Appeal decision

Appeal No. 2019-4799

Appellant Yazaki Corporation

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The case of appeal against Examiner's decision of refusal of Japanese Patent Application No. 2016-253701, entitled "Display Device", [the application published on Apr. 20, 2017, Japanese Unexamined Patent Application Publication No. 2017-76148] has resulted in the following appeal decision:

Conclusion

The appeal of the case was groundless.

Reason

No. 1 History of the procedures

The present application is a divisional application (Japanese Patent Application No. 2016-253701) filed on Dec. 27, 2016 from a Japanese patent application (Japanese Patent Application No. 2015-521415: Priority Claim on Jun. 3, 2013) filed on May 29, 2014, a written opinion against a notice of reasons for refusal as of Dec. 25, 2017 and a written amendment to amend the Scope of Claims and the description were submitted on Feb. 23, 2018, and, against a notice of reasons for refusal as of Jul. 24 of the same year, a written opinion and a written amendment to amend the description were submitted on Aug. 31 of the same year. Then, a decision of refusal (hereinafter, referred to as "Examiner's decision") was made as of Jan. 31, 2019 (the date of delivery of a copy of the original of Examiner's decision: Feb. 5 of the same year), and, against this, an appeal against Examiner's decision of refusal was requested on Apr. 10 of the same year, and, at the same time, a written amendment to amend the description was submitted.

No. 2 Recitation of the Scope of Claims

It is recognized that the recitation of the Scope of Claims of the present application is as follows (the underlines were given by the body).

"[Claim 1]

A display device comprising:

a display unit comprising, as data, a first layer, in which a first picture is rendered surrounded by a transparent region, a second layer, in which a semitransparent image is rendered, and a third layer, in which a second picture is rendered, the second layer being virtually arranged in the back of the first layer, the third layer being virtually arranged in the back of the second layer, the display unit being configured to display the first picture and the second picture such that the first picture overlaps a region in which the second picture is displayed; and

a light source to irradiate light onto the display unit, wherein,

in a case of changing luminance of the first picture by changing an illumination level of the light source, adjustment is performed so as not to change the luminance of the second picture by thickening a shade of the semitransparent image by an amount corresponding to an increased amount of the illumination level while maintaining a state that the luminance of the first picture is higher than the luminance of the second picture.

[Claim 2]

The display device according to Claim 1, wherein

the first picture is rendered in a manner being capable of moving in the first layer, and wherein

the display unit displays, after making the first picture move, another display target in an area in which the first picture has been displayed."

No. 3 Reasons for refusal stated in Examiner's decision

An outline of the reasons for refusal stated in Examiner's decision is as follows.

Although the inventions according to Claims 1 and 2 of the present application include the matter specifying the invention as

"in a case of changing luminance of the first picture by changing an illumination level of the light source, adjustment is performed so as not to change the luminance of the second picture by thickening a shade of the semitransparent image by an amount corresponding to an increased amount of the illumination level while maintaining a state that the luminance of the first picture is higher than the luminance of the second picture", as viewed from the Problem to be Solved by the Invention and the Embodiments disclosed in the Detailed Description of the Invention, and in the light of the common general technical knowledge, the contents disclosed in the Detailed Description of the Invention

cannot be extended or generalized up to the scope of the invention specified by the above matter specifying the invention.

Therefore, the inventions according to the above-mentioned claims including the above matter specifying the invention are ones that seek a patent by exceeding "a range described such that a person ordinarily skilled in the art can recognize that problems to be solved by the invention can be solved" in the Detailed Description of the Invention, and, therefore, these are not ones described in the Detailed Description of the Invention.

Accordingly, in the present application, the recitation of the Scope of Claims does not meet the requirement stipulated in Article 36(6)(i) of the Patent Act.

No. 4 Descriptions of the Detailed Description of the Invention

In the Detailed Description of the Invention of the present application, there are descriptions as indicated below (the underlines were given by the body).

"[Background Art]

[0002]

Conventionally, as a display device for a vehicle, there has been known a graphic meter for displaying meters, such as a vehicle speed, a fuel remaining amount, a supercharging pressure value and the like, on a screen using a display device such as a liquid crystal display. A telltale (warning lamp) and the like that lights up when there is abnormality in a vehicle is also displayed on the screen of a graphic meter.

[0003]

In a graphic meter that uses a liquid crystal display and the like as a display device in this way, <u>when the surroundings become bright, it is necessary to increase luminance because the screen of a graphic meter becomes hard to see. On the other hand, at a time such as while passing through a tunnel, when the surroundings become dark, there is a need to reduce the luminance because the screen of the graphic meter becomes too bright</u>.

[0004]

The luminance of the screen of a graphic meter is adjusted by changing the illumination level of the backlight. For example, the illumination level of the backlight is set to 0 as a minimum value, and 15 as a maximum value, and the luminance value of a liquid crystal display at the time when the illumination level is the maximum is set to be 100% (refer to FIG. 5(B)).

[0005]

As this type of conventional art, there is known a display device for a vehicle described in Patent Document 1. This display device for a vehicle uses an electric bulb as its backlight, and, when displaying a picture depicted on a light-receiving display element through a display element and a color filter, transmissivity of the display element is changed by adjusting a voltage applied to the display element.
In this case, the color filter is one that selectively transmits each color of RGB, and, on the color filter, a picture is not depicted.
[0006]

In addition, in Patent Document 2, there is shown a display device that includes a first light control element, a second light control element, and a display element interposed between these, the display device being capable of controlling a viewing angle.
[0007]

Furthermore, in Patent Document 3, there is shown a graphic meter in which a warning image, which is disposed in an auxiliary image layer different from a main image layer in which a meter image is arranged, and whose background is surrounded by a black area, is displayed together with the meter image."

