
[Document Name]	Written Opinion
[Administration Number]	J009183701
[Attention]	Patent Office Commissioner
[Display of Case]	
[Application Number]	Japanese Patent Application 2002-293696
[Patent Applicant]	
[Identification Number]	000002369
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[Details of Opinion]	

(1) In a notice of reason for rejection proposed on Jan. 31, 2007 (mailing date: Feb. 2, 2007), the examiner gave the following reasons:

Reason A: "The invention according to claims 1 to 5, and 9 to 12 is an invention described in publications (Cited documents 1 and 3) distributed in Japan or abroad prior to the application as described below or is an invention that has been made publicly available through electronic communication lines, and is therefore subject to Patent Law Article 29(1) (iii), and thus can not be granted a patent."

AND

Reason B: "The invention according to claims 1 to 12 cannot be granted a patent in accordance with the provisions of Patent Act Article 29(2) because a person of ordinary skill in the art related to the present invention could easily have conceived of this invention, based on the inventions shown in the following publications (Cited documents 1 to 3) which were published either in Japan or in other countries prior to this application or on the basis of an invention that is accessible to the public through telecommunication lines."

AND

Reason C: "The invention according to claim 1 is publicly known, and there is neither the same main parts nor the same problem to be solved between claim 1 and independent claims 2 to 5, 11, and 12, which were unsolved at the time of filing, thus the requirements stipulated in Article 37 of the Patent Law are not met."

In response, the applicant has amended the "patent claims" of the specification of the present application using a procedural amendment dated the same day as this opinion.

A written opinion based on this is stated below.

(2) Present Invention

The inventions according to claims 1 to 15 of the present invention include:

"[Claim 1]

An electro-optical device comprising:

a plurality of pixels arranged in a matrix, each containing an electro-optical element driven by receiving power supplied from a power source circuit, wherein:

the plurality of pixels form a plurality of pixel groups each including a series of pixels arranged in at least one of a row direction and a column direction;

a plurality of power supply lines having a plurality of different wiring widths for supplying a driving voltage to the electro-optical element are provided;

a wiring formation region is provided between each of the plurality of pixel groups;

widths of the wiring formation regions are substantially equal to each other; and

at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region.

[Claim 2]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines,

each pixel including an electro-optical element;
the device comprising:
a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein
the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and
wiring with different widths are formed, with at least two wirings selected from at least one power supply line of the plurality of power supply lines, at least one scanning line of the plurality of scanning lines, and at least one data line of the plurality of data lines, formed in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 3]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines, each pixel including an electro-optical element;
the device comprising:
a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein
the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and
wiring with different widths are formed from at least one power supply line of the plurality of power supply lines, and at least one scanning line of the plurality of scanning lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 4]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines, each pixel including an electro-optical element;
the device comprising:
a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein
the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and
wiring with different widths are formed from at least one power supply line of the plurality of power supply lines, and at least one data line of the plurality of data lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 5]

The electro-optical device according to any one of claims 2 to 4, wherein the widths of the wiring formation regions are substantially equal to each other.

[Claim 6]

The electro-optical device according to any one of claims 1 to 5, wherein the electro-optical element includes an electro-optical element having a different driving voltage, and the width of the power supply line is different, depending on the driving voltage.

[Claim 7]

The electro-optical device according to claim 6, wherein the electro-optical element is a light-emitting element, and the power supply lines have a different width depending on emission color of the light-emitting element.

[Claim 8]

The electro-optical device according to claim 7, wherein the emission color is red, green, or blue.

[Claim 9]

The electro-optical device according to any one of claims 1 to 8, wherein the electro-optical element is an electroluminescence element.

[Claim 10]

An electronic device, equipped with an electro-optical device according to any one of claims 1 to 9.

[Claim 11]

A matrix substrate having a plurality of pixel electrodes arranged in a matrix, wherein:
the plurality of pixel electrodes form a plurality of pixel electrode groups each including a series of pixel electrodes arranged in at least one of a row direction and a column direction;
a plurality of power supply lines having different wiring widths for supplying a driving voltage to the pixel electrodes are provided;
a wiring formation region is provided between individual pixel electrode groups of the plurality of pixel electrode groups;
widths of the wiring formation regions are substantially equal to each other; and
at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region.

[Claim 12]

A matrix substrate, containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixel electrodes arranged corresponding to intersections of the scanning lines and the data lines; the device comprising:
a plurality of power supply lines having different wiring widths in order to supply voltage to the plurality of pixel electrodes; wherein
the plurality of pixel electrodes form a group of pixel electrodes made of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel electrode groups of the plurality of pixel electrode groups; and
wiring with different widths are formed, with at least two wirings selected from at least one power supply line of the plurality of power supply lines, at least one scanning line of the plurality of scanning lines, and at least one data line of the plurality of data lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 13]

