Title

Assembly for Representing Images in Three Dimensions

Field of the Invention

The invention relates to an assembly for representing images in three dimensions, including an image reproduction device with a plurality of image elements which represents one or more views of a scene, an article or a text, according to a specified order, and from one or more views, a filter array which is located in front of the image reproduction device in the line of vision of an observer and which contains a plurality of filter elements that are transparent in certain wavelengths ranges, in addition to filter elements that are essentially impermeable to visible light, with the said filter elements being mounted on a transparent substrate, which is positioned in front of the image reproduction device.

State of the art

The state of the art includes those types of assemblies, which are; for example, based on lenticular screens, filter arrays and barrier screens. The disadvantage for the observer often comes in the form of reflections on the image surface. DE 200 22 583 U1 does indeed disclose a method for the minimisation of the reflex by means of an external print on of an absorbing filter array. The resistance capabilities of the outer surface in this instance are very limited however. An externally printed filter array made in accordance with the teaching, usually produced by screen printing, which has not been thermally treated to lend it improved resistance qualities, is easily scratched by a key or other similar pointed items and which is therefore only of limited commercial viability.

Description of the invention

Therefore the task of the invention is to prevent as far as possible the occurrence of stray light reflexes with assemblies of the type previously specified, and thereby to improve the perception of the 3D representation, and at the same time where possible to achieve a high level of resistance regarding the outer surface of the assembly. These aims are to be achieved using the simplest of means.

This task will be solved for an assembly of the type previously specified whereby a method is established for preventing of stray light reflexes. The perception of the 3D representation will be improved by this mean.

In one of the preferred embodiments of the invention the filter elements which are essentially impermeable to visible light, are mounted in front on the transparent substrate in the line of vision of the observer, whereby, the means for the prevention of the occurrence stray light reflexes, is a transparent panel, which is anti-reflective on at least one side, placed in front of the filter array facing towards the observer and in the observer's line of vision.

By mounting the filter element, which is largely impermeable to visible light, in front of a transparent substrate in the line of vision of the observer, a very good reduction of external stray light reflex can be achieved. At the same time the transparent panel, which is anti-reflective on at least one side, placed in front of the filter array ensures a good level of protection for the array, whereby the anti-reflection properties mean that only a low level of stray light reflexes occur by reason of the transparent panel. This is how the task of preventing the occurrence of interruptive reflexes to the greatest extent possible, together with the achievement of high resistance of the external assembly surface is solved by the inventive assembly.

Compared to a matt coating, the anti-reflective panel has the advantage whereby image lag initially caused by the undesirable dispersion of the transmitted useful light is reduced to the fullest possible extent.

Another measure in the case of a matt layer instead of an anti-reflective one would be the reduction of the distance between the matted layer and the grid of the image-generating sub-pixel of the image reproduction device. With a TFT-LCD screen this can, for example, by realised by an unsymmetrical layer construction of the

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LC panel, which means that there is no need for a glass panel on the observer side. The glass plate mounted on the side nearest the observer can be increased in its thickness, in the event that this is necessary for reasons of stability.

However, instead of an anti-glare matt layer, as already explained above, a multi-layered coating for anti-reflection can be mounted on the front polarizor or the front panel of the TFT screen or the front-side glass panel on plasma screens. This type of coating creates a smooth

continuous adjustment of the optical refractive indexes of the adjoining optical media air and the polarizor filter or glass plate.

The transparent plate can, for example, be constructed from plastic or glass and is preferably anti-reflective on both sides with a multi-layered coating. Safety glass may also be used.

For all embodiments, there is an air-filled space of between 0mm and 4 mm inclusive between the transparent plate and the filter elements that are essentially impermeable to visible light. For particular applications this space can also be greater than 4mm.

With the use, in particular, of plasma screens as image reproduction devices it can be advantageous if, between the transparent substrate and the image-producing surface of the image reproduction device, there is an almost completely or wholly transparent conducting panel, preferably made from laminated glass.

Irrespective of this, it is also possible for the transparent substrate itself to be an almost completely or wholly transparent electric conducting panel, preferably made from laminated glass.

In another preferred embodiment of the invention, the filter elements that are essentially impermeable to visible light are mounted on the front or back of the transparent substrate in the line of vision of the observer and have a diffuse dispersion and/or matt surface. The filter elements transparent for certain wavelength ranges

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are preferred for visible light that is essentially transparent.