"[Problem to be solved by the invention]
[0009]

However, in a conventional display device, it is difficult to adjust only the brightness of a particular picture displayed on a screen. In other words, it is not possible to change a shade for each picture. For this reason, for example, in a case where the picture is a telltale to be displayed on the screen of a graphic meter, at the time of passing through a tunnel, it is anticipated that, on the occasion of reducing luminance in response to darkening of the surroundings, if the illumination level of the backlight becomes minimum, the luminance of the telltale may fall below a legally determined value. In such cases, the only means to adjust the luminance of the telltale is to make the entire screen bright. Furthermore, in a case where the surroundings of a particular picture are covered by a black area in order to adjust the luminance of the particular picture as shown in Patent Document 3, there is a problem that, if the particular picture is arranged adjacent to another picture, the black area may end up filling the other picture.
[0010]

The present invention has been made in view of the situation above, and an object thereof is to provide a display device that can make a particular picture bright even if the whole screen is made to be dark by reducing the light quantity of light irradiated

from a light source, and, in conjunction with this, can increase a degree of freedom of arrangement of the particular picture."

"[0014]

As above, the present invention has been described simply. Further, by reading through the mode for carrying out the invention (hereinafter, referred to as "embodiment") described hereinafter with reference to the accompanying figures, the details of the present invention would be further made clear."

"[Description of Embodiment]

[0016]

A display device of an embodiment of the present invention will be described using drawings. The display device of the present embodiment is mounted on a vehicle, and is applied to a graphic meter including various kinds of instruments.

[0017]

FIG. 1 is a block diagram indicating a configuration example of hardware of a display device 100 of the present embodiment.

As shown in FIG. 1, the display device 100 includes a microcomputer (CPU: Central Processing Unit) 101, a read only memory (EEPROM: Electrically Erasable Programmable Read Only Memory) 102, interfaces 103, 104, and 116, a CPU power unit 105, a graphic controller 106, a frame memory 107, an X driver 108, a Y driver 109, an LCD (Liquid Crystal Display) a power unit 110, a liquid crystal display (TFT-LCD: Thin Film Transistor Liquid Crystal Display) 111, and the like.

[0018]-[0027]

(Omitted)

[0028]

FIG. 2 is a diagram showing a graphic display screen 120 of the liquid crystal display 111. The graphic display screen 120 has a first display area 31, a second display area 32, and a third display area 33 having display areas different from each other.

[0029]

The first display area 31 is an area in which a speedometer 21 indicating the current running speed of the vehicle is displayed. In the first display area 31, a velocity scale 35 and a pointer 36 that constitute the speedometer 21 are displayed. The pointer 36 indicates the current running speed of the vehicle by pointing at a part on the velocity scale 35. Furthermore, in a bottom area of the inside of a ring 37 that is indicative of

the outer shape of the speedometer 21, the image of a telltale (warning lamp) 51 that is lit up when there is an abnormality in the vehicle is displayed.

[0030]

The second display area 32 is an area in which a boost gage 22 that indicates a current supercharging pressure value (a presented amount) is displayed. A supercharging pressure value is presented as a proportion (percent) to the maximum value set in advance.

[0031]

The third display area 33 is an area in which a fuel meter 23 that indicates a current fuel remaining amount is displayed. In the third display area 33, a fuel scale 41 and a bar 40 are displayed. The bar 40 indicates a current fuel remaining amount by pointing at a part on the fuel scale 41.

[0032]-[0033]

(Omitted)

[0034]

The graphic controller 106 indicates, in accordance with various instructions inputted from the microcomputer 101, various graphic elements on the screen of the liquid crystal display 111. In the inside of the graphic controller 106, the frame memory 107 is provided. In the frame memory 107, a layer A, a layer B, and a layer C that are three layers in which images have been rendered are prepared as data.

[0035]

In the present embodiment, in the layer A, as a first picture for which brightness is made to be changed, a picture that varies for each meter model, the image of the telltale 51 (refer to FIG. 2) in this embodiment, is rendered surrounded by a transparent background; that is, a transparent region 53. In the layer C, as a second picture for which brightness is not changed, the images of pictures that are common to all models, the speedometer 21, the boost gage 22, and the fuel meter 23 in this embodiment, are rendered.

[0036]

In addition, in the layer B, a semitransparent image (mask image) is rendered. The semitransparent image is, for example, a gray image. When looking at the layer C located in the back side of the layer B, rendering of the second picture rendered on the layer C is done in such a way that the luminance of the second picture is attenuated by the layer B. Here, a semitransparent image to be rendered on the layer B may be expressed by middle tone (occasionally referred to as halftone), or may be expressed by binary dot patterns by an error diffusion method and the like.

[0037]

Into the frame memory 107 holding a display content of each of the layers A, B, C for each pixel, the microcomputer 101 or the graphic controller 106 writes display data, and performs rendering of graphics.

[0038]-[0039]

(Omitted)

[0040]

Display controller operation of the display device 100 having the above-mentioned configuration is shown. The display device 100 of the present embodiment generates the graphic display screen 120. FIG. 3 is a diagram schematically describing the data structure of a layer on the occasion of generating the graphic display screen 120. As previously mentioned, the data of the layer A include, as the first picture to be displayed on the graphic display screen 120, the image of the telltale 51 surrounded by the transparent region 53. The data of the layer C includes the images of the speedometer 21, the boost gage 22, and the fuel meter 23 that have been rendered as the second picture to be displayed on the graphic display screen 120.

[0041]

The data of layer B consist of a semitransparent (for example, gray) image 65 for changing the luminance of the second picture rendered on the layer C. In other words, the graphic controller 106 performs rendering processing in such a way that the greater the opacity of the semitransparent image 65 rendered on the layer B, the lower the luminance of the second picture rendered on the layer C. In the present embodiment, over the whole area of the layer B, there is rendered a gray image for which the opacity of the layer B is set greater by an amount corresponding to the increased amount of the illumination level of the backlight 115 so as not to change the luminance values of the images of the speedometer 21, the boost gage 22, and the fuel meter 23 even if the illumination level of the backlight 115 is increased.

