICAL SCANNING TILT HOLOGRAPHIC SYSTEM AND IMPLEMENTATION METHOD

The invention discloses a static optical scanning tilt holographic system and a realization method, belonging to the technical field of optical digital holographic imaging, and comprising a laser, a small hole, a first lens, a first polaroid, a beam splitter, a spatial light modulator, a second polaroid, a polarization beam splitter, a quarter-wave plate, a rotating platform, an object, a second lens, a photoelectric detector and a computer; the spatial light modulator is adopted to replace a two-dimensional scanning device in the traditional OSH, so that the stability of the system is improved, the noise in the hologram recording process caused by the vibration of the two-dimensional scanning device is eliminated, and the reconstruction quality of the hologram is improved; the rotating table is added, so that a larger sampling interval can be realized to record the light information of the off-axis object, and the effect of reducing the sampling time under the condition of the same reconstruction hologram quality is achieved; the invention has simple integral system structure, convenient and fast data processing and wide application prospect in the fields of optical holographic microscopy, three-dimensional object recognition, optical remote sensing, medical imaging and the like.



CLAIM 1. A static optical scanning tilt holographic system, comprising: the device comprises a laser 1, a small hole 2, a first lens (3), a first polaroid (4), a beam splitter (5), a spatial light modulator (6), a second polaroid (7), a polarization beam splitter (8), a quarter-wave plate (9), a rotary table (10), an object (11), a second lens (12), a photoelectric detector (13) and a computer (14);

the direction of an optical axis of emergent light of the laser (1) is consistent with the center of the small hole (2), the small hole (2) is arranged between the first lens (3) and the laser (1), the distance between the small hole (2) and the first lens (3) is the focal length of the first lens (3), the first polaroid (4) and the beam splitter (5) are positioned on two sides of the first lens (3), and the spatial light modulator (6) is vertically arranged in the direction of transmitted light of the beam splitter (5); the second polaroid (7) is located beam splitter (5) with between polarization beam splitter (8), quarter wave plate (9) are arranged in polarization beam splitter (8) with between revolving stage (10), place revolving stage (10) in on object (11), second lens (12) are located polarization beam splitter (8) with the both sides of electric detector (13), photoelectric detector (13) with computer (14) are connected.

Click on the title to return to table of contents

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

N7756

WO202198744

SVG TECHNOLOGY

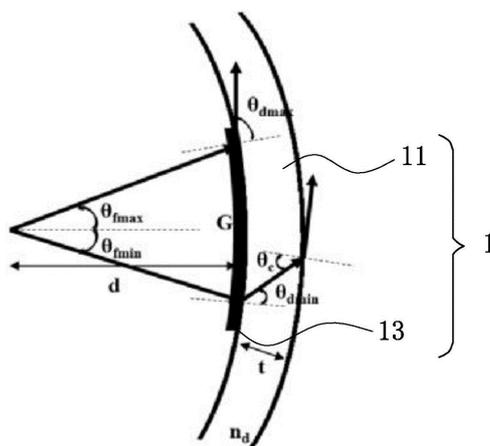
Priority Date: 18/11/2019

HOLOGRAPHIC WAVEGUIDE AND AR DISPLAY DEVICE

The invention discloses a holographic waveguide, which comprises a waveguide substrate and a functional area which is arranged on the surface of the waveguide substrate and consists of gratings, wherein the functional area couples incident light emitted by a light source into the waveguide substrate and then transmits the incident light to the functional area through the waveguide substrate and then couples the incident light out, and the waveguide substrate is a curved surface so as to increase the total reflection angle of the incident light in the waveguide substrate. The invention also discloses an AR display device which comprises the holographic waveguide. The incident light emitted by the light source is coupled into the waveguide substrate through the functional area and then is transmitted into the functional area through the waveguide substrate and then is coupled out, and the waveguide substrate is a curved surface so as to realize the increase of the total reflection angle of the incident light in the waveguide substrate and further realize the increase of the view field.

LENTILLE DE GUIDE D'ONDES ET LUNETTES À RÉALITÉ AUGMENTÉE

Lentille de guide d'ondes (1) comprenant un substrat de guide d'ondes (11) et une zone fonctionnelle (13) agencée sur une surface du substrat de guide d'ondes (11) et composée de réseaux. La lumière incidente émise par une source de lumière (12) est couplée dans le substrat de guide d'ondes (11) au moyen de la zone fonctionnelle (13), puis transmise à la zone fonctionnelle (13) au moyen du substrat de guide d'ondes (11) et couplée en sortie ; le substrat de guide d'ondes (11) est incurvé, de façon à augmenter l'angle de réflexion totale de la lumière incidente dans le substrat de guide d'ondes (11). L'invention concerne également des lunettes de réalité augmentée comprenant la lentille de guide d'ondes (1). La lumière incidente émise par la source de lumière (12) est couplée dans le substrat de guide d'ondes (11) au moyen de la zone fonctionnelle (13), puis transmise à la zone fonctionnelle (13) au moyen du substrat de guide d'ondes (11) et couplée en sortie ; le substrat de guide d'ondes (11) est incurvé, de façon à augmenter l'angle de réflexion totale de la lumière incidente dans le substrat de guide d'ondes (11) pour augmenter le champ de vision.



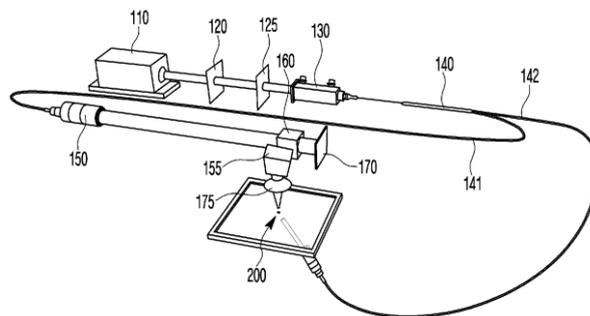
CLAIM 1. A holographic waveguide is characterized by comprising a waveguide substrate and a functional area which is arranged on the surface of the waveguide substrate and consists of gratings, wherein the functional area couples incident light emitted by a light source into the waveguide substrate and then transmits the incident light to the functional area through the waveguide substrate and then couples the incident light out, and the waveguide substrate is a curved surface so as to increase the total reflection angle of the incident light in the waveguide substrate.

HOLOGRAPHIC STEREOGRAM PRINTING SYSTEM AND METHOD USING OPTICAL FIBER

Provided are a holographic stereogram printing system and method using optical fiber. A holographic stereogram printing system using optical fiber according to an embodiment of the present invention comprises: laser for emitting light; a half wave plate for adjusting a polarized state of transmitting light when emitted light transmits therethrough; a coupler for condensing the light that has transmitted through the half wave plate; and a 1x2 polarization-maintain coupler formed of the optical fiber and distributing the light transmitting through the coupler into an object wave and a reference wave. As such, a small-sized holographic printer that facilitates photoalignment on the basis of the optical fiber can be manufactured. Also, a low-cost laser having a low output can be used instead of a high-efficiency laser light source used in a holographic printer. In addition, an optical head that is a core component of a holographic printer can be simplified while reducing the weight. Thus, a printing operation can be performed while moving the optical head portion like in other commercially available printers, thereby moving up commercialization of the holographic printer.

SYSTÈME D'IMPRESSION À STÉRÉOGRAMMES HOLOGRAPHIQUES ET PROCÉDÉ UTILISANT UNE FIBRE OPTIQUE

L'invention concerne un système et un procédé d'impression à stéréogrammes holographiques utilisant une fibre optique. Un système d'impression à stéréogrammes holographiques utilisant une fibre optique selon un mode de réalisation de la présente invention comprend : un laser d'émission lumineuse ; une plaque demi-onde, permettant de régler un état polarisé de transmission lumineuse lors de la transmission de lumière émise à travers cette dernière ; un coupleur, permettant de condenser la lumière transmise à travers la demi-plaque d'onde ; et un coupleur de maintien de polarisation 1x2, formé de la fibre optique et distribuant la lumière transmise à travers le coupleur en une onde d'objet et en une onde de référence. En l'espèce, une imprimante holographique de petite taille, facilitant le photo-alignement en fonction de la fibre optique, peut être fabriquée. En outre, un laser à faible coût et à faible sortie peut être utilisé, au lieu d'une source lumineuse laser à haut rendement utilisée dans une imprimante holographique. De plus, une tête optique, qui est un composant principal d'une imprimante holographique, peut être simplifiée et réduire le poids. Ainsi, une opération d'impression est possible par déplacement de la partie à tête optique comme dans d'autres imprimantes disponibles dans le commerce, ce qui favorise la commercialisation d'imprimantes holographiques.