Because of the diffuse dispersion and/or matt surface of the filter elements that are essentially permeable to visible light, a very good reduction of the reflex can be achieved with regard to the external stray light, in particular when the said filter elements are positioned on the front of the transparent substrate in the line of vision of the observer.

The transparent substrate is advantageously anti-reflective on one side at least, but more preferably on both sides, by means of a multi-layered coating. The filter elements that are essentially transparent to visible light too may be made anti-reflective by applying an anti-reflective multi-layered coating to the side facing the observer, where it is mounted on the front side, i.e. the side of the transparent substrate facing the observer.

In a preferred variation of this embodiment, the filter elements that are essentially impermeable to visible light are mounted on the front of the transparent substrate in the line of vision of the observer. The applicable diffuse dispersion and /or matt surface for the filter elements that are essentially impermeable to visible light is formed by an anti-glare matt coating– standard for LCD panels, which is added as an additional component to the filter elements that are essentially impermeable to visible light. With regard to interior areas in particular this achieves a very good situational suitability. This is ever improved the greater the ratio of the area of the impermeable filter surface area to the transparent surface area – the more views that can be used, the greater this ratio becomes in general.

The manufacture of this type of multi-component filter array is preferably carried out according to the following procedural steps: to begin with a standard LCD panel anti-glare matt coating is applied to the entire area of a filter array. Then the matt surface is removed,

essentially that surface section of the matt surface that is coextensive with the coating of the filter elements that are permeable to visible light, with a parallel projection along the surface normals. This can be done by using a laser, so that at the location of the specific surface section there will be a smooth, non-dispersing surface, and/or by cutting out the relevant surface section,

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e.g. by using a cutting tool or a punch, and/or by heating and cooling at the relevant area section, so that at the location of the said surface section a plane, not non-dispersing surface is produced, and/or by etching the relevant surface section using either an acid or another chemical, so that this produces a smooth, non-dispersing surface, and/or by cutting out the relevant surface section.

It is of course possible at this point to finish surface sections with a non-matt surface, which are somewhat larger or smaller than those produced by the aforementioned projection.

Alternatively the manufacture can also be undertaken according to the following procedural steps: To begin a filter array will be provided, the filters elements of which are essentially impermeable to visible light, and which are mounted on a transparent substrate. Then a diffuse dispersion and / or matt surface will be prepared for the filter elements that are essentially impermeable to visible light. This can be executed by irradiating the said filter elements with a laser, so that a diffuse dispersion and/or matt surface is produced, and / or by milling, e.g. using emery paper, on the said filter element so that a diffuse dispersion and / or matt surface is produced there, and / or by heating and cooling the said filter element so that diffuse dispersion and / or matt surface is produced there, and / or by etching the said filter element using an acid, so that a diffuse dispersion and /or matt surface is produced there.

A further improvement is achieved, if at least the transparent filter elements, i.e. those which are transparent to visible light, are treated with a multi-layered coating for anti-reflection. For applications in exterior environments and with direct sunlight an additional multi-layered coating is beneficial for anti-reflection of the diffuse dispersion matt filter elements that are essentially impermeable to light. For uses in the exterior environment rather than that, the filter elements could have a standard reflecting surface.

The inventive solution can also be applied where the filter array on the transparent substrate is mounted directly into an image reproduction device, i.e. for example between the flat background lighting and a transmissive image generator such as an LCD panel.

Furthermore the inventive solution makes obsolete the presence of a dedicated anti-glare matt coating on the image reproduction device. This type of coating may be present, but it not strictly necessary.

The filter array may consist of, by way of example, exposed or plotted developed photographic film, provided both the plastic substrate of the film and the optionally useable glass or plastic panel, located on the rear side and in the direction of the line of vision and onto which the plastic film is laminated, correspond to the said transparent substrate. The said filter elements that are essentially impermeable to visible light are comprised of the blackened film emulsion or the photographic silver grains. The filter elements transparent for visible light may be comprised of those not blackened prior to development.

In a further embodiment of the invention, all the filter elements are mounted on the rear side of the substrate in the line of vision of the observer, and the front side of the substrate in the line of vision of the observer is finished with a anti-reflective surface. Only those surface sections of the rear side of the transparent substrate, on which filter elements are mounted that are transparent to certain wavelength ranges, are finished with an anti-reflective surface.