[0042]

At the time when the layer A, the layer B, and the layer C are displayed on the display device 100, the layer A, the layer B, and the layer C are displayed in a superimposed manner in a state being virtually arranged in this order. For this reason, the layer C is displayed in a state that its whole surface is covered by the layer B.

[0043]

FIG. 4 is a flow chart showing a display control procedure. This control program is stored in the read only memory 102, and is executed by the microcomputer (CPU) 101.

[0044]

The CPU 101 takes in, via the interface 116, an illumination level set in order to change brightness of the graphic display screen 120 (step S1). In the present embodiment, the illumination level of the graphic display screen 120 is set in a stepwise manner in a range from the minimum value 0 to the maximum value 15.

[0045]

The CPU 101 refers to a table held in the EEPROM 102 to determine a luminance value of the graphic display screen 120 that corresponds to the illumination level of the backlight 115 (step S2).

[0046]

FIG. 5(A) and FIG. 5(B) are graphs indicating a luminance value of a picture rendered on the graphic display screen 120, the luminance value corresponding to an illumination level of the backlight 115. The graph shown in FIG. 5(A) indicates the contents of a table held in the EEPROM 102. The luminance value is expressed by relative values supposing that the luminance value is 100% when the illumination level is the maximum value 15.

[0047]

As shown in FIG. 5(A), a luminance value 81 of the image of the telltale 51 is set so as not to decrease much as compared with a luminance value 82 of the images other than that even if the illumination level decreases. (Here, its lower limit value is set to 40%). In other words, the luminance value 82 of the other images is set in a manner being easy to decrease than the luminance value 81 of the image of the telltale 51, in order to express that light to be emitted from the other images is attenuated by the layer B. Therefore, the lower the illumination level, the greater the difference between the two. On the other hand, conventionally, when the illumination level is changed, the luminance value of the image of the telltale and the luminance value of the other images change in a same manner as shown in FIG. 5(B).

[0048]

The CPU 101 changes a shade of the gray image to be rendered on the layer B in such a way that the luminance value becomes a value corresponding to the illumination level determined in step S2 (step S3). In other words, the CPU 101 draws, on the whole area of the layer B, a gray image having a shade by which the telltale 51 comes to have the luminance value 81 and the other images come to have the luminance value 82. By this, at the time when increasing the luminance of the image of the telltale 51 rendered on the layer A by increasing the illumination level, the luminance value 82 of the other

images is lowered by the gray image rendered on the layer B. After that, the CPU 101 returns to the processing of step S1.

[0049]

In this graphic meter 100, when, for example, a vehicle enters a tunnel to cause the surroundings to become a dark environment suddenly, the graphic display screen 120 comes to be too bright, and, therefore, the illumination level of the backlight 115 is reduced automatically or manually.

[0050]

Conventionally, the luminance of the overall graphic display screen is lowered to the extent that the graphic display screen 120 is not too bright. In the present embodiment, although the luminance of the telltale 51 is decreased to some degree, it is high in comparison with the luminance of the other images.

[0051]

In addition, even if the illumination level is set to the minimum value, the luminance of the telltale 51 does not fall below a legally determined lower limit. In this case, in comparison with the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23), the luminance of the image of the telltale 51 is high, and thus the driver can still visually recognize at least the image of the telltale 51.

[0052]

On the other hand, for example, when the vehicle has passed through the tunnel causing the surroundings to become a bright environment, and the luminance of the whole graphic display screen is still kept low, the screen becomes hard to see, and, therefore, the illumination level of the backlight 115 is increased. The luminance of the image of the telltale 51 and the luminance of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) are raised together, facilitating visibility for the driver. In particular, when being exposed to the direct sunlight, the illumination level of the backlight 115 is increased up to the maximum value. In this case, the image of the telltale 51 and the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) are displayed with the same luminance value. Accordingly, it is possible for a driver to visually recognize the image of the telltale 51 with the same brightness as that of the other meter images.

[0053]

FIG. 6 is a diagram showing another graphic display screen 320. In the graphic display screen 320, as the image of a telltale 351, an image indicating a warning such as a high-beam activation is displayed. In addition, an image of a spot light is formed around a pointer. The spot light image is configured to move according to

movement of the pointer, and it is arranged such that the center of the spot light overlaps the pointer.

[0054]

As shown in FIG. 6 (A), in the graphic display screen 320, the surroundings of the telltale 351 are surrounded by a transparent region. In this case, even if the image of the spot light moves downward in the screen in response to the pointer indicating a low speed, only the transparent region of the telltale 351 overlaps the image of the spot light, and thus the image of the spot light does not have a missing portion thereof. In other words, since the telltale 351 is surrounded by a transparent region, it is displayed in a manner overlapping with the area in which a speedometer 321 that is a meter image is displayed (the area inside the ring). Then, since the background is transparent, unless the image of the telltale 351 and the image of the speedometer 321 (in particular, the velocity scale including scales) do not directly overlap with each other, the image of the telltale 351 can be placed freely inside the speedometer 321.

[0055]

On the other hand, as a comparison example, in the graphic display screen 220 shown in FIG. 6 (B), the surroundings of a telltale 251 are surrounded by a black area. In this case, when the image of the spot light moves downward in the screen in response to the pointer indicating a low speed, the black area of the telltale 251 overlaps with the image of the spot light. For this reason, display will be made in a manner that a part of the spot light is missing, resulting in an unattractive look.

[0056]

Therefore, in the present embodiment, the image of the telltale 351 and the meter image that is the speedometer 21 can be arranged densely, thereby enlarging the degree of freedom of arrangement and enabling to reduce the overall display area. Furthermore, by the background not becoming an obstruction, it is possible to improve appearance of the speedometer 21. In other words, when the image of a telltale for which the background is surrounded by an opaque area is displayed inside the speedometer, it is considered that, when the background overlaps with the image of a pointer pointing at a speed near the value 0 or the maximum value 180, a missing portion of an image is caused. As a result, deterioration of appearance occurs.