An electro-optical device which is a light emitting device, comprising:
a plurality of scanning lines extending in a first direction;
a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;
a plurality of light emitting units arranged corresponding to each of the intersections of the scanning lines and the data lines; and
a power supply line supplying drive voltage to the light emitting elements;
wherein
each of the plurality of light emitting units includes:
a light-emitting element;
a first transistor connected between the light emitting element and the power supply line and configured to drive the light emitting element; and
a second transistor having a gate terminal connected to the scanning line and configured to supply a data signal from the data line to the gate terminal of the first transistor;
the plurality of light emitting units form a plurality of light emitting unit groups each including a series of light emitting units arranged in the second direction;
the power supply line includes a first power supply line connected to the first transistor of a light emitting unit in a first light emitting unit group of the plurality of light emitting unit groups, and a second power supply line connected to the first transistor of a light emitting unit in a second light emitting unit group different from the first light emitting unit group of the plurality of light emitting unit groups;
the first and second power supply lines have line widths different from each other;
the first light emitting unit group includes a first light emitting unit, a second light emitting unit,

and a third light emitting unit, arranged in this order in the second direction;
the scanning line connected to a gate terminal of the second transistor of the first light emitting unit
and the scanning line connected to a gate terminal of the second transistor in the second light-
emitting unit are provided between the first light emitting unit and the second light emitting unit;
and
the first power supply line and the second power supply line are provided between the second light
emitting unit and the third light emitting unit.

[Claim 14]

The electro-optical device according to claim 13, wherein the first power supply line has another
section between the first light emitting unit group and the second light emitting unit group.

[Claim 15]

An electro-optical device which is a light emitting device, comprising:
a plurality of scanning lines extending in a first direction;
a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;
a plurality of light emitting units arranged corresponding to each of the intersections of the scanning
lines and the data lines; and
a power supply line configured to supply a drive voltage to the light emitting element; wherein
each of the plurality of light emitting units includes:
a light-emitting element;
a first transistor connected between the light emitting element and the power supply line and
configured to drive the light emitting element; and
a second transistor having a gate terminal connected to the scanning line and configured to supply a
data signal from the data line to the gate terminal of the first transistor;
the plurality of light emitting units includes a first light emitting unit group, a second light emitting
unit group, and a third light emitting unit group, each containing a series of light emitting units
arranged in the second direction, the groups repeatedly arranged in this order in the first direction;
the power supply line includes a first power supply line connected to the first transistor of a light
emitting unit in the first light emitting unit group, a second power line connected to the first
transistor of the light emitting unit in the second light emitting unit group, and a third power supply
line connected to the first transistor of the light emitting unit in the third light emitting unit group;
at least two power supply lines of the first to third power supply lines have line widths different
from each other;
the data line connected to the second transistor of the first light emitting unit group and the data line
connected to the second transistor of the second light emitting unit group are arranged between the
first light emitting unit group and the second light emitting unit group;
the second power supply line and the third power supply line are arranged between the second light
emitting unit group and the third light emitting unit group; and
the first power supply line and the data line connected to the second transistor of the third light
emitting unit group are arranged between the third light emitting unit group and the first light
emitting unit group."

(3) Amendment (Basis of Amendment, and the like)

The above amendment was made within the scope of the original specifications and drawings of the present application, and does not add any new matter. Specifically, the amendment of claims 1 to 4, 11, and 12 make it clear that "a plurality of power supply lines having different wiring widths" exist and that "wirings having different wiring widths" are arranged in "at least one wiring formation region." Such matters are described in, for example, [0025], FIG. 3, and the like, of the present specification.

Of the added claims 13 to 15, claim 13 is based on FIG. 4 and the description thereof, claim 14 is based on FIG. 5 and the description thereof (see paragraph [0035] in particular), and claim 15 is based on FIG. 3 and the description thereof.

Accordingly, these amendments are made within the scope of the matters described in the specification or the drawings of the initial application, and satisfy the provisions of Article 17-2(3) of the Patent Law.

(4) Comparison of Present Invention and Cited Documents (Publications)

Cited document 1 (Japanese Unexamined Patent Application 2000-242196) describes "an electroluminescent display device including pixels having anodes, in which a gate signal line 151 and a bypass line 181 are formed between pixel groups arranged in a row direction, and in which a drain signal line 152 and a drive power supply line 153 are formed between pixel groups arranged in a column direction." Furthermore, cited document 2 (Japanese Unexamined Patent Application 2001-272930) also describes a similar configuration.

However, cited documents 1 and 2 do not describe a configuration in which <1> a plurality of power supply lines having different wiring widths are present and <2> wirings having different wiring widths are arranged in at least one wiring formation region. Furthermore, there is no mention of a configuration where <3> two power supply lines having different line widths are disposed between light emitting units.

Furthermore, cited document 3 (Japanese Unexamined Patent Application 2002-151276) describes "a display device in which an applied voltage is different for each color of red, blue, and green and the width of a power supply line is different.

However, as illustrated in FIG. 1, cited document 3 is an invention in which the wiring width of the lead-out wiring 107 (the wiring extending to the pixel unit 101) is varied in accordance with the applied voltage. It is true that paragraph [0029] of cited document 3 states that "if the ratio of the width of a power supply line for supplying a voltage or a current to an EL element of a pixel is designed to be large, an image with much higher definition can be displayed." However, there is no disclosure of the detailed layout thereof, for example, where the power supply lines are arranged and the relationship with the data lines, the scanning lines, and the like. Referring to FIG. 1 of cited document 3, to emphasize, it is considered that the power supply lines are laid out one by one at the right end portion of the pixel.

