Trial decision

Invalidation No. 2007-800070

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The case of trial regarding the invalidation of Japanese Patent No. 3569522 "Display Apparatus" between the parties above has resulted in the following trial decision:

Conclusion

The trial of the case was groundless.

The costs in connection with the trial shall be borne by the demandant.

Reason

No. 1 History of the procedures

1. The Patent

The brief history of the procedures in connection with the Patent is as follows:

Filing date: October 2, 2003

(Japanese Patent Application No. 2003-344634)

Retroactive filing date: June 14, 1995

(Japanese Patent Application No. H6-262186)

Date of Registration of Establishment: June 25, 2004

(Number of claims: 3, right holder: Kosuke Hashimoto)

2. The demand

The brief history of the procedures in connection with the demand is as follows:

Written demand: April 5, 2007

Written reply: May 11, 2007

Oral proceeding: July 13, 2007

(Oral proceedings statement brief (Demandant) submitted)

Written statement (Demandee): July 20, 2007

(submitted as the statement brief according to the Oral proceedings)

Written statement (Demandant): August 15, 2007

Written statement (Demandee): August 22, 2007

No. 2 The patent Invention

The inventions relating to Claims 1 to 3 of the Patent (of which the invention according to Claim 1 is hereinafter referred to as the "The patent Invention") are respectively as follows as set forth in Claims 1 to 3 of the Description (patent Specification) attached to the Application at the time of the registration of establishment:

Note (Description of the scope of claims of the patent Specification)

[Claim 1]

A display device comprising:

an LCD, wherein

in a case of sequentially displaying different images on the LCD, a full-screen black signal for causing the LCD to carry out full-screen black display is input every time one field or one frame of image signals is input to the LCD.

[Claim 2]

The display device according to claim 1, wherein a frequency at a time of screen scanning when the full-screen black signal is input to the LCD is set higher than a frequency at a time of scanning the image signals.

[Claim 3]

The display device according to claim 1, wherein a period during which there is not an input signal to the LCD is provided between inputting of the image signals and inputting of the full-screen black signal.

No. 3 Allegations of the parties above

1. Demand

(1) Relief sought in the demand

The demandant demands the trial decision, "The patent for the inventions according to Claims 1 to 3 of Japanese Patent No. 3569522 is invalid. The costs in connection with the trial shall be borne by the demandee."

(2) Reason for the demand

<<Preliminary allegation>>

The patent Invention does not include a "two-dimensional display device."

If it is assumed to be understood that the patent Invention includes a "two-dimensional display device," the following reasons for Invalidation 1 and reasons for Invalidation 2 would arise.

<Reasons for Invalidation 1>

Every one of the inventions relating to Claims 1 to 3 of the Patent is the invention described in Evidence A No. 2 (publication of the unexamined original application) which is a publication distributed before the application of the Patent, and therefore it falls under the category of Article 29-1(3) of the Patent Act, and the patent for the claims falls under the category of Article 123-1(2) thereof, so that it should be invalidated. That is,

If it is assumed to be understood that the patent Invention also includes a "two-dimensional display device," the Application relating to the Patent lacks the requirements for Division of Application, so that the filing date would be October 2, 2003 which is the actual filing date. Evidence A No. 2 is a publication (publication of the unexamined application) describing the matters described in the original application of the Patent and the contents of the drawings thereof. It is apparent that a "three-dimensional display device" included in the technical scope of claims of the patent Invention is described in Evidence A No. 2.

<Reasons for Invalidation 2>

Every one of the inventions relating to Claims 1 to 3 of the Patent is the invention described in Evidence A No. 4 which is a publication distributed before the

application of the Patent, and therefore it falls under the category of Article 29-1(3) of the Patent Act, and the patent for the claims falls under the category of Article 123-1(2) thereof, so that it should be invalidated.

<<Reasons for Invalidation 3>>

Every one of the inventions relating to Claims 1 to 3 of the Patent could be easily made by a person skilled in the art based on the inventions described in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4 which are publications distributed before the application of the Patent, and therefore the demandee should not be granted a patent for the invention under Article 29-2 of the Patent Act, and the patent falls under the category of Article 123-1(2) thereof, so that it should be invalidated. That is,

(a) Evidence A No. 6 describes "displaying different directional images alternately on the temporal basis." Separately projecting directional images on right and left eyes is the principle to achieve a stereoscopic image display device.

Evidence A No. 7 and Evidence A No. 4 disclose techniques of erasing a displayed image every time an image is displayed on an LCD in one field period, and it is easily conceivable to apply the techniques to Evidence A No. 6 to achieve the configuration of Claim 1 (patent Invention).

In Evidence A No. 4, picture elements are erased at a scanning speed which is two times the field frequency, and it is easily conceivable to apply this technique to Evidence A No. 6 to achieve the configuration of Claim 2.