[0057]

FIG. 7 is a diagram showing the graphic display screen 120 when the image of the telltale 51 is moved. In the graphic display screen 120, when display of other display targets, such as a warning display, display of a parking support system, display of an

operation support system, and the like, is carried out, the image of the telltale 51 displayed inside the ring 37 of the speedometer 21 is moved.

[0058]

Here, the image of the telltale 51 is shifted toward the center side of the speedometer 21, and a warning message 55 is displayed in a space made free. The warning message 55 is a display by an operation support system such as "Attention to inter-vehicular distance, please", and is rendered on the layer C.

[0059]

In this way, since the image of the telltale 51 is surrounded by a transparent region, it is capable of being moved to any position unless the image of the telltale 51 does not directly overlap with the velocity scale 35 or the ring 37 constituting the speedometer 21, allowing a large degree of freedom of movement. In addition, since the background of the image of the telltale 51 is transparent, even if, for example, the background overlaps with the image of the pointer 36, the image of the telltale 51 can be arranged without causing, a missing portion of the image of the pointer 36; that is, without interfering in the display of the speedometer 21, enabling improved appearance. In other words, when trying to move the image of a telltale whose background is surrounded by an opaque area inside the speedometer, a missing portion of an image is easily formed by the background overlapping with an image of such as a pointer, a scale, or a ring, resulting in considerably limited movement.

[0060]

The present invention is not limited to the constitution of the above-mentioned embodiments, and any kind of constitution can be applied so long as it is a constitution that can accomplish the functions indicated in the Scope of Claims, or the functions of the constitutions of the present embodiments.

[0061]

For example, in the above-mentioned embodiments, although there has been indicated a case in which, when the luminance of the image of a telltale of a graphic display screen is increased, the luminance of the other images is not changed, the luminance of the other images may be changed in such a way that it is different from the luminance of the image of the telltale. By this, it is possible to bring further variations in a display form.

[0062]

In addition, in the above-mentioned embodiments, although the present invention is applied to a graphic meter mounted on a vehicle, it is also applicable to display devices mounted on various kinds of equipment.

Furthermore, without being limited to a liquid crystal display, the present invention is capable of being applied to general display devices that display images rendered on a screen by receiving light from a backlight.

[0063]

On the occasion of displaying a rendered picture, the present invention can realize complicated display forms by making a shade for each picture variable, and thus it is useful.

[0064]

Here, the features of the aforementioned embodiments of a display device according to the present invention are listed in a manner being briefly summarized as the following [1]-[2], respectively.

[1] A display device including:

a display unit (111) including, as data, a first layer (A), in which a first picture (51) is rendered surrounded by a transparent region (53), a second layer (B), in which a semitransparent image (65) is rendered, and a third layer (C), in which a second picture (21, 22, 23) is rendered, the second layer being virtually arranged in the back of the first layer (A), the third layer (C) being virtually arranged in the back of the second layer (B), the display unit being configured to display the first picture (51) and the second picture (21, 22, 23) such that the first picture (51) overlaps a region in which the second picture (21, 22, 23) is displayed; and

a light source (115) to irradiate light onto the display unit (111), in which,

in a case of changing luminance of the first picture (51) by changing an illumination level of the light source (115), adjustment is performed so as not to change the luminance of the second picture (21, 22, 23) by thickening a shade of the semitransparent image (65) by an amount corresponding to an increased amount of the illumination level.

[2] The display device according to [1], in which

the first picture (51) is rendered in a manner being capable of moving in the first layer (A), and in which

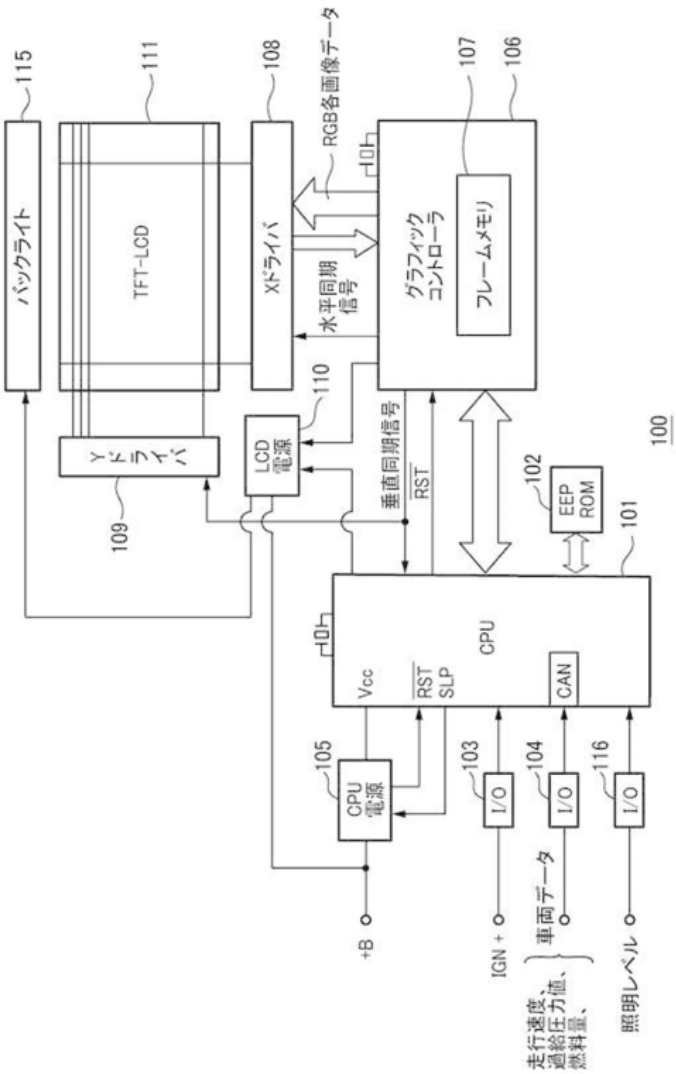
the display unit (111) displays, after making the first picture (51) move, another display target (55) in an area in which the first picture (51) has been displayed.