CLAIM 1. A laser that emits light; A half wave plate configured to adjust a polarization state of the transmitted light when the emitted light passes through the half wave plate; A coupler capable of collecting light passing through the half-wave plate; and A holographic stereogram printing system using an optical fiber, the holographic stereogram printing system comprising: a 1 2 polarization maintaining coupler made of an optical fiber to distribute light passing through the coupler into an object wave and a reference wave.

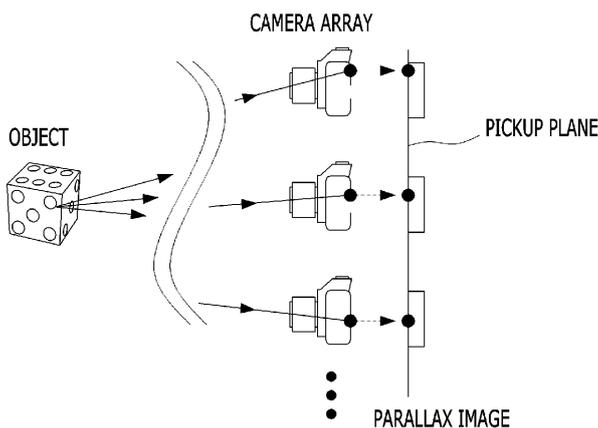
N7764

US20210157266
Priority Date: 26/11/2019

SANGMYUNG UNIVERSITY INDUSTRY ACADEMY COOPERATION
FOUNDATION

METHOD AND APPARATUS FOR RECONSTRUCTING THREE-DIMENSIONAL IMAGE BY USING DIFFRACTION GRATING

A method of reconstructing a three-dimensional (3-D) image on the basis of a diffraction grating includes extracting parallax images from a raw image of an object photographed by using a diffraction grating and reconstructing a 3-D image from the extracted parallax image array by using a virtual pinhole model.



CLAIM 1. A method of reconstructing a three-dimensional (3-D) image on the basis of a diffraction grating by using a processor, the method comprising: capturing, by using an imaging lens, parallax images diffracted by a diffraction grating; picking up the parallax images, captured by the imaging lens, onto a pickup plane; rearranging the parallax images, picked up onto the pickup plane, in a virtual image plane; and back-projecting the parallax images, rearranged in the virtual image plane, onto a reconstruction plane to reconstruct a 3-D image of a real object.

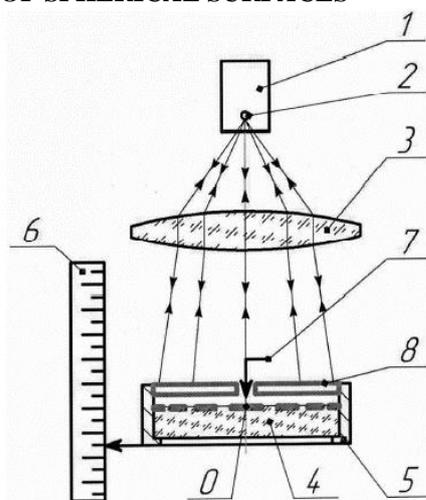
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RU2746940
Priority Date: 29/05/2020

NAUCHNO PROIZVODSTVENNOE OBEDINENIE GOSUDARSTVENNYJ
INSTITUT PRIKLADNOJ OPTIKI

HOLOGRAPHIC DEVICE FOR MEASURING THE CURVATURE RADIUS OF SPHERICAL SURFACES

FIELD: measuring equipment. **SUBSTANCE:** invention relates to measuring equipment and can be used in optoelectronic instrumentation for measuring the radii of curvature of the spherical surfaces of optical parts. A holographic device for measuring the radii of curvature of spherical surfaces contains a control device with a monochromatic point light source, an autocollimator installed with the ability to move along the optical axis, an exemplary optical element installed along the path of the beams and made in the form of an axial reflective synthesized hologram, and the exemplary optical element is located coaxially with an autocollimator in the object holder, which is installed with the ability to move along the optical axis of the autocollimator and is mechanically connected to a linear displacement meter, and a sensitive probe. The device additionally contains a unit for adjusting the position of the best installation plane (BIP) of the exemplary optical element and the controlled optical part, installed on the object holder, while the sensitive probe is installed with the possibility of its output beyond the light diameter of the autocollimator, and the geometric axis of the unit for adjusting the position of the BIP coincides with the geometric axis sensitive probe and optical axis of the autocollimator. **EFFECT:** use of the invention makes it possible to reduce the time for measuring the radius of curvature of the spherical surface of the controlled optical part.



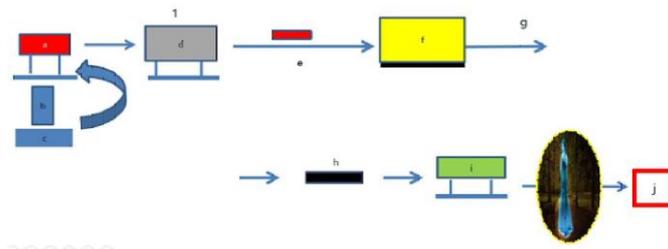
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KR20210055639
Priority Date: 26/04/2021

SON WAN JOO

AN ADVANCED HOLOGRAPHY SYSTEM USING LIGHT CAPTURE TECHNOLOGY.

The present invention relates to an advanced holography system using light capture technology, and an existing screen hologram and hologram fan are limited in screen and cannot be obtained because blades rotate, The present invention is a technique that is merely an eye bundle that is not implemented in a real hub in such a way as to direct a beam projector on a screen, and the hologram implemented in the advanced holography system using light capture technology of the present invention is a three-dimensional holography system that can be seen from four sides.



CLAIM 1. Creating a 3 D image; setting the 3 D image to ultra-high definition through high definition pixels; sending the 3 D refined image to a beam projector after working; sending the refined image to the beam projector in a cable network manner; So that a large number of transmitted light beams are collected as one light beam and projected as a laser beam; and the projected laser beam is magnified by using a high-refracting laser beam to reproduce an image.

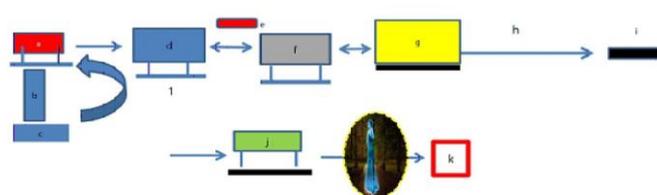
N7784

KR20210055638
Priority Date: 26/04/2021

SON WAN JOO

A HOLOGRAM REALIZATION SYSTEM USING ADVANCED HOLOGRAPHY.

The present invention relates to a hologram realization system using advanced holography, and an existing screen hologram and hologram fan are limited in screen view and cannot be obtained because a blade rotates, The present invention relates to an eye bundle that is not implemented in a real world in such a way as to direct a beam projector on a screen, and a hologram implemented in a holographic imaging system using advanced holography is a three-dimensional holography system that can be viewed from four sides.



CLAIM 1. A 3 D image processing method, comprising: preparing a 3 D image; setting the 3 D image to ultra-high definition through high definition pixels; utilizing the high definition pixels to refine an image transmitted to the 3 D image by KVANT laser; And transmitting the refined image to a beam projector; wherein the projected beam projector is implemented using a high-refractive lens and a special reflective film that withstands a laser.

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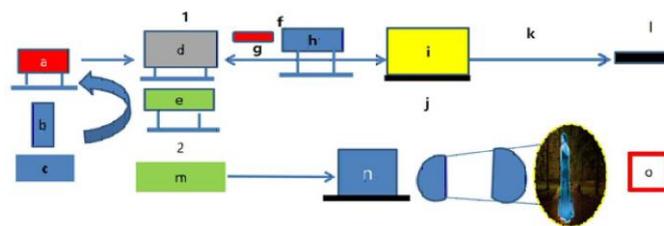
KR20210055637
Priority Date: 26/04/2021

SON WAN JOO

A HOLOGRAPHIC IMAGING SYSTEM USING ADVANCED HOLOGRAPHY.