In Evidence A No. 4, a break period 23 is provided between a first period 22 and an operation elimination period 24, and it is easily conceivable to apply this technique to Evidence A No. 6 to achieve the configuration of Claim 3.

(b) The LCD of the patent Invention being based on dielectric polarization is not described in the scope of claims. It cannot be construed in a limited way that the LCD of Evidence A No. 7 is a "ferroelectric LCD."

(3) Means of proof

Evidence A No. 1: Demandee’s third brief in damage claim(patent right) case of 2006(Wa)12733

Evidence A No. 2: Japanese Unexamined Patent Application Publication No. H8-340556

Evidence A No. 3: Bill of complaint in damage claim(patent right) case of 2006(Wa)12733

Evidence A No. 4: Pamphlet of International Publication No. WO 95/01701

Evidence A No. 5: Japanese Unexamined Patent Application Publication No. H8-500915
Evidence A No. 6: Japanese Unexamined Patent Application Publication No. H6-205446
Evidence A No. 7: Pamphlet of International Publication No. WO 94/06249
Evidence A No. 8: Japanese Unexamined Patent Application Publication No. H8-505014

2. Reply

(1) Effect of the reply

The demandee demands the trial decision, "The demand of trial of the case is groundless. The costs in connection with the trial shall be borne by the demandant."

(2) Reasons for the replay

<<Regarding the preliminary allegation>>

The title of the patent Invention is "Display Device", which does not particularly restrict the dimension, so that the patent Invention includes a "two-dimensional display device."

<Regarding the reasons for Invalidation 1>

Legitimacy of division should be judged in the process of examination, and should not be judged after registration of the establishment of the patent right. There are no provisions of changing the filing date after registration of the establishment of the patent right in the Patent Act. Approval or disapproval is reserved.

Further, the Description of the original application describes that the patent Invention includes a "two-dimensional display device" (paragraph 0028, paragraph 0112, FIG. 7, etc.).

<Regarding the reasons for Invalidation 2>

Evidence A No. 4 does not describe that "a full-screen black image signal is input in a stereoscopic image display device."

<<Regarding the reasons for Invalidation 3>>

(a) It is publicly known to display stereoscopic images frame-sequentially (Evidence A No. 6).

(b) Evidence A No. 4 lacks an in-depth study on a "full-screen black signal." A nematic liquid crystal device can display black screen according to the arrangement of a deflection film regardless of a voltage non-applied state (normal black) or a

voltage applied state (normal white). The "full-screen black signal" cannot be defined by the voltage VB.

(c) The LCD of the patent Invention is based on dielectric polarization (nematic liquid crystal), not on spontaneous polarization (ferroelectric LC).

Evidence A No. 7 is about a ferroelectric LCD. The blanking period is needed for the properties of the ferroelectric LCD (the molecular orientation is maintained even after removal of an electric field), and is not special. Further, Evidence A No. 7 merely mentions "blanking" and "change to either full on or full off," but does not have a wording "black display."

(3) Means of proof

"Evidence A No. 9: Copy of a patent memo made by the examiner of the Japan Patent Office" is written in the column of the list of the attached documents of the reply, and the copy is attached.

No. 4 Judgment on the body

1. Regarding the preliminary allegation

(1) Gist of the Description of the patent Specification

The following is the gist of the Description of the patent Dpecification.

(a) An object of the Patent is to provide a stereoscopic image display device that projects directional images, which are time-divisionally displayed by a transparent image display panel, on the right and left eyes of an observer. The stereoscopic image display device can project three or more directional images in the left-right direction, can always display a stereoscopic image to follow up the position of the observer even when the position of the observer moves leftward/rightward, upward/downward and in a to-and-fro direction, can provide a wide observation range when the display is changed over to the normal two-dimensional image display, and can display time-divided directional images in a temporally separate manner even when an LCD is used for a transparent image display panel. (paragraph 0018, paragraph 0021, paragraph 0027, and paragraph 0031)

(b) The display device of the Invention includes means for inputting a full-screen black signal for causing the LCD to carry out full-screen black display every time one field or one frame of image signals is input to the LCD in a case of sequentially displaying different images on the LCD. (paragraph 0032)

(c) The display device of the Invention provides an effect such that sequential

images are not simultaneously displayed even partly at any arbitrary time, and sequential images can be displayed in a temporally separate manner. (paragraph 0033)

(d) In the example referred to as Example 1 (FIG. 1), 1 is a transparent image display panel, 2 is a convex lens plate, o is the center of the convex lens plate, FL is a focal point, and 3 is a split light source that emits light at an arbitrary partial region on the light emission surface which is arranged in space opposite the space where an observer is present with the transparent image display panel 1 in between.