Therefore, according to <2> of the present invention, wires having different wire widths are not arranged in at least one wiring formation region. Furthermore, the configuration is not such that <3> two of the power supply lines having different line widths are arranged between the light emitting units.

Furthermore, even if the technique of cited document 3 can be applied to cited document 1 or 2, it is merely a layout which is an object of the present invention in which the bypass line 181 and the gate signal line 151 are formed as different wiring layers, or the pixel pitch of the drive power supply line 53 and the drain signal line 52 is selected in accordance with the maximum width of the drive power supply line 53 (see paragraph [0004] of the present specification).

On the other hand, according to the present invention, on the assumption that <1> a plurality of power supply lines having different wiring widths are present, then <2> wirings having different wiring widths are arranged in at least one wiring formation region, thereby improving the degree of freedom in designing a device or the like. Furthermore, <3> two power supply lines having different line widths are arranged between the light emitting units in order to improve the degree of freedom in designing the device.

Therefore, even a person of ordinary skill in the art could not easily conceive of the present invention based on cited documents 1 to 3 and combinations thereof.

(5) As described above, by this amendment, the invention according to claim 1 becomes patentable, and since the same problem to be solved exists between claim 1 and independent claims 2 to 5, 11, 12, 13, and 15 at the time of filing, it is thought that the requirements stipulated in Article 37 of the Patent Law are satisfied.

(6) As described above in detail, since the reason for rejection based on the reasons A, B, and C is deemed to have been eliminated by this amendment, the applicant requests receiving an examination to evaluate that the invention should be granted a patent.

END

Authorization / additional information

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Document name	Written opinion
Responsible examiner	Senior Officer in charge 0090
Created	Apr. 2, 2007

<Approval Information and Additional Information>

[Filing Date]	Mar. 28, 2007
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[Document name]	Procedural amendment
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[Identification Number]	000002369
[Name or Name]	SEIKO EPSON CORPORATION
[Agent]	
[Identification Number]	100079108
[Attorney]	
[Name or appellation]	INABA Masayuki
[Number of claims increased by correction]	3
[Procedural Amendment 1]	
[Name of document to be amended]	Specification
[Name of item to be amended]	Patent Claims
[Amendment Method]	Change
[Details of Amendment]	
[Claims]	

[Claim 1]

An electro-optical device comprising:

a plurality of pixels arranged in a matrix, each containing an electro-optical element driven by receiving power supplied from a power source circuit, wherein:

the plurality of pixels form a plurality of pixel groups each including a series of pixels arranged in at least one of a row direction and a column direction;

a plurality of power supply lines having a plurality of different wiring widths for supplying a driving voltage to the electro-optical element are provided;

a wiring formation region is provided between each of the plurality of pixel groups;

widths of the wiring formation regions are substantially equal to each other; and

at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region.

[Claim 2]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines, each pixel including an electro-optical element;

the device comprising:

a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein

the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;

a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and

wiring with different widths are formed, with at least two wirings selected from at least one power supply line of the plurality of power supply lines, at least one scanning line of the plurality of scanning lines, and at least one data line of the plurality of data lines, formed in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 3]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines, each pixel including an electro-optical element;

the device comprising:

a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein

the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and
wiring with different widths are formed from at least one power supply line of the plurality of power supply lines, and at least one scanning line of the plurality of scanning lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 4]

An electro-optical device containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixels arranged corresponding to intersections of the scanning lines and the data lines, each pixel including an electro-optical element;
the device comprising:
a plurality of power supply lines having different wiring widths that supply a driving voltage to the electro-optical elements; wherein
the plurality of pixels form a group of pixels composed of a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of wiring formation regions are provided between individual pixel groups of the plurality of pixel groups; and
wiring with different widths are formed from at least one power supply line of the plurality of power supply lines, and at least one data line of the plurality of data lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 5]

The electro-optical device according to any one of claims 2 to 4, wherein the widths of the wiring formation regions are substantially equal to each other.

[Claim 6]

The electro-optical device according to any one of claims 1 to 5, wherein the electro-optical element includes an electro-optical element having a different driving voltage, and the width of the power supply line is different, depending on the driving voltage.

[Claim 7]

The electro-optical device according to claim 6, wherein the electro-optical element is a light-emitting element, and the power supply lines have a different width depending on emission color of the light-emitting element.

[Claim 8]

The electro-optical device according to claim 7, wherein the emission color is red, green, or blue.

[Claim 9]

The electro-optical device according to any one of claims 1 to 8, wherein the electro-optical element is an electroluminescence element.

[Claim 10]

An electronic device, equipped with an electro-optical device according to any one of claims 1 to 9.

[Claim 11]

A matrix substrate having a plurality of pixel electrodes arranged in a matrix, wherein:
the plurality of pixel electrodes form a plurality of pixel electrode groups each including a series of pixel electrodes arranged in at least one of a row direction and a column direction;
a plurality of power supply lines having different wiring widths for supplying a driving voltage to the pixel electrodes are provided;
a wiring formation region is provided between individual pixel electrode groups of the plurality of pixel electrode groups;
widths of the wiring formation regions are substantially equal to each other; and
at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region.