The present invention relates to a holographic imaging system using advanced holography, and more particularly, to a holographic imaging system using advanced holography, The present invention relates to an eye bundle that is not implemented in a real world in such a way as to direct a beam projector on a screen, and a hologram implemented in a holographic imaging system using advanced holography is a three-dimensional holography system that can be viewed from four sides.

CLAIM 1. A three-dimensional (3 D) image processing method, comprising: preparing a 3 D image; setting the 3 D image to an ultra-high definition through a high definition pixel; connecting the high definition pixel and a beam projector in a mixed manner; A holographic imaging system using advanced holography, comprising the steps of: transmitting a cable transmitted image through various laser pelcons to a laser; reproducing an image by securing a distance between an infrared ray and a visible ray; reproducing an image by attaching a special reflection film to a laser projection area; and distinguishing a color image.



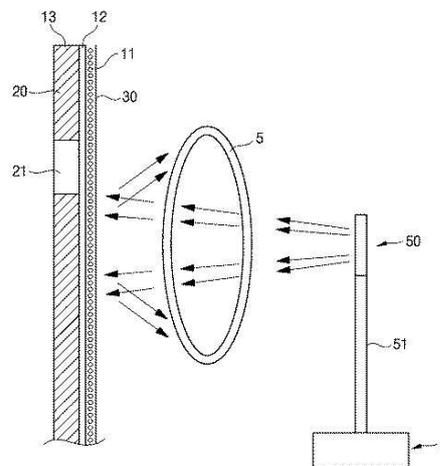
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KR102243306
Priority Date: 29/12/2020

I-TECH

HOLOGRAPHIC BACKLIGHT EFFECT EXPLOITING APPARATUS FOR SHAPED OBJECTS

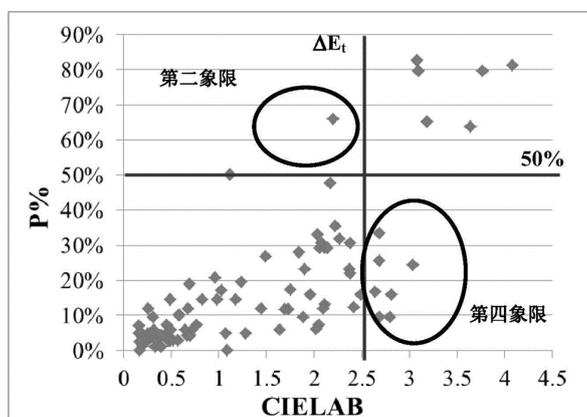
An apparatus for developing a backlighting effect of a shaped object according to the present invention includes a shaped object mounted on a base, a lighting device mounted on a rear side of the shaped object, a background member coupled to the base at a right angle, Wherein the light reflection member comprises a protection member in which transparent films are adhered to both surfaces of a light reflection plate; wherein the lighting device comprises a light emitting diode (led) for generating light attached to a heat dissipation plate embedded in an electrical part. Wherein a socket for concentrating the light generated from the led is coupled to an upper portion of the led, and an optical fiber cable is connected to the led; wherein the light reflection member comprises a light reflection plate, protection members having transparent films adhered to both surfaces of the light reflection plate, and fixing means for fixing the transparent films adhered to both surfaces of the light reflection plate. According to the present invention, when the light generated from the led is transmitted to the optical fiber cable and then the light generated from the end of the optical fiber cable is emitted toward the light reflection member, the light is diffusely reflected from the light reflection member, and thus a circular hologram appears behind the molded article.



CLAIM 1. A molding machine comprising: a molding provided on a base; a lighting device provided on a rear side of the molding; a background member coupled to the base at a right angle; a light reflection member attached to the background member; and a light guide plate provided on the base at a predetermined distance from the rear side of the molding, Wherein the shaped object, the illumination device, and the light reflection member are sequentially disposed, the illumination device includes an led 52 that generates light attached to a heat sink 55 built in an electrical part 2, a socket 53 that concentrates the light generated by the led 52 is coupled to the led 52, an optical fiber cable 50 is connected to the led 52; when the light generated by the led 52 is transmitted to the optical fiber cable 50 and then the light generated by the end of the optical fiber cable 50 is emitted toward the light reflecting member, Wherein the light reflecting member diffusely reflects the light so that a circular hologram appears behind the shaped object, Protective members 30 in which transparent films 31 and 33 are adhered to both sides of the light reflecting plate 32 of the light reflecting member are attached; and fixing means 35 for fixing the transparent films 31 and 33 attached to both sides of the light reflecting plate 32.

METHOD FOR CALCULATING COLOR DIFFERENCE THRESHOLD OF CIGARETTE PACKET HOLOGRAPHIC PRINTED MATTER

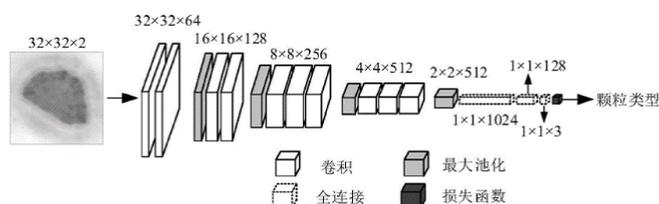
The invention relates to a method for calculating a color difference threshold value of a cigarette packet holographic printed matter, belonging to the technical field of printing; collecting chromatic values of different types and batches of cigarette packet holographic prints, and performing chromatic aberration calculation on standard samples and test samples of the cigarette packet holographic prints; an observer with normal tissue color vision visually compares the color difference of the standard sample and the sample cigarette packet holographic prints based on a comparison method in a psychophysical experiment, counts the probability P of the observer that the color difference is unacceptable when the observer visually observes all the sample cigarette packet holographic prints, compares the probability P with the CIELAB calculated color difference of the collected sample and the sample cigarette packet holographic prints, and accordingly determines the color difference threshold of the cigarette packet holographic prints. The threshold value can facilitate the quality evaluation of qualified or unqualified tobacco bale holographic presswork by enterprises in the quality inspection process, and avoid the misjudgment of the tobacco bale holographic presswork due to unreasonable setting of the color difference threshold value.



CLAIM 1. A method for calculating a chromatic aberration threshold of a cigarette packet holographic printed product comprises the following steps: (1) selecting m holographic papers of different types, the same batch or different batches as cigarette packet holographic prints of a printing substrate; (2) selecting one sample in the tobacco bale holographic prints in the step (1) as a standard sample of the type of prints, and taking the other samples as samples to be detected, namely samples, to form n sample pairs to be detected; (3) measuring the color colorimetric values of the standard sample and the test sample in the step (2) by using an integrating sphere spectrophotometer, wherein the measuring method is adopted and is determined according to the area size of a color homogenizing area in a tobacco bale printed matter to be evaluated; (4) calculating CIELAB or CIEDE2000 color difference values between the holographic prints of the standard sample and the sample cigarette packets; (5) an observer with normal tissue color vision carries out visual color difference comparison between the holographic prints of the standard sample and the sample cigarette packet based on a comparison method in a psychophysical experiment method, and the observer can give three judgments of 'no color difference', 'acceptable color difference' and 'unacceptable color difference'; (6) performing probability statistics on judgment of 'unacceptable color difference' between each pair of sample and standard sample cigarette packet holographic prints by all observers in the step (5), wherein in terms of P%, P% (judgment of 'unacceptable color difference'/judgment of color difference of all observers) 100%; (7) drawing a scatter diagram of the CIELAB or CIEDE2000 color difference value and the probability P% of the visual color difference unacceptable of an observer, wherein the abscissa is the calculated color difference value, and the ordinate is the probability P%; (8) setting a threshold value for judging that the cigarette packet holographic printed matter is qualified according to the visual evaluation of the cigarette packet holographic printed matter, wherein the probability P% of all observers that the color difference is unacceptable is 50%, and setting a calculated color difference threshold value ΔE_t ; (9) Optimizing the calculated color difference threshold value ΔE in the calculating step (8) The number of samples for which the observer visually judges that the color difference is unacceptable is the largest and the calculated color difference result is the same, and the E at that time is calculated And determining the color difference threshold of the cigarette packet holographic printing product.