An image on the transparent image display panel 1 can be observed only in case of viewing from within a slant region containing the line L when the light emission region 3L of the split light source 3 is emitting light, or only in case of viewing from within a slant region containing the line R when the light emission region 3R is emitting light, so that fast switching the display of images R and L and fast switching the right and left light emission regions 3R, 3L of the split light source 3 accordingly can permit the images R, L to be viewed as directional images with different parallactic angles separately with the right and left eyes, on the left eye from any position within the slant region containing the line L and on the right eye from any position within the slant region containing the line R. (paragraph 0034, paragraph 0035)

(e) In the example referred to as Example 15 (FIG. 17), 4 is a right and left image signal source that outputs two directional image signals to be displayed on the transparent image display panel 1, and 4R and 4L are respectively a right-eye image signal source that outputs an image R and a left-eye image signal source that outputs an image L. 5 is a time division circuit that alternately changes over directional images for the right and left eyes to be displayed on the transparent image display panel 1 on the temporal basis, and 6 is a division control circuit that controls the split light source 3 in such a way that the split light source alternately emits light in right and left regions 3R, 3L, provided by separating the split light source 3 in half, according to the temporal-based alternate changeover of the directional images for the right and left eyes to be displayed on the transparent image display panel 1. (paragraph 0034)

The Example includes a plane display change circuit 27 that changes over between stereoscopic display (three dimensional) and plane display (two dimensional).

In case of stereoscopic display, the plane display change circuit 27 selects the time division circuit 5 and the division control circuit 6, and performs division control of the split light source 3, and, at the same time, alternately changes over the images

R, L to be input to the display panel 1 on the temporal basis to ensure stereoscopic display, whereas in case of plane display, the plane display change circuit 27 selects an image for one eye (right-eye image 4R) and a full plane emission circuit 26, and causes the split light source 3 to emit light at the entire surface, and, at the same time, exclusively inputs the right-eye image 4R to the display panel 1 to provide plane display.

A normal non-stereoscopic image can be observed in a wide range. (paragraph 0059)

(f) In the individual examples referred to as Examples 22 to 24 (FIG. 24, FIG. 25, FIG. 26, and FIG. 27), 4 is a right and left image signal source that outputs two directional image signals to be displayed on the transparent image display panel 1, and 4R and 4L are respectively a right-eye image signal source that outputs an image R and a left-eye image signal source that outputs an image L. 5 is a time division circuit that alternately changes over directional images for the right and left eyes to be displayed on the transparent image display panel 1 on the temporal basis, and 6 is a division control circuit that controls the split light source 3 in such a way that the split light source alternately emits light in right and left regions 3R, 3L, provided by separating the split light source 3 in half, according to the temporal-based alternate changeover of the directional images for the right and left eyes to be displayed on the transparent image display panel 1. (paragraph 0034)

One field of images R, L (the field 1 and field 2 of the images R, L are inverted beforehand) is changed over to a full-screen black signal source 42 by a full-screen black display changeover circuit 41, and is input to the transparent image display panel 1 with the frame being changed over by the time division circuit 5. In this case, the field 1 of an image R-1 is input to the first field (from the first line to the 262.5th line), then the full-screen black signal is input to the second field (from the first line to the 262.5th line) to erase the image R-1, then the field 1 of an image L-1 is input to the third field, then the full-screen black signal is input to the fourth field to erase the image L-1, and the above processes are repeated thereafter. As a result, both screens are not simultaneously displayed even partly at any arbitrary time, so that the whole screen of the image R, L can be temporally separated. (paragraph 0067)

(g) It is apparent that a signal for the right eye (field by field or frame by frame) and a signal for the left eye (field by field or frame by frame) are alternately displayed on the temporal basis with the black signal in between in the order of the "image R-1 for the right eye" (field), the "black signal" (field), the "image L-1 for the left eye" (field), the "black signal" (field), the "image R-1 for the right eye" (field),

the "black signal" (field), the "image L-1 for the left eye" (field), and so forth in FIG. 25, and in the order of the "image R-1 for the right eye/image R-2 for the right eye" (frame), the "black signal" (frame), the "image L-1 for the left eye/image L-2 for the left eye" (frame), the "black signal" (frame), the "image R-1 for the right eye/image R-2 for the right eye" (frame), the "black signal" (frame), the "image L-1 for the left eye/image L-2 for the left eye" (frame), and so forth in FIG. 27.

(2) Examination

(a) Since the patent Invention has the configuration of "inputting a full-screen black signal ... in a case of sequentially displaying different images," Examples (22 to 27) that have both the configuration of "sequentially displaying different images" and the configuration of "inputting a full-screen black signal" should be referenced. An examination will be made with reference to Example 22 as a representative example.

According to Example 22, it is acknowledged that "different images" in the patent Invention are two directional images (image R for the right eye and image L for the left eye) that are output from the right-eye image signal source 4R and the left-eye image signal source 4L, respectively, and "sequentially displaying" is to alternately change over two directional images on the temporal basis by means of the time division circuit 5, and to alternately display the directional images on the transparent image display panel 1. In other words, it is acknowledged that "different images" are "images different (in direction that are output from different image signal sources)," and "sequentially displaying" is to "temporally alternately display" "images different (in direction)."