[Claim 12]

A matrix substrate, containing a plurality of scanning lines, a plurality of data lines, and a plurality of pixel electrodes arranged corresponding to intersections of the scanning lines and the data lines;

the device comprising:

a plurality of power supply lines having different wiring widths in order to supply voltage to the plurality of pixel electrodes; wherein

the plurality of pixel electrodes form a group of pixel electrodes made of a series of pixels arranged in at least one of a row direction and a column direction;

a plurality of wiring formation regions are provided between individual pixel electrode groups of the plurality of pixel electrode groups; and

wiring with different widths are formed, with at least two wirings selected from at least one power supply line of the plurality of power supply lines, at least one scanning line of the plurality of scanning lines, and at least one data line of the plurality of data lines, in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 13]

An electro-optical device which is a light emitting device, comprising:

a plurality of scanning lines extending in a first direction;

a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;

a plurality of light emitting units arranged corresponding to each of the intersections of the scanning lines and the data lines; and

a power supply line supplying drive voltage to the light emitting elements;

wherein

each of the plurality of light emitting units includes:

a light-emitting element;

a first transistor connected between the light emitting element and the power supply line and configured to drive the light emitting element; and

a second transistor having a gate terminal connected to the scanning line and configured to supply a data signal from the data line to the gate terminal of the first transistor;

the plurality of light emitting units form a plurality of light emitting unit groups each including a series of light emitting units arranged in the second direction;

the power supply line includes a first power supply line connected to the first transistor of a light emitting unit in a first light emitting unit group of the plurality of light emitting unit groups, and a second power supply line connected to the first transistor of a light emitting unit in a second light emitting unit group different from the first light emitting unit group of the plurality of light emitting unit groups;

the first and second power supply lines have line widths different from each other;

the first light emitting unit group includes a first light emitting unit, a second light emitting unit, and a third light emitting unit, arranged in this order in the second direction;

the scanning line connected to a gate terminal of the second transistor of the first light emitting unit and the scanning line connected to a gate terminal of the second transistor in the second light-emitting unit are provided between the first light emitting unit and the second light emitting unit; and

the first power supply line and the second power supply line are provided between the second light emitting unit and the third light emitting unit.

[Claim 14]

The electro-optical device according to claim 13, wherein the first power supply line has another section between the first light emitting unit group and the second light emitting unit group.

[Claim 15]

An electro-optical device which is a light emitting device, comprising:

a plurality of scanning lines extending in a first direction;

a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;

a plurality of light emitting units arranged corresponding to each of the intersections of the scanning lines and the data lines; and

a power supply line configured to supply a drive voltage to the light emitting element; wherein

each of the plurality of light emitting units includes:

a light-emitting element;

a first transistor connected between the light emitting element and the power supply line and

configured to drive the light emitting element; and
a second transistor having a gate terminal connected to the scanning line and configured to supply a data signal from the data line to the gate terminal of the first transistor;
the plurality of light emitting units includes a first light emitting unit group, a second light emitting unit group, and a third light emitting unit group, each containing a series of light emitting units arranged in the second direction, the groups repeatedly arranged in this order in the first direction;
the power supply line includes a first power supply line connected to the first transistor of a light emitting unit in the first light emitting unit group, a second power line connected to the first transistor of the light emitting unit in the second light emitting unit group, and a third power supply line connected to the first transistor of the light emitting unit in the third light emitting unit group;
at least two power supply lines of the first to third power supply lines have line widths different from each other;
the data line connected to the second transistor of the first light emitting unit group and the data line connected to the second transistor of the second light emitting unit group are arranged between the first light emitting unit group and the second light emitting unit group;
the second power supply line and the third power supply line are arranged between the second light emitting unit group and the third light emitting unit group; and
the first power supply line and the data line connected to the second transistor of the third light emitting unit group are arranged between the third light emitting unit group and the first light emitting unit group.

[Display of Fee]

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Authorization / additional information

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Decision of Rejection

Patent application	number 2002-293696
Draft date	Apr. 17, 2007
Patent Office Examiner	HATAE Susumu 9508 2G00
TITLE OF THE INVENTION:	ELECTRO-OPTICAL DEVICE, MATRIX SUBSTRATE, AND ELECTRONIC DEVICE
Patent applicant	SEIKO EPSON CORPORATION
Agent	INABA Yoshiyuki (and two others)

This application should be rejected for reasons B and C as described in the Notice of Rejection dated Jan. 31, 2007.

It should be noted that although the contents of the Written Opinion and the Procedural Amendment have been examined, there is no basis sufficient to reverse the Reason for Rejection.

Remarks

Reasons:

Claims 2 to 4, 6 to 10, and 12

As pointed out in the above Notice of reasons for rejection, it is easy to apply the invention described in cited document 3 to the inventions described in cited documents 1 and 2.