METHOD FOR DEEP LEARNING HOLOGRAPHIC ONLINE MEASUREMENT OF COAL AND BIOMASS COUPLING POWER GENERATION BLENDING RATIO

The invention discloses a method for deep learning holographic online measurement of coal and biomass coupling power generation blending proportion, which comprises the following steps: respectively collecting holograms of coal dust particles and biomass particles by using a digital holographic particle measuring system, reconstructing the holograms to obtain a particle amplitude diagram and a particle phase diagram, and simultaneously measuring the densities of the coal dust and the biomass particles; constructing a deep learning holographic fuel particle discrimination framework, and training the framework by taking a particle amplitude diagram and a phase diagram as a training set; acquiring a hologram formed by mixing coal powder and biomass by using a digital holographic online measurement system, and applying a trained deep learning framework to the discrimination and classification of particles in a mixed particle hologram; carrying out morphology and size analysis on the classified particles, and calculating the volume of the particles; and calculating the blending ratio of the coal and the biomass. Compared with the existing metering method of the coal and biomass coupled power generation blending combustion ratio, the method provided by the invention can realize real-time measurement, is simple in implementation process, and has low requirements on hardware by a digital holographic technology, so that the measurement cost can be greatly reduced.



CLAIM 1. A method for deep learning holographic online measurement of coal and biomass coupling power generation blending ratio is characterized by comprising the following steps:

- (1) respectively collecting holograms of the coal dust and the biomass particles by using a digital holographic particle measuring system, and reconstructing the holograms to obtain an amplitude diagram and a phase diagram of the coal dust and the biomass particles; simultaneous determination of the density ρ_{coal} of the coal dust particles and density of biomass particles ρ_{bio} ;
- (2) Constructing a deep learning holographic fuel particle distinguishing framework, and training the framework by taking the amplitude diagrams and phase diagrams of the pulverized coal and biomass particles obtained in the step (1) as training sets;
- (3) obtaining a hologram formed by mixing coal dust and biomass particles by using a digital holographic online measurement system, inputting an amplitude diagram and a phase diagram which are subjected to reconstruction processing into a trained holographic fuel particle discrimination framework for discrimination and classification, and recording the coal dust particles in the amplitude diagram as coal dust particles. Biomass particles are described as
- (4) And (3) carrying out morphology and size analysis on the coal dust and the biomass particles in the amplitude map after discrimination and classification: the particle size and volume of the coal dust particles are respectively recorded. And the particle size and volume of the biomass particles are recorded separately. And
- (5) calculating the mixing proportion K of the coal powder and the biomass particles according to the density of the coal powder and the biomass particles in the step (1) and the volume of the coal powder and the biomass particles in the step (4), wherein the calculation formula is as follows:

$$K = \frac{\sum V_{\text{coal}}^i \rho_{\text{coal}}}{\sum V_{\text{bio}}^j \rho_{\text{bio}}}$$

wherein the blending proportion K is a mass ratio.

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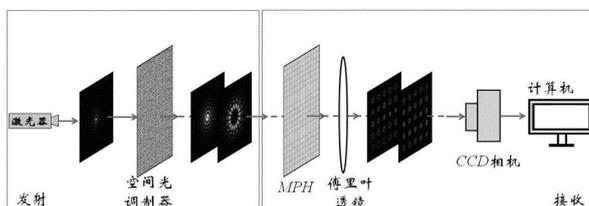
CN112782861

Priority Date: 14/01/2021

HEFEI UNIVERSITY OF TECHNOLOGY

SELF-RECOVERY OAM MODE COMMUNICATION SYSTEM BASED ON COMPOSITE PHASE HOLOGRAM

The invention discloses a self-recovery OAM mode communication system based on a composite phase hologram, which comprises a spatial light modulator and a Fourier lens for simulating diffraction, wherein the Fourier lens is positioned behind the spatial light modulator; and the composite phase hologram receives the Bessel Gaussian beams and then modulates the beams, a Fourier transformation is carried out on the demodulation result through the Fourier lens simulation diffraction process, and the demodulation result simultaneously demodulates the Bessel Gaussian beams in a single or a plurality of OAM modes and converts the beams into perfect vortexes on the focal plane position. According to the invention, the generated single or multiple composite BG light beams are incident on the MPH to be demodulated and then diffracted, so that the demodulation can be finished at the focal plane position, meanwhile, the BG light beams can be converted into perfect vortex, the interference caused by the superposition of the diameters of the light beams among the BG light beams with different OAM modes is avoided, one or multiple OAM modes can be demodulated simultaneously, and the demodulation efficiency of the OAM light beams is improved.



CLAIM 1. The self-recovery OAM mode communication system based on the composite phase hologram comprises a spatial light modulator and a Fourier lens for simulating diffraction positioned behind the spatial light modulator, and is characterized in that the spatial light modulator is loaded with the composite phase hologram; and the composite phase hologram receives the Bessel Gaussian beams and then modulates the beams, a Fourier transformation is carried out on the demodulation result through the Fourier lens simulation diffraction process, and the demodulation result simultaneously demodulates the Bessel Gaussian beams in a single or a plurality of OAM modes and converts the beams into perfect vortexes on the focal plane position.

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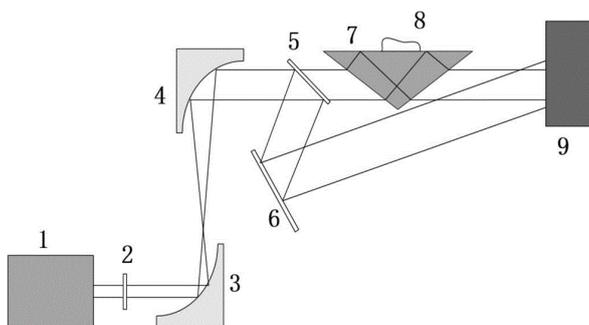
CN112730328

Priority Date: 26/12/2020

BEIJING UNIVERSITY OF TECHNOLOGY

CONTINUOUS TERAHERTZ WAVE TOTAL INTERNAL REFLECTION HOLOGRAPHIC REFRACTIVE INDEX FULL-FIELD DYNAMIC MEASUREMENT METHOD

The invention discloses a full-field dynamic measurement method for a continuous terahertz wave total internal reflection holographic refractive index. And calculating the real-time dynamic two-dimensional distribution condition of the refractive index of the sample through the phase change term.