Therefore, the patent Invention can be said to be substantially a three-dimensional display device.

(b) The Specification of this Application has a description that "There is a problem such that there is only one observation position as in stereoscopic display even in a case of providing the normal two-dimensional image display by repeating the same image and simultaneously irradiating the display with all of the linear light sources instead of making an image to be displayed on the transparent image display panel different in direction field by field." (paragraph 0014)

As apparent from this description, it is said in the patent Specification that "making an image to be displayed on the transparent image display panel different in direction field by field" is stereoscopic display, and "repeating the same image instead of making an image to be displayed on the transparent image display panel different in direction field by field" is two-dimensional display.

A description of similar contents is also given in paragraph 0021 of Evidence A No. 6 and on page 34 of Evidence A No. 7, which seems to imply that the above recognition is not limited to the description of the Patent but is common.

(c) If one looks at each of two directional images (image R for the right eye and image L for the left eye) individually, each image is "a series of images (to be output from a single image signal source) that vary with time", the images may be said to be "different images" within that limitation; however, in this case, since two directional images are alternately input to the display panel 1, "different images" in the stage of "sequentially displaying ... on the LCD" are no longer "a series of images that vary with time." As a result, "sequentially displaying different images on the LCD" cannot be construed as "sequentially displaying different images (a series of images that vary with time) on the LCD."

(d) In the mode of the plane display of Example 15, the image R for the right eye is solely input to the display panel 1, so that the image R for the right eye is "a series of images that vary with time" as mentioned above, which may be said to be "sequentially displaying different images (a series of images that vary with time) on the LCD." However, there is no description on "inputting a full-screen black signal" in the mode of the plane display, and Example 15 is not an example of "inputting a full-screen black signal ... in a case of sequentially displaying different images" according to the patent Invention.

(e) The demandee argues that the patent Invention including a "two-dimensional display device" is described in the description of the original application (paragraph 0028, paragraph 0112, FIG. 17, etc.).

However, the "two-dimensional display device" described in the description of the original application is not a "two-dimensional display device" that has a configuration of "inputting a full-screen black signal." On the other hand, there is no description on a display device with configurations of both "inputting a full-screen black signal" and "a series of images that vary with time." It cannot be said that the patent Invention with the two-dimensional display device is described in the description of the original application.

(f) From the above, the patent Invention is a three-dimensional display device, and can be in no way construed to also include a two-dimensional display device.

(3) Summary

As mentioned above, it is in no way construed that the patent Invention includes a two-dimensional display device. The reasons for Invalidation 1 and the

reasons for Invalidation 2 in the preliminary allegation, which are based on the assumption that the patented Invention includes a two-dimensional display device, cannot be accepted.

2. Regarding the reason for Invalidation 3

(1) Summary

(a) Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4 have been examined, but none of the Evidences describe the following essential configuration the patent Invention has.

Note (Essential configuration of the patent Invention)

Inputting a full-screen black signal for causing the LCD to carry out full-screen black display on every time one field or one frame of image signals is input to the LCD.

(b) Then, with the above essential configuration, the patent Invention demonstrates an effect such that "sequential images are not simultaneously displayed even partly at any arbitrary time, and sequential images can be displayed in a temporally separate manner," as shown in the description of the patent (paragraph 0033)

(c) It cannot be decided from the above that the invention relating to Claim 1 (the patent Invention) could easily be made by a person skilled in the art based on the inventions described in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4.

(d) Since it cannot be decided that the invention relating to Claim 1 could easily be made by a person skilled in the art based on the inventions described in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4 as mentioned above, it can neither be decided that the inventions relating to Claim 2 and Claim 3, both referencing to Claim 1, could easily be made by a person skilled in the art based on the inventions described in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4.

(2) Examination on respective items of Evidence A

(2-1) Respective items of Evidence A

Respective items of Evidence A have the following descriptions.

(a) Evidence A No. 6 (Japanese Unexamined Patent Application Publication No. H6-205446)

<Field of Industrial Application>

(A) "The invention relates to a stereoscopic image display device that does not

need a pair of glasses, and, particularly, to a stereoscopic image display device having a high resolution and capable of displaying a bright stereoscopic image." (paragraph 0001)

<Examples>

(B) "The following describes the invention in detail by examples referring to the accompanying drawings. FIG. 1 illustrates a stereoscopic image display device according to the invention in a principle diagram viewed from above to show a difference from the conventional type illustrated in FIG. 5 at a glance." (paragraph 0009)

(C) "In FIG. 1, an image VD1 or VD2 representing one kind of directional image is displayed at display pixels P1, P2, P3, ... on the image display surface of a transparent image display panel such as an LCD, not individual directional images being repeatedly arranged in the directional order thereon as illustrated in FIG. 5, and they are irradiated on the left eye EYE1 or the right eye EYE2 of an observer respectively. When the image display surface displays the image VD1 for the left eye EYE1, only light sources LL1 for the left eye EYE1, indicated by •, in a plurality of linear light sources L disposed at the back of the image display panel as viewed from the observer are turned on, and light sources LL2 for the right eye EYE2 indicated by o are turned off." (paragraph 0010)