The resulting configuration is a configuration in which the scanning line and the power supply lines, or the data lines and the power supply lines, are provided between the pixels, and the width of the power supply line is different based on the light emission color. However, a configuration is inevitably obtained in which the width of the power supply line corresponding to at least one emission color is different from the width of the scanning line or the data line. Therefore, if the invention described in cited document 3 is applied to the inventions described in cited documents 1 and 2, at least one power supply line and a scanning line or a data line having different wiring widths would be formed in at least one wiring formation region, and thus the invention according to each claim could easily be achieved by a person of ordinary skill in the art.

In the written opinion, the applicant asserts that “even if the technique of cited document 3 can be applied to cited document 1 or 2, it is merely a layout which is an object of the present invention in which the bypass line 181 and the gate signal line 151 are formed as different wiring layers, or the pixel pitch of the drive power supply line 53 and the drain signal line 52 are selected in accordance with the maximum width of the drive power supply line 53.” However, the invention according to each of the claims includes these configurations, without excluding any configuration described herein by the applicant. Further, it should be noted that these claims do not specify even that the widths of the wiring formation regions are equal to each other, and include a configuration in which the pixel pitch is different based on the width of the different drive power supply lines.

Please refer to Japanese Unexamined Patent Application 2002-229483 for the invention according to these claims.

Reason C

The inventions according to claims 1 to 14 have the same main components such as (A) power supply lines having different wiring widths and (B) wirings having different wiring widths formed in at least one wiring region, but the invention according to claim 15 does not have configuration (B) and does not satisfy the unity requirement of the

invention. It is specified in Claim 15 that at least two power supply lines of the first to third power supply lines have different line widths, and that while the second power supply line and the third power supply line are arranged between the second light emitting unit group and the third light emitting unit group, a configuration is included in which the line widths of the second power supply line and the third power supply line are the same, and there is no configuration specifying that other lines having different line widths are formed in one wiring region. Note that configuration (A) itself is described in cited document 3, and configuration (A) alone does not constitute a main part.

It should be noted that the following new Reason for rejection was caused by the amendment.

-In Claims 3 and 4, the statement that "wirings having different wiring widths are formed" is unclear because it is not known how the wiring width differs from the wiring width of the formed wiring.

-Claim 13 specifies that the first power supply line and the second power supply line provided between the second light emitting unit and the third light emitting unit (extending in the row direction) have line widths different from each other, but this configuration is not described in the original specification or the like, and thus adds new matter. In Embodiment 2 ([FIG. 4]) which is asserted in the Written Opinion by the applicant to be a basis for the amendment, there is no description that the wiring width of the power supply line is different, and in addition it cannot be recognized that this configuration is suggested in the description of Embodiment 1 ([FIG. 3]) which has a completely different wiring layout.

Furthermore, although not pointed out in the above-mentioned Notice of Reason for Rejection, the inventions according to claims 2 to 4 and 6 to 15 which do not have the requirement that the widths of the wiring formation regions are equal include configurations in which the widths of the wiring formation regions are not equal, and in this case, the pixel pitch will not be at equivalent intervals as stated in [0006]. In other words, the inventions of claims 2 to 4 and 6 to 15 do not reflect the means to solve the problem, and are deemed to claim a patent beyond the disclosure of the detailed description of the invention. Therefore, the inventions according to claims 2 to 4 and 6 to 15 are not described in the detailed description of the invention.

List of cited documents

1. Japanese Unexamined Patent Application 2000-242196
2. Japanese Unexamined Patent Application 2001-272930
3. Japanese Unexamined Patent Application 2002-151276

If there are objections regarding this decision, a request for an appeal can be made to the Patent Office Commissioner within 30 days (within 90 days for those residing overseas) from the date that a copy of this decision was mailed (Reference document: Patent Law Article 121(1)).

(Teaching Based on Article 46(2) of the Administrative Case Act)

Cancellation litigation regarding this decision, can only be raised against the decision of the examination claims of this assessment (Patent Law Article 178(6)).

Department Manager	Proxy Examination Manager	Proxy Examiner	Supplementary Examiner
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[Document name]	Examined claims
[Administration Number]	J009183701
[Attention]	Patent Office Commissioner
[Presentation of Judgment Case]	
[Application Number]	Japanese Patent Application 2002-293696
[Type of examination]	Decision of Rejection objection examination case
[Number of claims]	15
[Examiner]	
[Identification Number]	000002369
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[Display of Fee]	
[Deposit account number]	011903
[Payment Amount]	132,000 yen
[Gist of claim]	The original decision is rescinded. The applicant requests a decision that the invention of the present application should be patented.
[Reasons for Claim]	
Additional comments will be made later.	
[Comprehensive Power of Attorney Number]	9808570

[Document name] Procedural amendment
[Administration Number] J009183701
[Attention] Patent Office Commissioner
[Display of Case]
 [Examination number] Objection 2007-14504
 [Application Number] Japanese Patent Application 2002-293696
[Person Making Amendment]
 [Identification Number] 000002369
 [Name or Name] SEIKO EPSON CORPORATION
[Agent]
 [Identification Number] 100079108
 [Attorney]
 [Name or appellation] INABA Masayuki

[Procedural Amendment 1]