[0065]

Although the present invention has been described in detail with reference to specific embodiments, it is obvious for a person ordinarily skilled in the art that various changes and modifications are possible without departing from the spirit and the scope of the present invention."

In addition, [FIG. 1] to [FIG. 5] that are drawings of the present application are as follows.

"[FIG. 1]

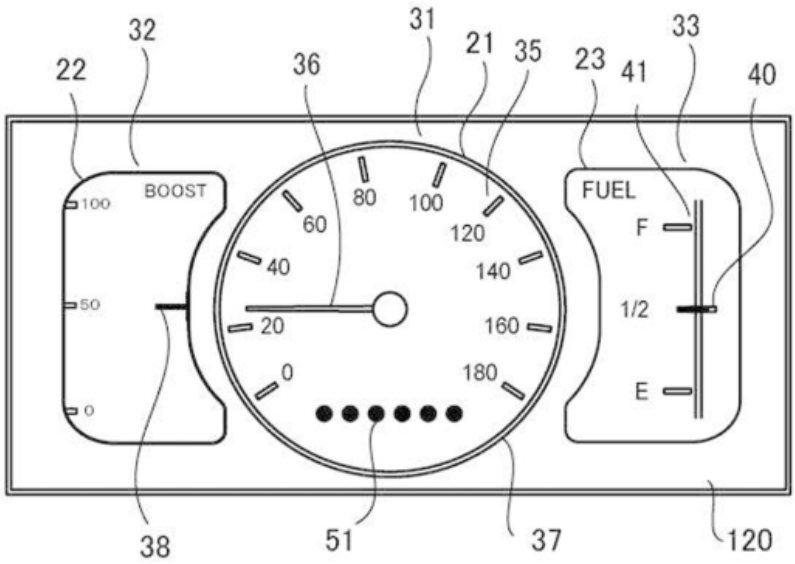


バックライト	Backlight
Ｙドライバ	Y driver
ＬＣＤ電源	LCD power
Ｘドライバ	X driver
垂直同期信号	Vertical synchronization signal
水平同期信号	Horizontal synchronization signal
ＲＧＢ各画像データ	Each image data of RGB

ＣＰＵ電源　　CPU power
走行速度、　　Running speed
過給圧力値、　　Supercharging pressure value
燃料量、　　Fuel amount
車両データ　　Vehicle data
照明レベル　　Illumination level
グラフィックコントローラ　　Graphic controller
フレームメモリ　Frame memory

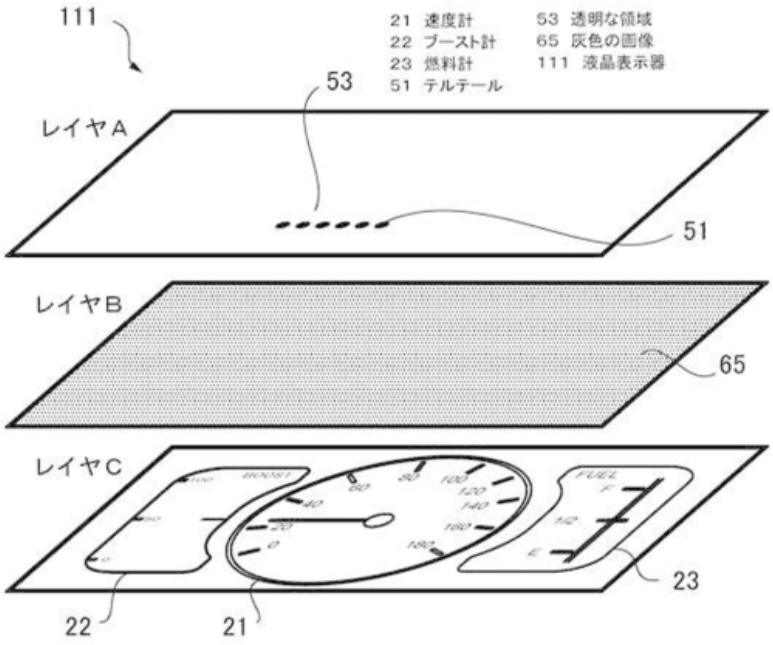
"

"[FIG. 2]



"

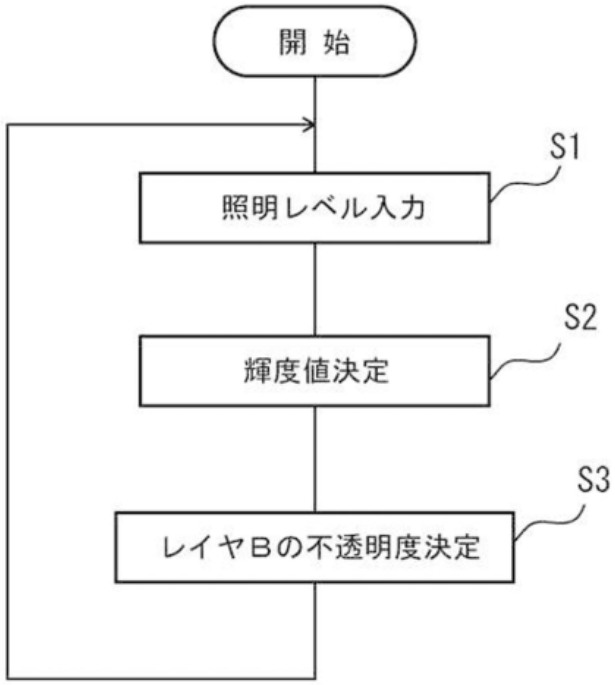
"[FIG. 3]