In a similar embodiment of the invention, which also has all filter elements mounted on the rear side of the substrate in the line of vision of the observer, only the front side of the transparent substrate in the line of vision of the observer is finished with an anti-reflective surface, but not the rear side.

The transparent substrate in both designs is preferably made from glass or plastic. Moreover, all anti-reflective surfaces preferably consist of multi-layered coatings on the transparent substrate as, preferably as an interference optical anti-reflection. These types of measures are well known to experts in the field.

In a particularly preferred embodiments, the filter elements that are essentially impermeable to visible light are mounted on a laminate, which in turn is mounted on the rear side of the transparent substrate – with adhesive or is laminated. The transparent filter elements are also advantageously mounted on this laminate. The filter elements can be mounted as black paint - preferably matt – on the laminate,

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usually by means of a printing process in the structure form of the filter array. It is especially preferred to have a self-adhesive laminate and to affix this to the transparent substrate using the side finished with the painted or filter elements. It is of course possible that the filter elements or the painted side is kept separate from the transparent substrate.

In a particularly preferred variation of this embodiment with laminate, the refractive indexes of the transparent substrate and the adhesive or laminated layer – the layer with which the permanent join of the laminate and the substrate is produced - are not more than a third apart, but preferably no more than 20%. Likewise the refractive indexes of the adhesive or laminated layer and the laminate are not more than a third apart, and preferably no more than 20%. This type of configuration results in characteristics particularly advantageous for observation.

For all embodiments it is preferred that the filter array includes filter elements that are transparent to certain wavelength ranges, excluding filter elements that are essentially transparent to visible light and filter elements that are essentially impermeable to visible light. The individual filter elements have a user-defined and preferably quadrilateral shape.

For the image reproduction device, a colour LC display, a plasma display, an OLED, a projection display or an electro-luminescent display come into consideration by way of example, whereby other types of image reproduction devices are not to be excluded.

In some embodiments of the invention, it is preferred for the filter elements that are essentially impermeable to visible light to be mounted, preferably in matt-black paint, on the transparent substrate, preferably a glass or plastic panel - optionally anti-reflective. Rather than paint a different material, a suitable plastic coating for example, can of course be used. Where paint is used, this can be applied by means of a print process - screen printing for example - in the structure form of the filter array. In the simplest case, the filter elements that

are essentially transparent to visible light are created by non-application of the paint. It is conceivable that the paint may initially be applied over the complete area, whereby the structure of the filter array is then retrospectively processed, with a laser for example. In both cases for best results the paint will be thermally treated following application.

This increases its resistance and can be advantageous for the production of a diffuse dispersion and / or matt surface.

Furthermore, between the transparent substrate and the image-generating surface there is to be a distance of 0mm to 24mm inclusive. The distance is measured from each of the facing surfaces of the transparent substrate and the image reproduction device. In exceptional cases the distance may be greater. The transparent substrate itself is preferably a few 100 µm to a few millimetres thick. If the RGB colour sub-pixels are, for example, roughly 100 µm wide, the transparent substrate is preferably approximately one millimetre thick. This corresponds to a type of distance regulator between the filter array and the image reproduction device. If the sub-pixels are about twice as wide, the transparent substrate can be up to a few millimetres thick with no problems.

It is also possible to use means for the optional three-dimensional perceptual or two-dimensional representation of the inventive assembly, provided that this does not lead to heightened stray light reflex sensitivity or the reduction of the normal resistance of the assembly surface.

For the structuring and manufacture of filter arrays reference is made here to the applicant's patent specifications DE 201 21 318 U1, WO 01/56265, PCT/EP2004/004464, PCT/EP2004/001833 as DE 101 45 133. It is self-evident that it is hereby assumed that the correlation of information from one or more views of a scene/ an article / a text to a plurality of image elements in a suitable manner will be carried out, in particular in accordance with the content of one or more of the aforementioned specifications.

Detailed Description of the Diagrams

A principle sketch of a first design of the invention is shown in Fig. 1. The arrangement, according to the invention, comprises a Picture Reproduction Installation (1) with a variety of picture elements representing information, in a stipulated classification, of one or more views of a scene, an object or a text, moreover a Filter Array (2) arranged in the View Direction (B) of an Observer (6) in front of the Picture Reproduction Installation (1), which comprises a variety of Filter Elements (2a) pervious to certain wave-length areas as well as essentially impervious (for visible light) Filter Elements (2b), whereby all Filter Elements (2a, 2b) of Filter Array (2) are applied in the View Direction (B) of the Observer (6) on the reverse side of a transparent Substratum (3) found in front of the Picture Reproduction Installation (1).