[Name of document to be amended] Specification

[Name of item to be amended] Patent Claims

[Amendment Method] Change

[Details of Amendment]

[Claims]

[Claim 1]

An electro-optical device comprising:
a plurality of pixels arranged in a matrix, each containing an electro-optical element driven by receiving power supplied from a power source circuit, wherein:
the plurality of pixels form a plurality of pixel groups each including a series of pixels arranged in at least one of a row direction and a column direction;
a plurality of power supply lines having a plurality of different wiring widths for supplying a driving voltage to the electro-optical element are provided;
a plurality of wiring formation regions are provided between each of the plurality of pixel groups; widths of the plurality of wiring formation regions are substantially equal to each other; and
at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 2]

The electro-optical device according to claim 1, wherein the electro-optical element includes an electro-optical element having a different driving voltage, and the width of the power supply line is different, depending on the driving voltage.

[Claim 3]

The electro-optical device according to claim 2, wherein the electro-optical element is a light-emitting element, and the power supply lines have a different width depending on emission color of the light-emitting element.

[Claim 4]

The electro-optical device according to claim 3, wherein the emission color is red, green, or blue.

[Claim 5]

The electro-optical device according to any one of claims 1 to 4, wherein the electro-optical element is an electroluminescence element.

[Claim 6]

An electronic apparatus, equipped with an electro-optical device according to any one of claims 1 to 5.

[Claim 7]

A matrix substrate comprising:
a plurality of pixel electrodes arranged in a matrix, wherein:
the plurality of pixel electrodes form a plurality of pixel electrode groups each including a series of pixel electrodes arranged in at least one of a row direction and a column direction;
a plurality of power supply lines having a plurality of different wiring widths for supplying a driving

voltage to the pixel electrodes are provided;
a plurality of wiring formation regions are provided between individual pixel electrode groups of the plurality of pixel electrode groups;
widths of the plurality of wiring formation regions are substantially equal to each other; and
at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region of the plurality of wiring formation regions.
[Claim 8]

An electro-optical device which is a light emitting device, comprising:
a plurality of scanning lines extending in a first direction;
a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;
a plurality of light emitting units arranged corresponding to each of the intersections of the scanning lines and the data lines; and
a power supply line configured to supply a drive voltage to the light emitting element; wherein each of the plurality of light emitting units includes:
a light-emitting element;
a first transistor connected between the light emitting element and the power supply line and configured to drive the light emitting element; and
a second transistor having a gate terminal connected to the scanning line and configured to supply a data signal from the data line to the gate terminal of the first transistor;
the plurality of light emitting units are arranged such that a first light emitting unit group, a second light emitting unit group, and a third light emitting unit group each including a series of light emitting units arranged in the second direction, are repeated at equal intervals arranged in this order in the first direction;
the power supply line includes a first power supply line connected to the first transistor of the light emitting unit in the first light emitting unit group, a second power supply line connected to the first transistor of the light emitting unit in the second light emitting unit group, and a third power supply line connected to the first transistor of the light emitting unit in the third light emitting unit group;
the second power supply line has a line width different from that of the third power supply line;
the data line connected to the second transistor of the first light emitting unit group and the data line connected to the second transistor of the second light emitting unit group are arranged between the first light emitting unit group and the second light emitting unit group;
the second power supply line and the third power supply line are arranged between the second light emitting unit group and the third light emitting unit group; and
the first power supply line and the data line connected to the second transistor of the third light emitting unit group are arranged between the third light emitting unit group and the first light emitting unit group.

[Document name] Procedural amendment
 [Administration Number] J009183701
 [Attention] Patent Office Commissioner
 [Display of Case]
 [Examination number] Objection 2007-14504
 [Application Number] Japanese Patent Application 2002-293696
 [Person Making Amendment]
 [Identification Number] 000002369
 [Name or Name] SEIKO EPSON CORPORATION
 [Agent]
 [Identification Number] 100079108
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[Procedural Amendment 1]

[Document Name to be Amended] Examined Claims

[Name of item to be Amended] Reason for Claim

[Amendment Method] Change

[Details of Amendment]

[Reasons for Claim]

1. History of procedures

Filing date:	Oct. 7, 2002
Notification of reason for rejection (Draft date)	Jan. 31, 2007
Procedure Amendment (Filing date)	Mar. 28, 2007
Written opinion (Filing date)	Mar. 28, 2007
Decision of Rejection (draft date)	Apr. 17, 2007
Delivery of Copy (date of delivery)	Apr. 20, 2007
Appeal against rejection (Request Date)	May 21, 2007

2. Point of Reason for Decision of Rejection

The present application resulted in a Decision of Rejection based on an assessment in the original examination that "This application should be rejected for reasons B and C as described in the Notice of Rejection dated Jan. 31, 2007. It should be noted that although the contents of the Written Opinion and the Procedural Amendment have been examined, there is no basis sufficient to reverse the Reason for rejection."

Reason B described in the above Notice of Reason for Rejection is "The invention related to this application could easily have been invented by a person of ordinary skill in the art based on the inventions described in cited documents 1 to 3; therefore, a patent can not be granted in accordance with the provisions of Article 29(2) of the Patent Law." Furthermore, Reason C is "The invention according to the present application does not satisfy the requirements specified in Article 37."