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HOLOGRAMS - 16 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33350	WO	202195171	20/05/2021	TOPPAN PRINTING	WO	13/11/2019	WO2019440000573	WO202195171	PRINTING DEVICE	
P33355	WO	202192532	14/05/2021	FEDERAL CARD SERVICES	US	08/11/2019	US2019000932506	WO202192532	CONTACTLESS METAL TRANSACTION CARDS, AND A COMPOUND FILLED RECESS FOR EMBEDDING AN ELECTRONIC COMPONENT	
P33375	US	20210124919	29/04/2021	WOOLLY LABS	US	29/10/2019	US2019000927322	US20210124919 WO202186837	SYSTEM AND METHODS FOR AUTHENTICATION OF DOCUMENTS	Passport
P33388	KR	102251228	12/05/2021	KONA M	KR	13/11/2019	KR2019000144685	KR102251228	METHOD FOR FORMING METAL CARD HOLOGRAM USING LASER AND METAL CARD ACCORDING TO THE SAME	
P33402	JP	2021066030	30/04/2021	TOPPAN PRINTING	JP	18/10/2019	JP2019000191001	JP2021066030	INDIRECT TRANSFER RECORDING APPARATUS AND INDIRECT TRANSFER RECORDING METHOD	
P33413	EP	3825139	26/05/2021	CENTRO GRAFICO DG	IT	22/11/2019	IT2019000021966	EP3825139	ANTICOUNTERFEIT MULTILAYER DEVICE	OVD
P33426	CN	213261708	25/05/2021	YIN QIUFANG	CN	01/09/2020	CN2020001874499	CN213261708U	ULTRATHIN GOLD AND SILVER COMMEMORATIVE BANK NOTE WITH ANTI-COUNTERFEITING FUNCTION	
P33428	CN	213247243	25/05/2021	DONGGUAN QIANDUO GLUING PRODUCTS	CN	30/07/2020	CN2020001552672	CN213247243U	HOLOGRAPHIC ANTI-FAKE WATERPROOF ZIPPER	
P33431	CN	213229808	18/05/2021	ANHUI ZIJIANG SPRAY ALUMINUM ENVIRONMENTAL PROTECTION MATERIAL - SHANGHAI ZIJIANG METALLIZATION ENVIRONMENT PROTECTION MATERIAL	CN	07/07/2020	CN2020001314171	CN213229808U	NANO-ANTIBACTERIAL MICROSTRUCTURE HOLOGRAPHIC LASER ANTI-COUNTERFEITING POLYOLEFIN PACKAGING FILM	
P33432	CN	213228059	18/05/2021	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	28/07/2020	CN2020001528834	CN213228059U	HOLOGRAPHIC INFORMATION LAYER, HOLOGRAPHIC MATTE GOLD STAMPING FILM AND IDENTIFICATION STRUCTURE	
P33441	CN	213167454	11/05/2021	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	07/07/2020	CN2020001321707	CN213167454U	WEAR-RESISTANT AND ULTRAVIOLET-RESISTANT HOLOGRAPHIC ANTI-COUNTERFEITING FILM AND HOLOGRAPHIC ANTI-COUNTERFEITING CARD	
P33455	CN	213042545	23/04/2021	SUPMAKE PRINTING	CN	05/08/2020	CN2020001599762	CN213042545U	ANTI-FAKE, ANTI-DISMANTLING AND ANTI-OPENING LABEL	
P33463	CN	112799291	14/05/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	01/03/2021	CN2021000225595	CN112799291	OPTICAL ENCRYPTION METHOD BASED ON METASURFACE HOLOGRAPHIC TECHNOLOGY	
P33470	CN	112750358	04/05/2021	SENCHUANG PAPER SHANGHAI	CN	30/12/2020	CN2020001623498	CN112750358	FROSTED HOLOGRAPHIC ANTI-COUNTERFEITING PAPER AND PREPARATION PROCESS THEREOF	
P33473	CN	112721518	30/04/2021	ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT	CN	28/12/2020	CN2020001581063	CN112721518	THERMAL TRANSFER FILM, PREPARATION METHOD AND APPLICATION	
P33479	CN	112698562	23/04/2021	CHANGSHA LUBANG PHOTONICS TECHNOLOGY	CN	31/12/2020	CN2020001632081	CN112698562	ANTI-COUNTERFEITING MANUFACTURING SYSTEM AND METHOD THEREOF	

VARIOUS OPTICAL EFFECTS - 18 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33359	WO	202184247	06/05/2021	DE LA RUE INTERNATIONAL	GB	29/10/2019	GB2019000015677	WO202184247 GB201915677 GB2588625	METHOD OF FORMING A SECURITY DEVICE	Microlens Plasmonic structures
P33362	WO	202183809	06/05/2021	SICPA	EP	28/10/2019	EP2019000205715	WO202183809	MAGNETIC ASSEMBLIES AND PROCESSES FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING ORIENTED NON-SPHERICAL MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES	
P33363	WO	202183808	06/05/2021	SICPA	EP	28/10/2019	EP2019000205716	WO202183808	MAGNETIC ASSEMBLIES AND PROCESSES FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING ORIENTED NON-SPHERICAL MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES	

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VARIOUS OPTICAL EFFECTS - 18 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33364	WO	202180367	29/04/2021	NBST	KR	23/10/2019	KR2019000132409	WO202180367 KR20210048298	FORGERY AND ALTERATION PREVENTING MEANS COMPRISING PHOTONIC CRYSTAL MATERIAL COMPLEX	Photonic crystal
P33368	WO	202178407	29/04/2021	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	24/10/2019	DE201910007418	WO202178407 DE102019007418	SECURITY ELEMENT AND VALUE DOCUMENT HAVING SECURITY FEATURES THAT CAN BE CHECKED VISUALLY AND BY MACHINE AND THAT HAVE A MUTUAL SPATIAL RELATIONSHIP	Microlens
P33369	WO	202178406	29/04/2021	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	24/10/2019	DE201910007417	WO202178406 DE102019007417	SECURITY ELEMENT HAVING MACHINE-READABLE IR CODE	Microlens
P33380	TW	611350	01/05/2021	JIAN, XIAO-QI	TW	28/09/2020		TWM611350	IMPROVED CARD STRUCTURE THAT RESULTS IN A CONTINUOUS MULTIVARIATE PATTERN	
P33390	KR	102247349	03/05/2021	KRICT KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY	KR	18/11/2019	KR2019000147539	KR102247349	COLOR CONVERSION PHOTONIC CRYSTAL STRUCTURE AND USE THEREOF	
P33413	EP	3825139	26/05/2021	CENTRO GRAFICO DG	IT	22/11/2019	IT2019000021966	EP3825139	ANTICOUNTERFEIT MULTILAYER DEVICE	Hologram
P33423	DE	102019008250	27/05/2021	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	27/11/2019	DE201910008250	DE102019008250	SECURITY ELEMENT HAVING TILT-DEPENDENT MOTIF DEPICTION AND METHOD FOR PRODUCTION THEREOF	
P33424	DE	102019008021	20/05/2021	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	19/11/2019	DE201910008021	DE102019008021	PRODUCTION METHOD FOR A SECURITY ELEMENT AND SECURITY ELEMENT	
P33439	CN	213173144	11/05/2021	SHANGHAI GUANZHONG OPTICAL TECHNOLOGY	CN	11/08/2020	CN2020001654747	CN213173144U	ANTI-COUNTERFEITING PAPER AND CIGARETTE PAPER	
P33457	CN	112835136	25/05/2021	SHENZHEN XIKADE TECHNOLOGY	CN	19/03/2021	CN2021000297530	CN112835136	MICRO-LENS ARRAY FILM AND MANUFACTURING METHOD THEREOF	Microlens
P33464	CN	112793323	14/05/2021	SHENZHEN ZHONGLISHENG PACKAGING TECHNOLOGY	CN	03/12/2020	CN2020001396340	CN112793323	PRINTING METHOD OF MAGNETIC OPTICALLY VARIABLE INK	
P33475	CN	112708288	27/04/2021	UNIVERSITY OF XIAMEN	CN	21/05/2020	CN2020000435976	CN112708288	MAGNETIC STRUCTURE COLOR FILM	
P33480	CN	112698435	23/04/2021	NBST - XINWEI ZHIFANG	KR	23/10/2019	KR2019000132418	CN112698435 KR102242677	ANTI-COUNTERFEITING CHANGING DEVICE CONTAINING RETRO-REFLECTIVE MATERIAL	
P33483	AT	523060	15/05/2021	HUECK FOLIEN	AT	12/05/2020	AT2020000050408	AT-523060 AT-523060	SICHERHEITSELEMENT	
P33485	AR	116201	14/04/2021	POLSKA WYTWORNIA PAPIEROW WARTOSCIOWYCH	AR	10/06/2019	AR2019000101595	AR-116201	DOCUMENTO DE SEGURIDAD CON UN ELEMENTO DE SEGURIDAD, UN MÉTODO PARA PRODUCIRLO Y UN ELEMENTO DE SEGURIDAD	

NON SECURITY HOLOGRAMS - 88 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N7754	WO	2021101264	27/05/2021	KRICT KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY - KYUNGPOOK NATIONAL UNIVERSITY INDUSTRY ACADEMIC COOPERATION FOUNDATION	KR	22/11/2019	KR2019000151521	WO2021101264	AZOBENZENE COMPOUND COMPRISING NITROGEN-CONTAINING HETEROAROMATIC, AND BLUE HOLOGRAM RECORDING COMPOSITION COMPRISING SAME	
N7755	WO	2021100654	27/05/2021	mitsubishi chemical	JP	19/11/2019	JP2019000208980	WO2021100654	COMPOUND, POLYMERIZABLE COMPOSITION, POLYMER, HOLOGRAPHIC RECORDING MEDIUM, OPTICAL MATERIAL AND OPTICAL COMPONENT	
N7756	WO	202198744	27/05/2021	SVG TECHNOLOGY	CN	18/11/2019	CN2019001129144	CN112817152 WO202198744	HOLOGRAPHIC WAVEGUIDE AND AR DISPLAY DEVICE	
N7757	WO	202196060	20/05/2021	KOREA ELECTRONICS TECHNOLOGY INSTITUTE	KR	13/11/2019	KR2019000144920	WO202196060 KR20210058022	HOLOGRAPHIC STEREOGRAM PRINTING SYSTEM AND METHOD USING OPTICAL FIBER	