２１　速度計	21 Speedometer
２２　ブースト計	22 Boost gage
２３　燃料計	23 Fuel meter
５１　テルテール	51 Telltale
５３　透明な領域	53 Transparent region
６５　灰色の画像	65 Gray image
１１１　液晶表示器	111 Liquid crystal display
レイヤ	Layer

"

"[FIG. 4]

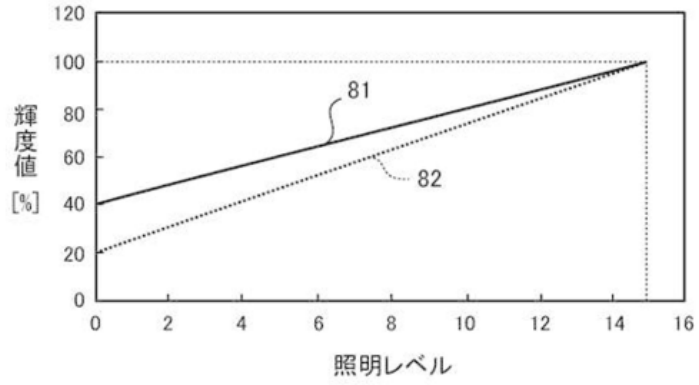


開始	Start
照明レベル入力	Take in illumination level
輝度値決定	Determine luminance value
レイヤＢの不透明度決定	Determine opacity of layer B

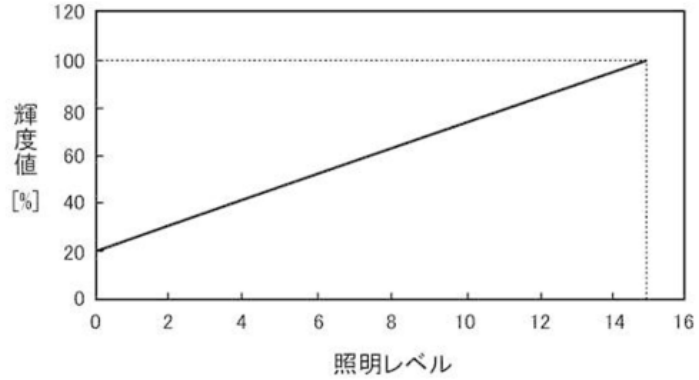
"

"[FIG. 5]

(A)



(B)



輝度値　　Luminance value
照明レベル　　Illumination level

"

No. 5 Judgment by the body
1 The scope of the Invention
(1) The invention according to Claim 1 of the present application (hereinafter, referred to as "the Invention") is, as viewed from the recitation of Claim 1, an invention in which, in a case of changing luminance of the first picture by changing an illumination level of a light source that irradiates light onto the display unit, adjustment is performed so as not to change the luminance of the second picture by thickening a shade of the semitransparent image rendered on the second layer by an amount corresponding to an

increased amount of the illumination level while maintaining a state that the luminance of the first picture is higher than the luminance of the second picture rendered on the third layer. Therefore, the Invention includes the matter that a shade of a semitransparent image is adjusted in such a way that, regardless of the illumination level of the light source being what kind of level, luminance of the second picture keeps a constant value while maintaining a state that luminance of the first picture is higher than luminance of the second picture.

(2) Relating to this point, the Appellant alleges, in the written request for appeal, that "in the Invention, even if the illumination level of a light source is any level (including the most-lowered case), luminance of the second picture has brightness that exceeds the legally-determined lower limit and is almost constant, and there is supposed an aspect in which luminance of the first picture becomes higher in a range higher than the luminance of second picture as the illumination level of the light source increases.", and, therefore, it is acknowledged also by the Appellant that the Invention includes the matter that a shade of a semitransparent image is adjusted in such a way that, regardless of the illumination level of the light source being what kind of level, luminance of the second picture keeps a constant value while maintaining a state that luminance of the first picture is higher than luminance of the second picture.

2 The Problem to be Solved of the Invention

(1) In the column [Problem to be Solved by the Invention] excerpted in the above-mentioned No. 4, there are descriptions that

"[0009]

However, in conventional display devices, it is difficult to adjust only the brightness of a particular picture displayed on a screen. In other words, it is not possible to change a shade for each picture. For this reason, for example, in a case where the picture is a telltale to be displayed on the screen of a graphic meter, at the time of passing through a tunnel, it is anticipated that, on the occasion of reducing luminance in response to darkening of the surroundings, if the illumination level of the backlight becomes minimum, the luminance of the telltale may fall below a legally determined value. In such cases, the only means to adjust the luminance of the telltale is to make the whole screen bright. Furthermore, in a case where the surroundings of a particular picture are covered by a black area in order to adjust the luminance of the particular picture as shown in Patent Document 3, there is a problem that, if the particular picture is arranged adjacent to another picture, the black area may end up filling the other picture.

[0010]

The present invention has been made in view of the above situation, and an object thereof is to provide a display device that can make a particular picture bright even if the whole screen is made to be dark by reducing the light quantity of light irradiated from a light source, and, along with this, can increase a degree of freedom of arrangement of the particular picture.". However, among these descriptions, the description that "Furthermore, in a case where the surroundings of a particular picture are covered by a black area in order to adjust the luminance of the particular picture as shown in Patent Document 3, there is a problem that, if the particular picture is arranged adjacent to another picture, the black area may end up filling the other picture.", and the description that "to provide a display device that can increase a degree of freedom of arrangement of the particular picture" are ones that correspond to the invention according to Claim 2, and, therefore, these descriptions have no direct relation in recognizing the problem to be solved of the Invention.

(2) Then, it is recognized that the problem to be solved of the Invention is
"to make a particular picture (picture of a telltale) be capable of being made bright even if the whole screen is made to be dark by reducing the light quantity of light irradiated from a light source in order to dissolve the difficulty that, in the screen of a conventional graphic meter, it is anticipated that the luminance of a particular picture (picture of a telltale) falls below a legally determined value if the illumination level of the backlight becomes minimum on the occasion of reducing the luminance in response to darkening of the surroundings, and the only means to adjust the luminance of such particular picture (picture of a telltale) is to make the whole screen bright".