Specifically, the comments of the Decision of Rejection highlighted that, with regard to Reason B, "it is easy to apply the invention described in cited document 3 to the inventions described in cited documents 1 and 2 with respect to Claims 2 to 4, 6 to 10, and 12," and with regard to Reason C that "the inventions according to claims 1 to 14 have the same main components such as (A) power supply lines having different wiring widths and (B) wirings having different wiring widths formed in at least one wiring region, but the invention according to claim 15 does not have configuration (B) and does not satisfy the unity requirement of the invention.", and furthermore,

"new reasons for rejection have arisen for claims 3, 4, and 13. Furthermore, although not pointed out in the above-mentioned Notice of Reason for Rejection, the inventions according to claims 2 to 4 and 6 to 15 which do not have the requirement that the widths of the wiring formation regions are equal include configurations in which the widths of the wiring formation regions are not equal, and it is deemed that the claims of the patent exceed the scope the disclosure of the detailed description of the invention. Therefore, the inventions according to claims 2 to 4 and 6 to 15 are not described in the detailed description of the invention."

3. Reason why the present invention should be patented

(a) Description of the present invention

The present invention is described in claims 1 to 8 of the present application after amending by a procedural amendment submitted on the same date as the Reason supplementation document for the examination request, and includes the following composition.

[Claim 1] Old Claim 1

An electro-optical device comprising:

a plurality of pixels arranged in a matrix, each containing an electro-optical element driven by receiving power supplied from a power source circuit, wherein:

the plurality of pixels form a plurality of pixel groups each including a series of pixels arranged in at least one of a row direction and a column direction;

a plurality of power supply lines having a plurality of different wiring widths for supplying a driving voltage to the electro-optical element are provided;

a plurality of wiring formation regions are provided between each of the plurality of pixel groups; widths of the plurality of wiring formation regions are substantially equal to each other; and

at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 2] Old Claim 6

The electro-optical device according to claim 1, wherein the electro-optical element includes an electro-optical element having a different driving voltage, and the width of the power supply line is different, depending on the driving voltage.

[Claim 3] Old Claim 7

The electro-optical device according to claim 2, wherein the electro-optical element is a light-emitting element, and the power supply lines have a different width depending on emission color of the light-emitting element.

[Claim 4] Old Claim 8

The electro-optical device according to claim 3, wherein the emission color is red, green, or blue.

[Claim 5] Old Claim 9

The electro-optical device according to any one of claims 1 to 4, wherein the electro-optical element is an electroluminescence element.

[Claim 6] Old Claim 10

An electronic apparatus, equipped with an electro-optical device according to any one of claims 1 to 5.

[Claim 7] Old Claim 11

A matrix substrate comprising:

a plurality of pixels electrodes arranged in a matrix, wherein:

the plurality of pixel electrodes form a plurality of pixel electrode groups each including a series of pixel electrodes arranged in at least one of a row direction and a column direction;

a plurality of power supply lines having a plurality of different wiring widths for supplying a driving voltage to the pixel electrodes are provided;

a plurality of wiring formation regions are provided between individual pixel electrode groups of the plurality of pixel electrode groups;

widths of the plurality of wiring formation regions are substantially equal to each other; and

at least two power supply lines of the plurality of power supply lines having different wiring widths are formed in at least one wiring formation region of the plurality of wiring formation regions.

[Claim 8] Old Claim 15

An electro-optical device which is a light emitting device, comprising:

a plurality of scanning lines extending in a first direction;

a plurality of data lines extending in a second direction intersecting the plurality of scanning lines;

a plurality of light emitting units arranged corresponding to each of the intersections of the scanning lines and the data lines; and

a power supply line configured to supply a drive voltage to the light emitting element; wherein each of the plurality of light emitting units includes:

a light-emitting element;

a first transistor connected between the light emitting element and the power supply line and configured to drive the light emitting element; and

a second transistor having a gate terminal connected to the scanning line and configured to supply a data signal from the data line to the gate terminal of the first transistor;

the plurality of light emitting units are arranged such that a first light emitting unit group, a second light emitting unit group, and a third light emitting unit group each including a series of light emitting units arranged in the second direction, are repeated at equal intervals arranged in this order in the first direction;

the power supply line includes a first power supply line connected to the first transistor of the light emitting unit in the first light emitting unit group, a second power supply line connected to the first transistor of the light emitting unit in the second light emitting unit group, and a third power supply line connected to the first transistor of the light emitting unit in the third light emitting unit group;

the second power supply line has a line width different from that of the third power supply line;

the data line connected to the second transistor of the first light emitting unit group and the data line connected to the second transistor of the second light emitting unit group are arranged between the first light emitting unit group and the second light emitting unit group;

the second power supply line and the third power supply line are arranged between the second light emitting unit group and the third light emitting unit group; and

the first power supply line and the data line connected to the second transistor of the third light emitting unit group are arranged between the third light emitting unit group and the first light emitting unit group.