(D) "At the next timing, the image VD2 for the right eye EYE2 is displayed on the image display surface, and accordingly, the light sources LL2 for the right eye EYE2 indicated by o, in a plurality of linear light sources L are turned on, and the light sources LL1 for the left eye EYE1 indicated by •, are turned off. FIG. 2 illustrates the states in which the display images VD1, VD2 and the linear light sources LL1, LL2 change as the time passes." (paragraph 0011)

(E) "As apparent from the above, the invention is characterized in that while the image display surface of the transparent image display panel such as an LCD is spatially divided to display images for the left eye and images for the right eye conventionally, an image on the same side is displayed on the entire image display surface as an image for the left eye or an image for the right eye, and it is changed over, together with a plurality of linear light sources for irradiation of images for the left eye and for the right eye, on the time divisional basis (change in state), which prevents the resolution from being lowered due to an increase in the number of directions or the like." (paragraph 0012)

<Effect of the Invention>

(F) "According to the invention, a directional image from the same direction is

displayed on the entire screen of a transparent image display panel to be used in the device, the number of lateral pixels can be increased equivalently by a fold of the number of directions, as compared with the conventional stereoscopic image display device that simultaneously displays a plurality of directional images, thus ensuring reproduction of a high-resolution stereoscopic image." (paragraph 0019)

(G) "Note that it is possible to display a normal two-dimensional image, in addition to a stereoscopic (three-dimensional) image, by repeatedly displaying the same image instead of making an image to be displayed on the transparent image display panel different in direction field by field." (paragraph 0020)

(b) Evidence A No. 7

(H) "The timing sequence of LCD scan (during which all pixels are addressed), pixel transmittance changes to form the next image component, and light source turn on and turn off when a small number of lamps is used for full resolution 3-D imaging as in FIG. 2 is shown in FIGs 3a -3c.

The timing diagram is shown in FIGs 3a -3c. FIG. 3a depicts the repeated address of LCD rows starting at the top row and proceeding to the bottom row. FIG. 3b shows the change from "off" or opaque state to "on" or clear state (or vice versa) of the first and the last pixels in a video field, after these pixels have been addressed, and the flashing of the first light emitting point or lamp 42 shown in FIG. 2. In the case of TFT and Ferroelectric LCDs, when a pixel is turned on during the scan of an LCD, it stays on until turned off, in this case until the scan of the entire LCD to display one video frame is completed, and the last pixels have had time to change their state.

As shown in FIG. 3a the time period between the start of one LCD scan and the start of the next is divided into three periods during which three actions occur: a first period 22 during which the LCD is scanned and its rows sequentially addressed usually starting at the top row 20 and ending at the bottom row 21 causing the pixels to change state in order to display the next image, a pause or waiting period 23 during which nothing happens, and an operation elimination period 24 of beneficial effect in some LCDs in which the LCD is scanned again and all the pixels are addressed and made to change state to either full on or full off depending on LCD configuration, to completely erase the previous image. Typically, all the pixels of a given row are addressed at the same time.

The signal to change the states of the first row pixels is given to the LCD 6 at time t0. For illustrative purposes, it is assumed that a delay of about 3.5 ms occurs before the pixel completes its change to a new state in response to the applied signal

-it begins to turn on at time t1 and completes the change in its state between opaque and clear at time t2 as shown in FIG. 3b. Although in FIG. 3b pixels are shown turning between full off and full on it is understood that typically some will be turning from on to off and others will turning between one intermediate gray state and another. The last pixel starts its state change at time t3 after it is addressed at time t2 and completes it at time t4. At this instant the video frame is complete and the light source 7 flashes, as shown in FIG. 3c, thus transferring the information in the first field to the observer. As seen in FIG. 3a a pause period 23 during which no addressing of the LCD happens is inserted in order to give all the pixels time to change to their new state before the lamp is fired. If the time it takes a pixel to change state is long enough, or the time required for a scan is short enough, a second scan can occur during the pause period. During the second scan the same image information is transferred to the LCD as in the first scan. The optional blanking scan can then occur followed by the next address of the LCD during which the pixels are addressed in order to create the second image field. The sequence in the second frame is the same as in the first frame except that lamp 43 flashes. Likewise, the timing of events is identical in subsequent frames, the only difference being the information written to the LCD and which of the lamps flashes.

Again as shown in FIGs 3a -3c, the pixels take a certain period of time to change state once they are addressed. In this case 3.5 ms is shown for illustration, that being the period typical of a custom pixel LCD being made by an LCD development lab for Dimension Technologies Inc. The time required to turn full off from full on may be different than the time required for full on to full off, or the time required to change between various intermediate gray levels. In such cases, the longest time period required to change between two states is most relevant, and must be accommodated so that all pixels, regardless of which states the change to or from, can complete their change before a lamp is fired.