(3) Since there are descriptions that "on the occasion of reducing the luminance in response to darkening of the surroundings" and "even if the whole screen is made to be dark by reducing the light quantity of light irradiated from a light source", the problem to be solved of the Invention mentioned above is premised on that the light-and-dark adjustment of the whole screen of a graphic meter is carried out depending on the light and dark of the surroundings.

This is also supported from the fact that there is a description, in the column of [Background Art] excerpted in the above-mentioned No. 4, that
"[0003]

In a graphic meter that uses a liquid crystal display and the like as a display device in this way, when the surroundings become bright, it is necessary to increase

luminance because the screen of a graphic meter becomes hard to see. On the other hand, at a time such as while passing through a tunnel, when the surroundings become dark, there is a need to reduce the luminance because the screen of the graphic meter becomes too bright.".

3 Conformance with the requirements for support

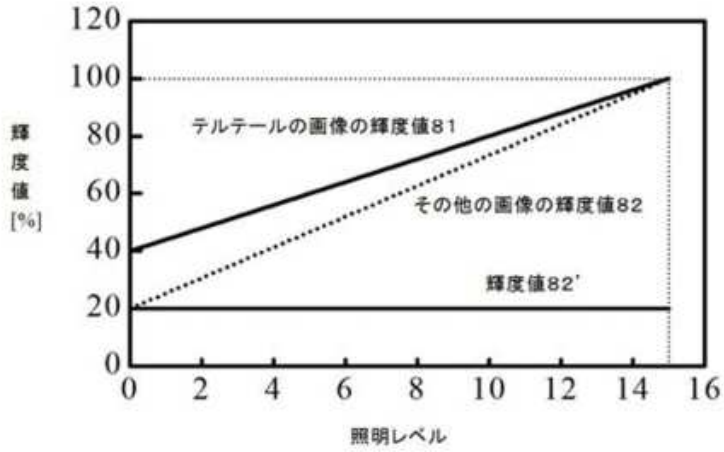
(1) Relation between the Invention and the problem to be solved of the Invention

A Since, as described in the above-mentioned 1(1), the Invention includes the matter that a shade of a semitransparent image is adjusted in such a way that, regardless of the illumination level of the light source being what kind of level, luminance of the second picture keeps a constant value while maintaining a state that luminance of the first picture is higher than luminance of the second picture, it will be examined hereinafter how this relates to the problem to be solved of the Invention.

B When the matter that regardless of the illumination level of the light source being what kind of level, luminance of the second picture keeps a constant value while maintaining a state that luminance of the first picture is higher than luminance of the second picture is examined in the light of the contents disclosed in [Description of Embodiments] (paragraphs [0016]-[0065]) excerpted in the above-mentioned No. 4, this means that, even if the illumination level takes any level value between the minimum value 0 to the maximum value 15, the luminance value of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) takes a constant value (for example, it remains unchanged at 20% when it is supposed that the luminance value 81 of the image of the telltale 51 when the illumination level is the maximum value 15 is 100%) while maintaining a state in which the luminance value 81 of the image of the telltale 51 is higher than the luminance value of the other meter images (the speedometer 21, the boost gage 22, and the fuel meter 23).

Therefore, it can be said that the luminance value of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) will be the solid line of "the luminance value 82'" in the following graph (hereinafter, referred to as "Reference graph") drawn by the body based on FIG. 5(A) of the present application.

[Reference graph (created by the body)]



輝度値	Luminance value
照明レベル	Illumination level
テルテールの画像の輝度値８１	Luminance value 81 of telltale image
その他の画像の輝度値８２	Luminance value 82 of the other images
輝度値８２’	Luminance value 82'

C According to Reference graph described above, it can be read that, when the illumination level is raised, the luminance value 81 of the image of the telltale 51 rises, and, when the illumination level is increased up to the maximum value 15, while the luminance value 81 becomes 100%, the luminance value 82' of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) remains unchanged at a constant luminance value of 20% at all times, and thus, in the case of the illumination level of the maximum value 15, a difference between the luminance value 81 of the image of the telltale 51 and the luminance value 82' of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) becomes 80%, causing the two to become largely departed from each other. Therefore, in the case of the illumination level of the maximum value 15, the image of the telltale 51 will be visually recognized in a sufficiently bright state in comparison with the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23).

D However, as is obvious from [FIG. 2] excerpted in the above-mentioned No. 4, the image of the telltale 51 is an image that is displayed on the lower side of the inside of the ring 37 indicating the outer shape of the speedometer 21 to be displayed on the first display area 31 of the graphic display screen 120 (refer to the descriptions in paragraphs [0028]-[0029]). Therefore, even if the illumination level is raised and the

luminance of the image of the telltale 51 rises as the straight line of "the luminance value 81" in Reference graph described above, causing the image of the telltale 51 to be visually recognized in a sufficiently bright state in comparison with the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23), it is not recognized that, considering the sizes and arrangements of these meter images, the graphic display screen 120 becomes bright as a whole because the luminance of the other meter images (the speedometer 21, the boost gage 22, the fuel meter 23) is constant and remains dark as the straight line of "the luminance value 82'" in Reference graph described above.

E Then, in the Invention, even if the illumination level of a light source is set to any value, adjustment of light and dark of the whole screen of a graphic meter ("display unit"), which is the premise of the problem to be solved of the Invention, is never performed, and, thus, it cannot be said that the Invention lacking such premise can solve the problem to be solved of the Invention.

F Furthermore, in the Detailed Description of the Invention other than the descriptions of the column of [Problem to be solved by the invention] ([0009]-[0010]), another problem to be solved different from the problem to be solved of the Invention recognized in No. 2 mentioned above cannot be read even if the state of the art is considered.