(b) Basis for amendment

The amended matter is a claim before amendment (hereinafter referred to as "old claim"). Claims 2 to 5 and 12 to 14 were deleted, and item numbers were arranged so that old claims 6 to 10 are dependent claims of claim 1. For reference, the relation to the old claim is shown in the claim number section. Old claims 1 and 11 clearly showed that a plurality of wiring formation regions are provided. This matter will be apparent from the present specification and drawings.

In addition, in the old claim 15 (amended claim 8) (hereinafter referred to as a "current claim"), it was clarified that the width of the wiring formation regions are equal, or in other words, the light emitting groups are arranged at equal intervals, and that the second power supply line has a different line width from the third power supply line. This matter is based on, for example, the description in [0024] to [0027] of the present specification and FIG. 3 and the like.

Accordingly, all such modifications are intended to be included within the scope of the specification and drawings as originally filed, and are intended to be included within the scope of the claims and the like, in accordance with Patent Law Article 17-2(3) and (4).

(c) Reasons B, C, and the like

As described above, since the claims 2 to 4 related to reason B and the dependent claims 6 to 10 and 12 thereof are deleted by this amendment, it is thought that the Reason for Rejection related to reason B has been eliminated.

Furthermore, it is clear that the line widths of the second power supply line and the third power supply line are different from each other in the current claim 8 (old claim 15), based on this amendment, and therefore the invention according to claim 15 has a configuration (B) that the examiner analyzed in the Notice of Decision of Rejection. Therefore, it is thought that the invention according to claim 8 (old claim 15) and the other inventions have new and same main components, and therefore satisfy the requirements of Article 37, and the rejection related to reason C is resolved.

Furthermore, new reasons for rejection according to the old claims 3, 4, and 13 are considered to be solved by deletion of these claims.

In addition, with respect to the points related to the old claims 2 to 4 and 6 to 15 which claim beyond the scope of the disclosure of the detailed description of the invention, claims 2 to 4 and the dependent claims thereof, namely claims 6 to 10 and 12 to 14, have been deleted by this amendment, and furthermore, in the current claim 8 (old claim 15), the requirement that the light emitting unit groups are arranged at equal intervals, or in other words that the width of the wiring formation region is equal becomes clear. Note that the current claim 7 (old claim 11) also includes a configuration in

which the widths of the wiring formation regions are substantially equal. Thus, the invention according to claims 7 and 8 are considered to be described in the detailed description of the invention.

4. Conclusion

As described above in detail, it is thought that Reasons B and C of the original examination and the new Reason for rejection caused by the amendment are all eliminated by this amendment.

Therefore, please make a trial decision that "the original examination is rescinded, and the invention of the present application should be granted a patent."

END

Examination pre-transfer notification

Jun. 27, 2007

Patent Office Commissioner

Examination claim number
(Patent application number)
Claimant
Agent

Objection 2007-14504
(Japanese Patent Application 2002-293696)
SEIKO EPSON CORPORATION
INABA Yasuyuki, Patent attorney (and two
others)

This Decision of Rejection objection case will be provided to the examiner
for examination (pre-examination) under the provisions of Patent Law Article
162.

Patent Assessment

Patent application number 2002-293696
Draft date July 17, 2007
Patent Office Examiner HATAE Susumu 9508 2G00
TITLE OF THE INVENTION: ELECTRO-OPTICAL DEVICE, MATRIX
SUBSTRATE, AND ELECTRONIC DEVICE
Number of claims 8
Patent applicant SEIKO EPSON CORPORATION
Agent INABA Yoshiyuki (and two others)

[Preliminary Examination]

Cancel the original assessment

For this application, a reason for rejection has not been found; therefore, a patent can be granted.

Department Manager	Proxy Examination Manager	Proxy Examiner	Supplementary Examiner	Classification Examiner
	KAWAHARA Hideo	HATAE Susumu		SATAKE Masahiko
	8506	9508		2911

- | | |
|--|---------|
| 1. Application type | Normal |
| 2. Cited Documents | Present |
| 3. Applicability of Article 30 of the Patent Act | NO |
| 4. Changes to the title of the invention | None |

5. International Patent Classification (IPC)

G09F 9/30 338
G09F 9/30 365Z
H05B 33/14 A

6. Bacteria deposit

7. Display not allowing recourse to the filing date

Patent assessment (Patent assessment memo)

Patent application number 2002-293696

1. Fields investigated (IPC, DB name)

G09F 9/30
H01L 27/32
H01L 51/50

2. Reference Patent Document

Japanese Unexamined Patent Application 2000-242196	(JP, A)
Japanese Unexamined Patent Application 2001-272930	(JP, A)
Japanese Unexamined Patent Application 2002-151276	(JP, A)
Japanese Unexamined Patent Application 2002-229483	(JP, A)

3. Reference books and magazines

TRANSLATOR CERTIFICATION

Date: April 6, 2023

To whom it may concern:

I, Michael Fletcher, a translator fluent in the Japanese and English languages, on behalf of Questel Translation, do solemnly and sincerely declare that the English translation in the following document is, to the best of my knowledge and belief, a true and correct translation in a form that best reflects the intention and meaning of the original text.

The document is designated as:

- P2002-293696_67_en-US

Michael Fletcher

Signature

Michael Fletcher

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