Lamps, of course, never flash instantaneously, but rather emit light for a short time and then turn off. The duration that the lamp is emitting light depends on the lamp, and can be controlled with some lamps, such as LEDs. In general, the lamp should emit light only during the time period between the completion of the last pixel's change and the beginning of the next address scan. However, if a blanking scan is used, and the LCD is blanked to a dark state, the lamps may emit light during the blanking period without significant image degradation. However, if the LCD is blanked to the bright or transparent state, the lamps should stop emitting light before the blanking period begins. Otherwise, contrast will be lessened considerably.

A total of 16.7 ms has elapsed from the time the turn on signal has been applied to the first pixel to the completion of the change in state of the last pixel and flash of the light source, and blanking at all the pixels, and beginning of the next scan. Thus, there are 60 fields per second or 30 images (video frames) per second. This frame frequency will result in a nearly flickerless image in this particular configuration given typical screen sizes and brightness levels. Other configurations in which more than two sets of light lines or spots are created may require higher frame frequencies to avoid flicker. This scanning, changing, and flash sequence proceeds continuously, as subsequent image frames, each consisting of two sequential fields made visible to the observer by means of two lamp flashes, are displayed. The two image fields each consist of interleaved right and left eye members of a stereopair image as described in US-A-5,036,385." (page 29, line 35 to page 32, line 27) (The corresponding part of Evidence A No. 8 is page 38, line 4 to page 40, line 22.)

(c) Evidence A No. 4

(I) "Turning now to the system embodiment of Figure 2, then following the writing of data for one TV field into the display panel 10 in a display information address period comprising one half of the TV signal field period as previously described, the picture elements of the array are addressed again in the interval comprising the remaining half of the TV signal field period to drive them to their substantially non-transmissive, black, state, unlike the scheme described in EP-A-0487140 in which the picture elements are addressed again with the same display information in the second half of the TV field period. To achieve this, selection signals are again supplied by the row driver circuit 20 to each of the row conductors in turn during this interval corresponding to the latter half of the TV field period with the selection signal of the first row conductor coinciding substantially with the beginning of the interval. For the duration of this period a predetermined reference voltage, VB, is applied to each of the column conductors 1 6, which is selected such that the picture elements are driven to their substantially non-transmissive state. The reference voltage is applied by means of a switch circuit 35 connected between the outputs of the column driver circuit 22 and the set of column conductors which switches the column conductors between the row driver circuit's outputs and the reference voltage under the control of a switching signal S supplied by the circuit 21. The row conductors are scanned with a selection signal at the same rate as previously so that the rows of picture elements are set to their substantially non-transmissive states in sequence with the final rows being set close to the end of the interval. In one TV field period, therefore, there are two display

information address periods namely a display information address period in which the picture elements are driven to the liquid crystal display states and a succeeding interval in which they are driven to their substantially non-transmissive states.

At the end of the TV field period, the change-over switches 28 and 32 are operated, so that the data signals for the next TV field are read out to the circuit 24 from the other store, again at twice the field rate of the TV signal and in synchronism with scanning of the row conductors at twice the conventional rate and while the subsequent TV field is being loaded into the first store. After this next field has been loaded into the display panel, the picture elements are again driven to their substantially non-transmissive display states as before in the remaining latter half of the TV field period. This manner of operation is repeated for successive TV fields.

Thus, the operation of the display panel occupies a succession of approximately equal periods of time, each corresponding to approximately one half of the TV signal field period, e.g. 10 ms, in which alternate periods constitute first display panel field periods during which the picture elements are loaded with display information for a respective TV field and in which the intervening intervals constitute second display panel field periods during which the picture elements of the array are driven to their black state. This is depicted diagrammatically in Figure 4 in which T represents time and F(A) to F(D) denote four successive field periods of the applied TV signal, VS. The relative timings of the operating periods of the display panel, DP, are illustrated in which f(A) to f(C) represent the first display panel field (display information address) periods, and the periods f' represent the intervals therebetween constituting the second display panel address periods." (page 18, line 11 to page 20, line 4) (The corresponding part of Evidence A No. 5 is page 18, line 7 to page 19, line 13.)

(2-2) Comparison

The following correspondences are acknowledged from the comparison between the patent Invention and the invention described in Evidence A No. 6. That is,

In Evidence A No. 6, "a transparent image display panel such as an LCD" (Description C) is used as an image display surface.