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NON SECURITY HOLOGRAMS - 88 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N7758	WO	202195400	20/05/2021	SONY	JP	11/11/2019	JP2019000203818	WO202195400	COMPOSITION FOR HOLOGRAPHIC RECORDING, HOLOGRAPHIC RECORDING MEDIUM, HOLOGRAM, AND OPTICAL DEVICE AND OPTICAL COMPONENT BOTH INCLUDING SAME	
N7759	WO	202194536	20/05/2021	SEE THROUGH SCIENTIFIC	GB	15/11/2019	GB2019000016705	WO202194536 GB201916705	DIGITAL HOLOGRAPHIC MICROSCOPE	
N7760	WO	202194046	20/05/2021	BMW - BAYERISCHE MOTORENWERKE	DE	11/11/2019	DE201910130284	DE102019130284 WO202194046	METHOD FOR PRODUCING A CURVED SUBSTRATE WAFER WITH A HOLOGRAM, RESULTING SUBSTRATE WAFER WITH HOLOGRAM AND A WAFER COMPOSITE CONTAINING THE SAME, IN PARTICULAR A VEHICLE WAFER	
N7761	WO	202189362	14/05/2021	BMW - BAYERISCHE MOTORENWERKE	DE	07/11/2019	DE201910130021	WO202189362 DE102019130021	METHOD FOR PRODUCING A HOLOGRAM ON A CURVED SUBSTRATE PLATE, RESULTING SUBSTRATE PLATE WITH HOLOGRAM AND A LAMINATE, IN PARTICULAR A VEHICLE WINDSCREEN, CONTAINING SAID SUBSTRATE PLATE	
N7762	WO	202186293	06/05/2021	IZMIR YUKSEK TEKNOLOJİ ENSTITUSU	TR	01/11/2019	TR2019000016902	WO202186293	PROTEIN DETECTION USING LENSLESS HOLOGRAPHIC MICROSCOPY IMAGING TECHNIQUE IN A MAGNETIC LEVITATION SETUP	
N7763	US	20210157267	27/05/2021	EOTECH	US	21/11/2019	US2019000691291	US20210157267	POSITION ADJUSTMENT IN HOLOGRAPHIC SIGHT	
N7764	US	20210157266	27/05/2021	SANGMYUNG UNIVERSITY INDUSTRY ACADEMY COOPERATION FOUNDATION	KR	26/11/2019	KR2019000153740	US20210157266	METHOD AND APPARATUS FOR RECONSTRUCTING THREE-DIMENSIONAL IMAGE BY USING DIFFRACTION GRATING	
N7765	US	20210157119	27/05/2021	EOTECH	US	21/11/2019	US2019000691117	US20210157119	UNITARY CARRIER FOR HOLOGRAPHIC COMPONENTS	
N7766	US	20210157069	27/05/2021	SAMSUNG DISPLAY	KR	25/11/2019	KR2019000152485	US20210157069	HOLOGRAM DISPLAY DEVICE	
N7767	US	20210155639	27/05/2021	FACEBOOK TECHNOLOGIES	US	27/11/2019	US2019000941481	US20210155639	THIOPHOSPHATE AND PHOSPHINE SULFIDE DERIVATIZED MONOMERS AND POLYMERS FOR VOLUME BRAGG GRATINGS	
N7768	US	20210155599	27/05/2021	FACEBOOK TECHNOLOGIES	US	27/11/2019	US2019000941451	US20210155599	AROMATIC SUBSTITUTED ALKANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS	
N7769	US	20210155585	27/05/2021	FACEBOOK TECHNOLOGIES	US	27/11/2019	US2019000941490	US20210155585	ANTHRAQUINONE DERIVATIZED MONOMERS AND POLYMERS FOR VOLUME BRAGG GRATINGS	
N7770	US	20210155584	27/05/2021	FACEBOOK TECHNOLOGIES	US	27/11/2019	US2019000941458	US20210155584	AROMATIC SUBSTITUTED METHANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS	
N7771	US	20210155581	27/05/2021	FACEBOOK TECHNOLOGIES	US	27/11/2019	US2019000941470	US20210155581	AROMATIC SUBSTITUTED ETHANE-CORE MONOMERS AND POLYMERS THEREOF FOR VOLUME BRAGG GRATINGS	
N7772	US	20210149340	20/05/2021	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	19/11/2019	KR2019000148880	US20210149340	METHOD FOR GENERATING HOLOGRAM	
N7773	US	20210149339	20/05/2021	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	19/11/2019	KR2019000148882	US20210149339	METHOD AND APPARATUS FOR SYNTHESIZING HIGH RESOLUTION COMPUTER GENERATED HOLOGRAM BASED ON MESH	
N7774	US	20210141338	13/05/2021	GELES ÖZGÜR	US	12/11/2019	US2019000681579	US20210141338	DEVICE FOR GENERATING AT LEAST ONE HOLOGRAM	
N7775	US	20210141223	13/05/2021	GM GLOBAL TECHNOLOGY OPERATIONS	US	07/11/2019	US2019000676769	US20210141223 DE102020126896 CN112782857	HOLOGRAPHIC DISPLAY SYSTEMS WITH POLARIZATION CORRECTION AND DISTORTION REDUCTION PROVIDING ENHANCED IMAGE QUALITY	
N7776	US	20210132543	06/05/2021	FUTURE TECHNOLOGY RESEARCH CENTER - HYUNDAI MOBIS	KR	01/11/2019	KR2019000138252	US20210132543 KR20210052816	3D HOLOGRAM IMAGE PRODUCING LAMP FOR VEHICLE	
N7777	US	20210124305	29/04/2021	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	23/10/2019	KR2019000132336	US20210124305 KR20210048646	HOLOGRAM DISPLAY DEVICE AND METHOD FOR MANUFACTURING THE SAME	
N7778	US	20210123848	29/04/2021	NEW YORK UNIVERSITY - SPHERYX	US	25/10/2019	US2019000926092	US20210123848	HOLOGRAPHIC CHARACTERIZATION OF IRREGULAR PARTICLES	
N7779	TR	202009031	21/09/2020	HAKAN ALAN	TR	11/06/2020	TR2020000009031	TR202009031U	HOLOGRAM CURTAIN SYSTEM	