To prevent the creation of disruptive reflexes, the Front Side (4) of the transparent Substratum (3) in the View Direction (B) of an Observer (6) is provided with an anti-reflection surface. This includes only the surface sections of the reverse side of the transparent Substratum (3), on which the Filter Elements (2a) (pervious in certain wavelength areas) are applied, which are also provided with an anti-reflection surface. The other surface sections on the reverse side of the transparent Substratum (3), on which the Filter Elements (2b) (basically impervious for visible light) are applied, are, however, not provided with an anti-reflection surface.

In the exemplary design, only 2a (basically pervious for visible light) and 2b Filter Elements (basically impervious) are designated on the Filter Array (2). Moreover, the transparent Substratum (3) consists of glass, e.g. Conturan anti-reflective glass from the Schott Glass Factory in Grünenplan, Germany.

All surfaces with anti-reflection on the transparent Substratum (3) are shown as multiple coatings. Such measures are sufficiently known to the expert. The transparent Substratum (3) is fixed by distance holders onto the Picture Reproduction Installation (1), i.e. glued on.

A colour LC display of type NEC LCD4000 is used as Picture Reproduction Installation (1), for example.

The individual filter elements (2a, 2b) of the Filter Array (2) indicate a rectangular outline.

The Filter Elements (2b) (basically impervious for visible light) are advantageously applied due to a printing process as a matt black colour on the transparent Substratum (3) on its reverse side, whilst the Filter Elements (2a) (basically pervious for visible light) are simply produced by leaving out the colour on the corresponding places. The colour is printed in the structural form of Filter Array (2).

In order to guarantee that those surface sections of the reverse side of the transparent Substratum (3), on which the Filter Elements (2a) (pervious in certain wavelength areas) are applied, are provided with an anti-reflection surface, whereby however those surface sections of the reverse side of the transparent Substratum (3), on which the Filter Elements (2b) (basically impervious for visible light) are applied, are not provided with an anti-reflection surface, the following way of manufacturing can find application: at first, only the Front Side (4(of the transparent Substratum (3) is provided with an anti-reflection surface, whilst the reverse side is without one. The Filter Elements (2b) (basically impervious for visible light) are printed on the reverse side. Then an additional anti-reflection foil, preferably an adhesive multiple anti-reflection foil, is applied to the reverse side provided with the colour, e.g. by pressing it between two rolls.

The colour is preferably thermally treated after the procurement, in order to improve its resistance.

A Distance (5) of 11 millimetres between the transparent Substratum (3) and the picture-giving surface of the Picture Reproduction Installation (1) is indicated as an example.

In the manner described above, the creation of disruptive light reflexes is inhibited as much as possible, thereby improving the perception of the 3-D representation. A high resistance of the outer arrangement surface is simultaneously realised. The invention can, moreover, be realised with simple means.

Fig. 2 shows a second diagram of the invention. The arrangement shown comprises a Picture Reproduction Installation (1) of type NEC LCD4000 with 1280 slits and 768 lines of full-coloured picture elements – consisting of one red, green and blue colour sub-pixel respectively, representing, in stipulated arrangement, information about one or several views of a scene, object or text, as well as a Filter Array (2) in the View Direction (B) of an Observer (6) in front of the Picture Reproduction Installation (1), comprising a variety of Filter Elements (2a) (basically pervious for visible light) and (2b) (basically impervious for

visible light). Unlike the example shown in Fig. 1, the Filter Elements (2b) (basically impervious for visible light) in the View Direction (B) of the Observer (6) are in front on the transparent Substratum (3), which are located in front of the Picture Reproduction Installation (1). Moreover, the Filter Elements (2b) (basically impervious for visible light) reveal a diffusely scattered and /or matt Surface (7).

The transparent Substratum (3) is a 3 mm thick glass disc of the Conturan type, anti-reflective on both sides due to multiple coating, on which the Filter Elements (2b) (basically impervious for visible light) are applied as a matt black colour. This colour is applied through a silk-screen print process in the structure form of the Filter Array (2). The colour is advantageously treated thermally after the procurement. This increases the resistance and/or is helpful for obtaining a diffusely scattered and/or mat Surface (7). The Filter Elements (2a) (basically pervious for visible light) are, moreover, formed by simply leaving out the colour.