In Evidence A No. 6, "an image on the same side is displayed on the entire image display surface as an image for the left eye or an image for the right eye, and it is changed over, together with a plurality of light sources for irradiation of images, on the time divisional basis" (Description E). With regard to this point, it is seen from

FIG. 2 that an image for the left eye and an image for the right eye are changed over from one to the other on the time divisional basis in such a way that the image VD1 for the left (right) eye is input in a period t1, the image VD2 for the right (left) eye is input in a subsequent period t2, the image VD1 for the left (right) eye is input in a subsequent period t3, and so forth. It is apparent that the periods t1, t2, ... are field periods or frame periods.

Accordingly, "an image for the left eye and an image for the right eye" in Evidence A No. 6 are equivalent to "different images" in the patent Invention, and it is acknowledged that Evidence A No. 6 discloses a configuration equivalent to the configuration of "one field or one frame of image signals is input to the LCD in a case of sequentially displaying different images on the LCD" as referred to in the patent Invention.

However, Evidence A No. 6 does not disclose a configuration equivalent to the configuration of "causing the LCD to carry out full-screen black display" in the patent Invention. Obviously, there is a difference.

(2-3) Corresponding feature/Different feature

The following are the corresponding feature and different feature between the patent Invention and the invention described in Evidence A No. 6.

Note (Corresponding feature)

A display device comprising:

an LCD, wherein

in a case of sequentially displaying different images on the LCD, one field or one frame of image signals is input to the LCD.

Note (The different feature)

While in the patent Invention, "a full-screen black signal for causing the LCD to carry out full-screen black display is input every time one field or one frame of image signals is input to the LCD," Evidence A No. 6 does not have a description on such a feature of "causing the LCD to carry out full-screen black display."

(2-4) Judgement on the different feature

(a) Patent Invention

The patent Specification has the following description.

"To display a stereoscopic image without using a pair of glasses, ... it is necessary to autonomously separately project left and right images onto the left and right eyes when both eyes are set on the observation position thereby forming a

stereoscopic image to be observed." (paragraph 0002)

"Further, when an image obtained through time-divisional image inputting field by field as illustrated in FIG. 33a ... is displayed on an LCD as a transparent image display panel, a pixel on the display surface is kept displayed until this pixel is operated next, so that the display of the image R-1 and the image L-1 continues on the entire slant region, thus bringing about a problem such that the display is not temporally separated." (paragraph 0016)

"(The invention has been made to overcome the above problem, and it is an object of the invention) to provide a stereoscopic image display device that can display time-divided directional images in a temporally separate manner even when an LCD is used for a transparent image display panel." (paragraph 0017, paragraph 0031)

"The display device of this invention does not simultaneously display sequential images even partly at any arbitrary time, so that sequential images can be displayed in a temporally separate manner." (paragraph 0033)

The above indicates that the patent Invention relates to a stereoscopic image display device, and aims at overcoming the problem such that in an LCD stereoscopic image display device that sequentially displays different images (time-divided directional images), "left and right images are not separately projected onto the left and right eyes, so that the images cannot be observed as a stereoscopic image." This problem apparently originates from the property of a display image (sequential display of different images (time-divided directional images)).

(b) Evidence A No. 6

While Evidence A No. 6 (which is the publication described in the patent specification as a conventional example of the patent Invention) discloses an LCD stereoscopic image display device that sequentially displays different images (time-divided directional images), it does not disclose recognition of the problem such that "left and right images are not separately projected onto the left and right eyes, so that the images cannot be observed as a stereoscopic image," which is pointed out in the patent specification, and the object of the patent Invention to "display time-divided directional images in a temporally separate manner."

(c) Evidence A No. 7 and Evidence A No. 4

(c1) "Blanking" in Evidence A No. 7 is to "completely erase the previous image" (Description H), "beneficial effect in some LCDs" (Description H), and the state after erasure may be either a transparent state or a non-transparent state (black state) "depending on LCD configuration" (Description H). The "complete erasure of

the previous image" originates from the display characteristic of a specific LCD device (e.g., once a pixel is turned on, the ON state continues until it is turned off; Description H), and the implementation of the operation is needed or preferred for the display characteristic of the LCD device, regardless of the property of a display image.

The operations such that "the picture elements of the array are addressed again in the interval comprising the remaining half of the TV signal field period to drive them to their substantially non-transmissive (black) state" (Description I), and "For the duration of this period a predetermined reference voltage, VB, is applied to each of the column conductors 16, which is selected such that the picture elements are driven to their substantially non-transmissive state" (Description I) in Evidence A No. 4 are carried out in order to "alleviate" "the problem of unwanted visual effect when displaying moving images" (note for the trial decision: blurring, smearing) (page 3, lines 20 to 21), which occurs between adjoining fields, "thereby resulting in the improvement to the perceived resolution of moving images" (page 8, lines 11 to 12).

From those descriptions, Evidence A No. 7 and Evidence A No. 4 mainly concern solutions to the problem (blurring, remaining of the previous image), which originates from the display characteristic of the LCD device and occurs between adjoining fields, regardless of the property of a display image, and do not take the property of a display image such as "different images" into consideration. They do not appear to disclose recognition of the problem such that "left and right images are not separately projected onto the left and right eyes, so that the images cannot be observed as a stereoscopic image," which is pointed out in the patent specification, and the object of the patent Invention to "display time-divided directional images in a temporally separate manner."