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NON SECURITY HOLOGRAMS - 88 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N7780	TR	201904031	21/10/2020	YUSUF GÜLCAN	TR	18/03/2019	TR201900004031	TR201904031	GLASSES WITH DIFFICULT NETWORK HOLOGRAM LENS	
N7781	RU	2746940	22/04/2021	NAUCHNO PROIZVODSTVENNOE OBEEDINENIE GOSUDARSTVENNYJ INSTITUT PRIKLADNOJ OPTIKI	RU	29/05/2020	RU2020000118779	RU2746940	HOLOGRAPHIC DEVICE FOR MEASURING THE CURVATURE RADIUS OF SPHERICAL SURFACES	
N7782	PL	2019431600	04/05/2021	MPACK POLAND SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA SPOLKA KOMANDYTOWA	PL	24/10/2019	PL2019000431600	PL2019431600	METHOD OF MARKING A PLASTIC PRODUCT WITH A HOLOGRAM AND A DEVICE FOR MARKING A PLASTIC PRODUCT WITH A HOLOGRAM	
N7783	KR	20210055639	17/05/2021	SON WAN JOO	KR	26/04/2021	KR2021000053676	KR20210055639	AN ADVANCED HOLOGRAPHY SYSTEM USING LIGHT CAPTURE TECHNOLOGY.	
N7784	KR	20210055638	17/05/2021	SON WAN JOO	KR	26/04/2021	KR2021000053674	KR20210055638	A HOLOGRAM REALIZATION SYSTEM USING ADVANCED HOLOGRAPHY.	
N7785	KR	20210055637	17/05/2021	SON WAN JOO	KR	26/04/2021	KR2021000053668	KR20210055637	A HOLOGRAPHIC IMAGING SYSTEM USING ADVANCED HOLOGRAPHY.	
N7786	KR	20210055167	17/05/2021	LEE, KYUNG EUN	KR	07/11/2019	KR2019000141318	KR20210055167	SMART HOLOGRAM DISPLAY APPARATUS BASED ON USER SENSING	
N7787	KR	20210055126	17/05/2021	HUMENIC	KR	06/11/2019	KR2019000140847	KR20210055126	SENSORY COGNITIVE REHABILITATION TRAINING TABLE USING HOLOGRAM AND COGNITIVE REHABILITATION TRAINING METHOD	
N7788	KR	20210051961	10/05/2021	KIM, DONG-JIN	KR	31/10/2019	KR2019000137909	KR20210051961	BIOLOGICAL DATA PROJECTION SYSTEM USING REFLECTIVE HOLOGRAM	
N7789	KR	20210048996	04/05/2021	KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	24/10/2019	KR2019000133218	KR20210048996	DEVICE AND METHOD FOR ERROR MEASUREMENT OF A PHASE HOLOGRAM	
N7790	KR	20210048427	03/05/2021	INDUSTRY ACADEMIA COOPERATION OF SEJONG UNIVERSITY	KR	23/10/2019	KR2019000132283	KR20210048391 KR20210048397 KR20210048426 KR20210048427	FLYING OVER BEAM PATTERN SCANNING HOLOGRAM MICROSCOPY DEVICE	
N7791	KR	102253919	20/05/2021	DILUSSION	KR	28/04/2020	KR2020000051270	KR102253919	APPARATUS AND METHOD FOR REMOTELY PROVIDING HOLOGRAM IMAGE	
N7792	KR	102251143	11/05/2021	INDUSTRY ACADEMIA COOPERATION OF SEJONG UNIVERSITY	KR	18/02/2020	KR2020000019582	KR102251143	GEOMETRIC PHASE SCANNING HOLOGRAPHY SYSTEM FOR TRANSMITTERS	
N7793	KR	102250156	10/05/2021	AHN, YONG SEOK	KR	26/02/2020	KR2020000023412	KR102250156	PORTABLE HOLOGRAPHIC DEVICE	
N7794	KR	102243306	22/04/2021	I-TECH	KR	29/12/2020	KR2020000185963	KR102243306	HOLOGRAPHIC BACKLIGHT EFFECT EXPLOITING APPARATUS FOR SHAPED OBJECTS	
N7795	KR	102241034	12/05/2021	HOLOLAB	KR	18/10/2019	KR2019000130249	KR20210046485 KR102241034	HOLOGRAM REPLICATION METHOD AND SYSTEM	
N7796	JP	6866528	28/04/2021	RESEARCH CORPORATION	JP	30/07/2020	JP2020000128878	JP6866528	HOLOGRAPHIC PROJECTION DEVICE	
N7797	IN	202121011680	30/04/2021	PAWAR MOHANDAS VISHWANATH - PAWAR ASHA MOHANDAS - PRASANTH HRIDYA K - PARIKH AYUSHI D	IN	19/03/2021	IN2021021011680	IN202121011680	PROJECT 2D BLUEPRINTS INTO REAL-WORLD 3D PLANS USING HOLOGRAM HOME	
N7798	FR	3103289	21/05/2021	RABEH HATEM - CLAVERIE FRÉDÉRIC PIERRE - KHARBOUCHI HOUSSAM	FR	14/11/2019	FR2019000012680	FR3103289	HOLOX FOLDABLE HOLOGRAM	
N7799	DE	102019130022	12/05/2021	BMW - BAYERISCHE MOTORENWERKE	DE	07/11/2019	DE201910130022	DE102019130022	METHOD FOR INTEGRATING A HOLOGRAM IN A COMPOSITE PANE WITH A CURVED GEOMETRY, IN PARTICULAR IN A VEHICLE PANE, A RESULTING COMPOSITE PANE AND A VEHICLE CONTAINING THE SAME	
N7800	CN	213276252	25/05/2021	CHONGQING REBO LIGHTING & ELECTRONICS	CN	02/11/2020	CN2020002496792	CN213276252U	IMAGE DISC SUITABLE FOR HOLOGRAPHIC PROJECTION AND HIGH-COST-PERFORMANCE HOLOGRAPHIC PROJECTION DISPLAY EQUIPMENT	

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N7801	CN	213268725	25/05/2021	SHENZHEN HONG YUAN CONSTRUCTION PROJECT	CN	09/09/2020	CN2020001955783	CN213268725U	ATMOSPHERE DECORATION WALL SURFACE STRUCTURE BASED ON 3D HOLOGRAPHIC TECHNOLOGY	
N7802	CN	213241712	18/05/2021	SHENZHEN JIWOKOS TECHNOLOGY	CN	09/10/2020	CN2020002233361	CN213241712U	HOLOGRAPHIC ROTARY DISPLAY EQUIPMENT WITH EMERGENCY STOP PROTECTION FUNCTION	
N7803	CN	213240790	18/05/2021	SHENZHEN JIMOKE TECHNOLOGY	CN	25/11/2020	CN2020002771365	CN213240790U	PORTABLE HOLOGRAPHIC PROJECTION DISPLAY	
N7804	CN	213228001	18/05/2021	SHAOXING DEXIN PACKAGING MATERIAL	CN	12/08/2020	CN2020001669810	CN213228001U	HOLOGRAPHIC MOLDING PRESS	
N7805	CN	213211653	14/05/2021	DALIAN COLLEGE OF ART	CN	24/10/2020	CN2020002387621	CN213211653U	VOICE EXPLANATION TYPE 3D HOLOGRAPHIC PROJECTION DISPLAY DEVICE FOR ENVIRONMENTAL DESIGN	
N7806	CN	213210583	14/05/2021	HEBEI BOXIA PHOTOELECTRIC INFORMATION TECHNOLOGY	CN	17/08/2020	CN2020001712113	CN213210583U	ADJUSTABLE OBJECTIVE TABLE FOR DIGITAL HOLOGRAPHIC MICROSCOPE	
N7807	CN	213209825	14/05/2021	QINGDAO UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	29/07/2020	CN2020001530187	CN213209825U	OPTICAL DEVICE FOR HOLOGRAPHIC INTERFEROMETRY	
N7808	CN	213199590	14/05/2021	GREAT WALL MOTOR	CN	07/08/2020	CN2020001636230	CN213199590U	PROJECTION PART PROTECTION STRUCTURE AND AUTOMOBILE HOLOGRAPHIC PROJECTION WARNING DEVICE	
N7809	CN	213183366	11/05/2021	CHANGYUAN TEFA TECHNOLOGY	CN	28/10/2020	CN2020002427248	CN213183366U	INTELLIGENT INTERACTION DEVICE BASED ON 3D HOLOGRAPHIC TECHNOLOGY	
N7810	CN	213177612	11/05/2021	SHENZHEN LIAN YONG POLYTRON TECHNOLOGIES	CN	22/09/2020	CN2020002086636	CN213177612U	PANEL COMPUTER BASED ON ANTI-SHAKE HOLOGRAPHIC PROJECTION INTELLIGENT IMAGE	
N7811	CN	213150202	07/05/2021	XIN JIANG UNIVERSITY	CN	09/11/2020	CN2020002565299	CN213150202U	HOLOGRAPHIC SCREEN DISPLAY DEVICE OF TOURISM PROPAGANDA	
N7812	CN	213123729	04/05/2021	SHENZHEN ENNO OPTOELECTRONICS TECHNOLOGY	CN	23/10/2020	CN2020002395604	CN213123729U	HOLOGRAPHIC IMAGE DISPLAY DEVICE BASED ON TOUCH INTERACTION	
N7813	CN	213123604	04/05/2021	SHANGHAI MANWEI INTELLIGENT TECHNOLOGY	CN	10/11/2020	CN2020002579187	CN213123604U	180 DEGREE HOLOGRAPHIC PHANTOM IMAGING ELECTRIC 45 DEGREE OPENING AND CLOSING AUTOMATION DEVICE	
N7814	CN	213122591	04/05/2021	MEIMING TECHNOLOGY XIAMEN	CN	11/09/2020	CN2020001974031	CN213122591U	HOLOGRAPHIC THREE-DIMENSIONAL LIQUID CRYSTAL PROJECTION DISPLAY DEVICE	
N7815	CN	213108836	04/05/2021	SHENZHEN CHAMPION UNION STICKER PRODUCTS	CN	03/07/2020	CN2020001284876	CN213108836U	360-DEGREE PHOTOPOLYMERIZATION HOLOGRAPHIC FILM	
N7816	CN	213092641	30/04/2021	SHANGHAI FANQI OPTOELECTRONICS TECHNOLOGY	CN	15/07/2020	CN2020001389146	CN213092641U	DIGITAL HOLOGRAPHIC PANORAMIC SAND TABLE SYSTEM	
N7817	CN	213092106	30/04/2021	ZHENGZHOU CHUANGSHIDAI NETWORK TECHNOLOGY	CN	27/09/2020	CN2020002194545	CN213092106U	3D LASER HOLOGRAPHIC PROJECTION INTERACTIVE DISPLAY PLATFORM	
N7818	CN	213089276	30/04/2021	WUXI INSTITUTE OF TECHNOLOGY	CN	14/09/2020	CN2020002000661	CN213089276U	MAGNETIC SUSPENSION DEVICE OF HOLOGRAPHIC FAN	
N7819	CN	213069491	27/04/2021	WUHAN NEW PERSPECTIVE OPTOELECTRONIC TECHNOLOGY	CN	04/11/2020	CN2020002526784	CN213069491U	NOVEL HOLOGRAPHIC SCREEN	
N7820	CN	213069490	27/04/2021	NINGBO HIGH NEW DISTRICT YUANXIA SCIENCE & TECHNOLOGY	CN	16/01/2020	CN2020000095250	CN213069490U	HOLOGRAPHIC IMAGE SYSTEM WITH ELECTROCHROMIC FUNCTION	
N7821	CN	213069489	27/04/2021	NINGBO HIGH NEW DISTRICT YUANXIA SCIENCE & TECHNOLOGY	CN	16/01/2020	CN2020000094109	CN213069489U	HOLOGRAPHIC IMAGE SYSTEM	
N7822	CN	112837407	25/05/2021	ZHONGQI CHUANGZHI TECHNOLOGY	CN	22/01/2021	CN2021000090053	CN112837407	INTELLIGENT CABIN HOLOGRAPHIC PROJECTION SYSTEM AND INTERACTION METHOD THEREOF	
N7823	CN	112837390	25/05/2021	NANJING UNIVERSITY OF POSTS & TELECOMMUNICATIONS	CN	08/02/2021	CN2021000181946	CN112837390	RECONSTRUCTION METHOD AND SYSTEM OF LOW-QUALITY DIGITAL HOLOGRAPHIC IMAGE	