The individual Filter Elements (2a, 2b), the Filter Arrays (2) each reveal any one but preferably a rectangular outline. Moreover, a Distance (5) of 8 mm is prescribed between the transparent Substratum (3), i.e. the Conturan disc, and the picture-producing surface of the Picture Reproduction Installation (1).

A special design of this example intends that the respective diffusely scattering and/or matt Surface (7) of the Filter Elements (2b) (basically impervious for visible light) are formed by a – usual for LCD panels – antiglare matt layer, which is applied on the Filter Elements (2b) (basically impervious for visible light) as an additional component.

With this example, too, the creation of disruptive light reflexes with simple means is inhibited as much as possible, thus improving the perceptibility of the 3-D reproduction.

A third diagram of the invention is finally shown in Fig. 3. The arrangement shown there of the three-dimensional perceptible representation of pictures comprises a Picture Reproduction Installation (1) of type NEC LCD4000 with 1280 slits and 768 lines of full-colour picture elements, representing information in the prescribed order of one or more views of a scene, object or text, as well as a Filter Array (2) arranged in the View Direction (B) of an Observer (6) in front of the Picture Reproduction Installation (1), comprising a variety of Filter Elements (2a) (pervious in certain wavelength areas) as well as Filter Elements (2b) (basically impervious for visible light).
Like the example from Fig. 2, the Filter Elements (2b) (basically impervious for visible light) in the View Direction (B) of an Observer (6) are applied in front on a transparent Substratum (3) in the form of the 3mm thick, first Conturan glass disc located at a Distance (5) of 8 mm in front of the surface of the Picture Reproduction Installation (1).

In the View Direction (B) of an Observer (6) is found, however, in front of the Filter Array (2), a transparent Disc (8) in the form of a second 3 mm-thick Conturan glass disc, also anti-reflective on both sides due to multiple coating.

The so-called opaque Filter Elements (2a) (basically pervious) and (2b) (basically impervious) are exclusively intended to be on the Filter Array (2). The individual Filter Elements (2a and 2b) of the Filter Array (2) each indicate a rectangular outline.

On the transparent Substratum 3, i.e. the first Conturan glass disc, the Filter Elements (2b) (basically impervious for visible light) are applied as – preferably matt – black colour, e.g. printed. The usual silk-screen printing technique is suitable for printing, whereby the colour is

applied according to a printing process in the structure form of the Filter Array (2). Thus, no further subsequent structuring of the Filter Array (2) is necessary. The Filter Elements (2a) (basically pervious for visible light) are thereby formed simply by leaving out the colour on the transparent Substratum (3).

Through the procurement of the Filter Elements (2b) (basically impervious for visible light) in the View Direction (B) of an Observer (6) in front of the transparent Substratum (3), i.e. the first Conturan glass disc, a very good reflection reduction can be attained in regard to outer disruptive light. At the same time, Disc (8) (transparent, anti-reflective on both sides), i.e. the second Conturan glass disc in front of the Filter Array (2) assures a mechanical protection of the same, whereby only a slight light-disturbance sensitivity is present due to the anti-reflection on both sides. Thus, the task of inhibiting the creation of light disturbance reflexes as much as possible whilst simultaneously attaining a high level of resistance of the outer arrangement surface is accomplished through the arrangement (according to the invention) in this design as well.

A distance filled with air of approx. 0.5 mm is intended between the transparent Disc (8) and the Filter Elements 2b (basically impervious for visible light).

Moreover, a Distance (5) of 8 mm is intended between the transparent Substratum (3) – the first Conturan glass disc – and the picture-producing surface of the Picture Reproduction Installation (1). The distance is regarded as being measured by the surfaces pointed towards each other of the transparent Substratum (3) and the Picture Reproduction Installation (1).

With this arrangement, too, the creation of light-disturbance reflexes is inhibited as much as possible. Thus the perceptibility of the 3-D representation is improved. At the same time, a high level of resistance of the outer arrangement surface is realised. The invention is, moreover, can be realised with simple means.