(c2) In the operation where "the LCD is scanned again and all the pixels are addressed ... to change state during an optional blanking period (24)" (Description H), there is no description that this operation is originated from something input as a "signal." The configuration of "inputting a full-screen black signal" is not disclosed.

(c3) An image in Evidence A No. 7 is such that "the two image fields each consist of interleaved right and left eye members of a stereopair image ...." It is also described that regarding the "interleaved right and left eye members of a stereopair image," "the positions of the left and right eye images are flipped." Although the images are to be used for stereoscopic display, a half (member) of an image for the left eye and a half (member) of an image for the right eye are simultaneously displayed within one field (spatial division), which does not correspond to "different

images" referred to in the patent Invention.

(c4) The "reference voltage VB" in Evidence A No. 4 is the "voltage" that is generated by the timing and control circuit 21 to which a sync signal is supplied from the sync separator 26 (voltage supplied to the LCD under the control of the switching signal S in a predetermined period within the vertical scanning period), and is not input (e.g., to the input terminal 25) as a "signal." This does not disclose the configuration of "inputting a full-screen black signal."

(d) Summary

As described above, none of Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4 disclose the object of the patent Invention. In Evidence A No. 6, "an image on the same side is displayed on the entire image display surface ... and it is changed over for the left eye and for the right eye on the time divisional basis" is achieved already, and no further means for "time division for the left eye and for the right eye" is not inevitable, and Evidence A No. 7 and Evidence A No. 4 are intended to erase the previous image at the time of displaying a next image in order to prevent sequential images from overlapping each other as a feature of display performance by the LCD device, so that even if the entire screen is erased as a consequence, this erasure operation does not reflect the concept of "enabling full-screen black display." Therefore, the concept of "enabling full-screen black display" in order to "display time-divided directional images in a temporally separate manner" cannot be found in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4, thus lacking a motive to lead to the patent Invention.

In addition, none of Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4 disclose the configuration of "inputting a full-screen black signal" in the patent Invention.

Thus, it cannot be concluded that the configuration relating to the different feature can be easily achieved from what is described Evidence A No. 7 and Evidence A No. 4.

(e) The demandant alleges that separate projection of directional images onto the left and right eyes is the principle for achieving a stereoscopic image display device, and the description in Evidence A No. 6 on "changeover for the left eye and for the right eye on the time divisional basis" (Description E) can be a motive for temporal separation for the left eye and for the right eye.

Even with the acknowledgment of the principle of stereoscopic display (separately projecting directional images onto the left and right eyes), no Evidence A has a description on the problem of separate projection in the stereoscopic display

system of "sequentially display different images (directional images)" as mentioned above. In addition, the effect of the patent Invention is recognizable in this stereoscopic display system as described later.

"Time-divisionally changing over" as referred to in Evidence A No. 6 is to "display an image on the same side on the entire surface"" to time-divisionally change over the image" instead of the conventional way of "spatially dividing the image display surface and displaying right and left images on one screen," and means to "temporally arrange right and left images screen by screen" (to sequentially display different images). It does not suggest a progressive approach from the "temporally arranging right and left images screen by screen" to temporally separate the screen for the right and left images to be input with another screen or "a full-screen black signal (output from the third image supply source)" for display

The allegation cannot be accepted.

(f) Effect

The effect of the patent Invention is such that "seuential images are not simultaneously displayed even partly at any arbitrary time, and sequential images can be displayed in a temporally separate manner" (Paragraph 0033). The "displaying sequential images in a temporally separate manner" is to temporally separate the screen for the right and left images to be input with another screen, as mentioned above, and "temporally separate sequential images" in Evidence A No. 7 and Evidence A No. 4 is to separate two subsequent fields of the same image also as mentioned above. The patent Invention differs from Evidence A No. 7 and Evidence A No. 4 in a target for "temporal separation", and its effect cannot be anticipated from Evidence A No. 7 and Evidence A No. 4. On the other hand, the effect can be recognized in terms of avoiding loss of stereoscopic visibility.

(g) Summary

From the above, it cannot be said that the patent Invention could easily be made by a person skilled in the art based on the inventions described in Evidence A No. 6, Evidence A No. 7 and Evidence A No. 4.

No. 5 Conclusion

As described above, the patent Invention cannot be invalidated by the demandant's allegation and the evidences.

The costs in connection with the trial shall be borne by the demandant under the provisions of Article 61 of the Code of Civil Procedure which is applied mutatis

mutandis in the provisions of Article 169(2) of the Patent Act.

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

November 19, 2007

Chief administrative judge: SHINGU, Yoshinori

Administrative judge: OKUMURA, Motohiro

Administrative judge: MATSUNAGA, Takashi