G Therefore, it cannot be said that the Invention is recognized as one within a range that a person ordinarily skilled in the art could solve the problem of the Invention based on the descriptions of the Detailed Description of the Invention in the light of the common general technical knowledge. Consequently, the recitation of the Scope of Claims of the present application does not meet so-called requirements for support.

(2) The Appellant's allegation

A The Appellant alleges, in the written request for appeal, that

"(3-1) Explanation of the Invention

(Omitted)

The history according to which the Invention has been conceived of will be explained briefly hereinafter.

According to a display unit disposed in the cabin of a vehicle, there is a requirement to be able to make: in a situation where the surroundings are bright (for example, outside a tunnel), only a particular picture among a plurality of pictures

displayed on an image be sufficiently bright, and, pictures other than the particular picture be suppressed darker (at brightness exceeding a legally determined lower limit); and, in a situation where the surroundings are dark (for example, in a tunnel), the other pictures be maintained darker (at brightness exceeding the legally determined lower limit), and, the particular picture be dark (in this regard, however, be brighter than the other pictures). In order to satisfy such requirement, the Invention has been conceived of.

In other words, the Invention is an invention which takes providing a display device that can adjust only brightness of a particular picture displayed on a screen as a problem to be solved by the invention (object), and, as means for solving the problem, adopts a constitution in which, when the luminance of the first picture is increased (lowered), adjustment is performed so as not to change the luminance of the second picture by making a shade of the semitransparent image be thick (weak) by an amount corresponding to the amount of increase (reduction) of the illumination level while maintaining a state that the luminance of the first picture is higher than the luminance of the second picture, thereby adjusting only the brightness of the particular picture (that is, the first picture) displayed on the screen." (the underlines were given by the body).

B However, the problem to be solved by the invention (providing a display device that can adjust only brightness of a particular picture displayed on a screen) alleged by the appellant, is one in light of the examined contents in the above-mentioned "2 The problem to be solved of the Invention", that is distant from the descriptions of the Detailed Description of the Invention, and it has not been proved at all that such problem to be solved can be read from the Detailed Description of the Invention, either. Therefore, the allegation of the above-mentioned A cannot be adopted.

C Relating to this point, in the written request for appeal, it is stated that "(3-3) Counterarguments to the reasons for refusal
(Omitted)

The problem to be solved and the solution contents of the Invention are ones that are described in the column of the above-mentioned '(3-1) Explanation of the Invention'. Although such problem to be solved and solution contents are not described word by word in the description of the present application originally attached to the application, we believe that these are ones that can be understood through the whole of the description and the drawings based on paragraphs 0035, 0041, and 0061 of the description of the present application.(omitted hereinafter)", and thus it is alleged that, on

the ground of the descriptions of the above-mentioned paragraphs [0035], [0041] and [0061], the problem alleged by the Appellant can be grasped.

D In these paragraphs, there are descriptions that "a second picture for which brightness is not changed" ([0035]), "not to change the luminance values of the images of the speedometer 21, the boost gage 22, and the fuel meter 23 even if the illumination level of the backlight 115 is increased" ([0041]), "the luminance of the other images is not changed" ([0061]). Therefore, if only these descriptions are extracted partially, it is thought, at first glance, as if the problem of the Invention and the means for solving the problem alleged by the appellant are disclosed.

E However, even if the descriptions of the column of [Description of Embodiments] (paragraphs [0016]-[0065]) are read through, the only embodiment that is being disclosed as an embodiment of the Invention is the embodiment corresponding to FIG. 5(A) in which, when the illumination level is increased up to the maximum value, the image of the telltale 51 and the other meter images are displayed at the same luminance value, and there is found neither a specific description to the effect that other embodiments are also included nor a description to the effect that the descriptions of paragraphs [0035], [0041] and [0061] are descriptions concerning other embodiments. Therefore, it is not recognized that a plurality of embodiments are being disclosed in the descriptions of the above-mentioned paragraphs [0016]-[0065].

In addition, since the descriptions of paragraphs [0053]-[0059] are ones that relate to making the arrangement position of the image of a telltale move, and correspond to the invention according to Claim 2, these descriptions do not have direct relation with the Invention (the invention according to Claim 1), the aforementioned finding of an embodiment has been performed with the exception of these.

F Then, the descriptions of paragraphs [0035], [0041], and [0061] are not appropriate to be understood departing from the only embodiment disclosed in the detailed description of the invention, and should be understood in a manner conforming with the problem of the Invention recognized above and the only embodiment disclosed.

Then, there is no inconsistency at all in interpreting the expression in the above-mentioned descriptions such as "a second picture for which brightness is not changed", "not to change the luminance values of the images of the speedometer 21, the boost gage 22, and the fuel meter 23", and "the luminance of the other images is not changed" as a matter that the problem of the Invention (that is, the difficulty that, in order to prevent the

luminance of a particular picture (picture of a telltale) from falling below a legally determined value, the whole screen must be made bright) has been solved by (the embodiments of) the Invention; that is, a matter that, even if, in order to prevent the luminance of a particular picture (picture of a telltale) from falling below the legally determined value, the luminance of the particular picture is raised to be bright, a screen does not become bright as a whole is described citing a specific example, in which the brightness or luminance of "the second picture", "the images of the speedometer 21, the boost gage 22, and the fuel meter 23" and "the other images" is not changed.

G In light of the above-mentioned examination contents of E and F, it cannot be said that the problem alleged by the Appellant can be grasped on the ground of the descriptions of the above-mentioned paragraphs [0035], [0041], and [0061], and, therefore, the allegation of the above C cannot be adopted, either.

No. 6 Closing

As described above, regarding the present application, the recitation of the Scope of Claims does not meet the requirement stipulated in Article 36(6)(i) of the Patent Act, and thus it should be rejected.

Therefore, the appeal decision shall be made as described in the conclusion.

January 29, 2020

Chief administrative judge: KOBAYASHI, Norifumi
Administrative judge: HAMANO, Takashi
Administrative judge: SEKINE, Yutaka