Reference Sign List

1	Picture Reproduction Installation
2	Filter Array
2a, 2b	Filter Elements
3	Transparent Substratum
4	Surface of the Substratum
5	Distance
6	Observer
7	Surface of the Filter Elements
8	Transparent Disc
B	Observer

Patent Claims

1. Arrangement for the three-dimensional perceptible representation of pictures, including
- a Picture Reproduction Installation (1) with a variety of picture elements representing, in a stipulated arrangement, information from one or several views of a scene, object or text,

- an arranged Filter Array (2) in the View Direction (B) of an Observer (6) in front of the Picture Reproduction Installation (1) comprising a variety of Filter Elements (2a) pervious in certain wavelength areas and Filter Elements (2b) basically impervious for visible light,
- whereby the Filter Elements (2a, 2b) are applied on a transparent Substratum (3) found in front of the Picture Reproduction Installation (1),

characterised by the fact that

- measures for the prevention of the creation of light-disturbance reflexes are intended.

2. Arrangement according to Claim 1, characterised by the fact that the Filter Elements (2b), basically impervious for visible light, in the View Direction (B) of the Observer (6) are applied at the front on the transparent Substratum (3) and a Transparent Disc (8), anti-reflective at least on the side turned towards the Observer, is arranged in the View Direction (B) in front of the Filter Array (2) as a means for preventing the creation of light-disturbance reflexes.

3. Arrangement according to Claim 1 or 2 characterised by the fact that the Transparent Disc (8) is made of plastic or glass and is anti-reflective on both sides with a multiple coating.

4. Arrangement according to one of the previously mentioned claims, characterised by the fact that a distance filled with air from 0 to 4 mm inclusive is intended between the Transparent Disc (8) and the Filter Elements (2b), basically impervious for visible light.

5. Arrangement according to one of the previously mentioned claims, characterised by the fact that between the transparent Substratum (3) and the picture-producing surface of the Picture Reproduction Installation (1), either a completely transparent, electrically conductive disc, or one as transparent as possible, preferably made out of laminated glass, is arranged.

6. Arrangement according to one of the Claims 1 to 4, characterised by the fact that the transparent Substratum (3) is either a completely transparent, electrically conductive glass disc, or one as transparent as possible, preferably made out of laminated glass.

7. Arrangement according to Claim 1, in which the Filter Elements (2b), basically impervious for visible light, in the View Direction (B) of an Observer (6) are applied in front or behind the transparent Substratum (3), characterised by the fact that these Filter Elements (2b) indicate a diffuse scattering and / or matt Surface (7) for the prevention of the creation of light-disturbance reflexes.

8. Arrangement according to Claim 7, characterised by the fact that the Filter Elements (2a), basically pervious for certain wavelength areas, are basically pervious for visible light.

9. Arrangement according to Claim 8, characterised by the fact that the transparent Substratum (3) is anti-reflective, at least on one side, preferably on both sides, by means of a multiple coating.

10. Arrangement according to Claims 8 or 9, characterised by the fact that the Filter Elements (2a), applied at the front on the transparent Substratum, basically pervious for visible light, are anti-reflective on the side turned towards the Observer (6) with an anti-reflection multiple coating.

11. Arrangement according to Claims 7 to 10, in which the Filter Elements (2b) basically impervious for visible light, in the View Direction (B) of an Observer (6) are applied at the

front on the transparent Substratum (3) characterised by the fact that the respective diffuse scattering and /or matt Surface (7) of the Filter Elements (2b), basically impervious for visible light, is formed by an antiglare matting layer, which is applied on the Filter Elements (2b), basically impervious for visible light.

12. Arrangement according to one of the Claims 7 to 11, characterised by the fact that the Filter Elements (2a), pervious for visible light, are anti-reflective with a multiple coating.

13. Arrangement according to one of the Claims 7 to 12, characterised by the fact that the Filter Elements (2b), impervious for visible light are anti-reflective with a multiple coating.

14. Arrangement according to one of the previously mentioned claims, characterised by the fact that the Filter Array (2) is formed as a exposed or plotted developed photographic film, whereby the plastic Substratum of the film and optional simultaneous glass disc, found behind in the view direction, on which the plastic substratum of the film is laminated, corresponds to the transparent Substratum (3) and whereby the Filter Elements (2b), basically impervious for visible light, are formed by the blackened film emulsion.

15. Arrangement according to Claim 1, in which all Filter Elements (2a, 2b) in the View Direction (B) of the Observer (6) are applied on the reverse side of the transparent Substratum (3), characterised by the fact that for the prevention of the creation of light-disturbance reflexes, the Front Side (4) of the transparent Substratum (3) in the View Direction (B) of the Observer (6) is provided with an anti-reflective surface, whereby only those surface sections of the reverse side of the transparent Substratum (3), on which the Filter Elements (2a) are applied (pervious in certain wavelength areas) are also provided with an anti-reflective surface.