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N7824	CN	112835263	25/05/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	22/11/2019	CN2019001164182	CN112835263	SINGLE-STEP EXPOSURE METHOD AND DEVICE FOR LIQUID CRYSTAL COMPUTER HOLOGRAM	
N7825	CN	112812210	18/05/2021	FUJIAN NORMAL UNIVERSITY	CN	21/01/2021	CN2021000085052	CN112812210	THERMAL POLYMERIZATION PROCESS OF PQ/PMMA PHOTOPOLYMER MATERIAL, PQ/PMMA PHOTOPOLYMER MATERIAL AND HOLOGRAPHIC OPTICAL DISK THEREOF	
N7826	CN	112804499	14/05/2021	GUANGDONG SOUTHERN PLANNING & DESIGNING INSTITUTE OF TELECOM CONSULTATION	CN	05/02/2021	CN2021000160698	CN112804499	HOLOGRAPHIC CONSTRUCTION SAFETY MONITORING SYSTEM	
N7827	CN	112802416	14/05/2021	SUZHOU PEACH GUTHRIE MDT INFOTECH	CN	09/02/2021	CN2021000175255	CN112802416	IMPLEMENTATION METHOD OF FOLDABLE HOLOGRAPHIC DISPLAY DEVICE	
N7828	CN	112798107	14/05/2021	BELJING INSTITUTE OF GRAPHIC COMMUNICATION	CN	18/01/2021	CN2021000065186	CN112798107	METHOD FOR CALCULATING COLOR DIFFERENCE THRESHOLD OF CIGARETTE PACKET HOLOGRAPHIC PRINTED MATTER	
N7829	CN	112782925	11/05/2021	HEBEI NORMAL UNIVERSITY FOR NATIONALITIES	CN	03/02/2021	CN2021000151459	CN112782925	3D HOLOGRAPHIC IMAGE PROJECTION EQUIPMENT	
N7830	CN	112782880	11/05/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	01/03/2021	CN2021000225581	CN112782880	MICRO HOLOGRAPHIC DISPLAY INTEGRATING LIQUID CRYSTAL AND METASURFACE	
N7831	CN	112782861	11/05/2021	HEFEI UNIVERSITY OF TECHNOLOGY	CN	14/01/2021	CN2021000045217	CN112782861	SELF-RECOVERY OAM MODE COMMUNICATION SYSTEM BASED ON COMPOSITE PHASE HOLOGRAM	
N7832	CN	112782858	11/05/2021	GUDONG TECHNOLOGY	CN	21/01/2021	CN2021000082174	CN112782858	THREE-DIMENSIONAL DYNAMIC FULL-COLOR DISPLAY AUGMENTED REALITY HOLOGRAPHIC NEAR-TO-EYE DISPLAY DEVICE	
N7833	CN	112765624	07/05/2021	ZHEJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	19/01/2021	CN2021000067814	CN112765624	AUTHENTICATABLE PHASE-ONLY HOLOGRAM GENERATION METHOD BASED ON PHASE OPTIMIZATION AND SPARSE CONSTRAINT	
N7834	CN	112764280	07/05/2021	CHONGQING INSTITUTE OF GREEN & INTELLIGENT TECHNOLOGY CHINESE ACADEMY OF SCIENCES - CHONGQING UNIVERSITY	CN	18/01/2021	CN2021000063598	CN112764280	LIQUID CRYSTAL HOLOGRAPHIC DISPLAY SCREEN CAPABLE OF SIMULTANEOUSLY REALIZING AMPLITUDE AND PHASE MODULATION	
N7835	CN	112764222	07/05/2021	SOUTHEAST UNIVERSITY NANJING	CN	06/01/2021	CN2021000011408	CN112764222	COMPACT STRUCTURE'S HOLOGRAPHIC WAVEGUIDE DISPLAY SYSTEM	
N7836	CN	112764159	07/05/2021	HANGZHOU GUANGLI TECHNOLOGY	CN	21/10/2019	CN2019001002010	CN112764159	OPTICAL WAVEGUIDE ELEMENT, METHOD FOR PRODUCING THE SAME, AND HOLOGRAPHIC OPTICAL WAVEGUIDE DISPLAY DEVICE	
N7837	CN	112750386	04/05/2021	SHANDONG WOMENS UNIVERSITY	CN	18/01/2021	CN2021000065607	CN112750386	REAL-TIME INTERACTIVE 3D HOLOGRAPHIC PROJECTION EQUIPMENT	
N7838	CN	112749507	04/05/2021	ZHEJIANG UNIVERSITY	CN	29/12/2020	CN2020001593735	CN112749507	METHOD FOR DEEP LEARNING HOLOGRAPHIC ONLINE MEASUREMENT OF COAL AND BIOMASS COUPLING POWER GENERATION BLENDING RATIO	
N7839	CN	112731784	30/04/2021	KUNMING UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	08/01/2021	CN2021000022851	CN112731784	STATIC OPTICAL SCANNING TILT HOLOGRAPHIC SYSTEM AND IMPLEMENTATION METHOD	
N7840	CN	112731783	30/04/2021	SUN YAT SEN UNIVERSITY	CN	16/12/2020	CN2020001492195	CN112731783	HIGH-FLUX SINGLE-PIXEL HOLOGRAPHIC IMAGING METHOD AND SYSTEM	
N7841	CN	112730328	30/04/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	26/12/2020	CN2020001569727	CN112730328	CONTINUOUS TERAHERTZ WAVE TOTAL INTERNAL REFLECTION HOLOGRAPHIC REFRACTIVE INDEX FULL-FIELD DYNAMIC MEASUREMENT METHOD	