16. Arrangement according to Claim 1, in which all Filter Elements (2a, 2b) in the View Direction (B) of the Observer (6) on the reverse side of the transparent Substratum (3) are applied, characterised by the fact that only the Front Side (4) of the transparent Substratum (3) in the View Direction (B) of the Observer (6) is provided with an anti-reflective surface, but not the reverse side.

17. Arrangement according to one of the Claims 15 or 16, characterised by the fact that all anti-reflective surfaces are formed as multiple coating.

18. Arrangement according to one of the Claims 16 or 17, characterised by the fact that the Filter Elements (2b), basically impervious for visible light, are applied to a foil applied to the reverse side of the transparent Substratum (3), e.g. glued on or laminated.

19. Arrangement according to Claim 18, characterised by the fact that the Filter Elements (2a), basically pervious for visible light, are also applied to the foil.

20. Arrangement according to Claim 19, characterised by the fact that the foil is self-adhesive, whereby the side provided with the Filter Elements (2a, 2b) is turned towards the transparent Substratum.

21. Arrangement according to one of the Claims 18 to 20, characterised by the fact that the refraction indication of the transparent Substratum and glued or laminated layer, as well as of the glued or laminated layer and foil, do not deviate from each other by more than a third respectively.

22. Arrangement according to one of the previously mentioned claims, characterised by the fact that only Filter Elements (2a), basically pervious for visible light and Filter Elements (2b) basically impervious, are intended to be on the Filter Array (2).

23. Arrangement according to one of the previously mentioned claims, characterised by the fact that the Picture Reproduction Installation (1) is a colour LC display, a plasma display, an OLED or an electroluminescence display.

24. Arrangement according to one of the previously mentioned claims, characterised by the fact that the individual Filter Elements (2a, 2b) of the Filer Array (2) each show any outline, but preferably a rectangular one.

25. Arrangement according to one of the previously mentioned Claims 1 to 13 or 15 to 24, characterised by the fact that the transparent Substratum (3) is a glass or plastic disc.

26. Arrangement according to Claim 25, characterised by the fact that the Filter Elements (2b), basically impervious for visible light, on the transparent Substratum (3) are applied as – preferably matt – black colour.

27. Arrangement according to one of the previously mentioned claims, characterised by the fact that a Distance (5) from 0 mm to 24 mm inclusive between the transparent Substratum (3) and the picture producing surface of the Picture Reproduction Installation (1) is intended.

28. Procedure for the production of a Filter Array (2) for use in an arrangement according to Claim 11, comprising the following procedural steps:
- provision of a full-surface antiglare matting layer on a Filter Array (2),
- removal of the matt surface basically of those surface sections on the antiglare matting layer, which lie alongside the surface norms of the antiglare matting layer on the Filter Elements (2a), basically pervious for visible light, in parallel projection, with the same congruency through
a) Radiation with laser so that after this, on the location of the said surface sections, a level, non-scattering surface will be produced and/or
b) Cutting out the corresponding surface sections, e.g. by means of a cutting tool or a punch and /or
c) Melting (liquefying) and cooling of the corresponding surface sections, so that afterwards, on the location of the said surface sections, a level, non-scattering surface will be produced and/or
d) Corroding the corresponding surface sections by means of an acid, so that afterwards, on the location of the said surface sections, a level, non-scattering surface will be produced.

29. Procedure for the production of a Filter Array (2) for use in an arrangement according to one of the Claims 7 to 10 or 22 to 27, comprising the following procedural steps:
- preparation of a Filter Array (2) of which the Filter Elements (2b), basically impervious for visible light are applied to a transparent Substratum (3),
- production of a diffuse scattering and/or matt surface on the Filer Elements (2b), basically impervious for visible light, through
a) Radiation of the said Filter Elements (2b) with laser, so that afterwards there will be a diffuse scattering and/or matt Surface (7), and /or

b) Mechanical roughening of the said Filter Elements, so that afterwards there will be a diffuse scattering and/or matt Surface (7) and /or
c) Melting (liquefying) and cooling of the said Filter Elements (2b), so that afterwards a diffuse scattering and/or matt Surface (7) will be produced and/or
d) Corroding the said Filter Elements (2b) by means of an acid, so that afterwards a diffuse scattering surface and/or matt Surface (7) will be produced.