Trial decision

Invalidation No. 2011-800130

Saitama, Japan
Demandant HASEGAWA, Yoshiki

Tokyo, Japan
Patent Attorney SHIBAYAMA, Kenichi

Tokyo, Japan
Patent Attorney ABE, Hiroshi

Tokyo, Japan
Patent Attorney TERASAWA, Shotaro

Tokyo, Japan
Demandee KONICA MINOLTA, INC.

Tokyo, Japan
Patent Attorney KANAYAMA, Masataka

Tokyo, Japan
Patent Attorney SHIGEMORI, Kazuki

Tokyo, Japan
Attorney SHIROYAMA, Yasufumi

The decision on the case of the patent invalidation trial between the above parties on Japanese Patent No. 4725533, entitled "Scintillator Panel", dated February 16, 2012 came with a court decision of revocation of the trial decision (2012 (Gyo-ke) 10111, rendition of decision on January 28, 2011) at the Tokyo High Court, the case was proceeded further, and another trial decision was handed down as follows:

Conclusion

The correction by the written demand for correction dated April 4, 2014 shall be

approved.

The patent regarding the invention according to Claim 1 to Claim 8 of Japanese Patent No. 4725533 was invalidated.

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

Reason

1. History of the procedures

The Patent relates to patent application No. 2007-43555 applied for by Konica Minolta Medical & Graphics, Inc. (hereinafter simply referred to as the "Demandee") on February 23, 2007 and was formulated and registered as Patent No. 4725533 on April 22, 2011 covering the content of the Description, the scope of claims, and drawing attached to the patent application which amended by the amendment dated February 21, 2011.

The case of trial regarding the invalidation of the Patent was demanded by Yoshiki Hasegawa (hereinafter simply referred to as the "Demandant") on July 20, 2011, and the demandant demanded the decision, "The patent for the invention according to Claims 1 to 7 of the scope of claims of Patent No. 4725533 is invalid. The costs in connection with the trial shall be borne by the demandee", and the procedures after the filing of the demand for trial were as follows.

October 4, 2011	Written reply for trial case
	Written Correction Request
November 14, 2011	Written refutation
January 13, 2012	Demandant Written procedures for statement in oral proceeding
	Demandee Written procedures for statement in oral proceeding
January 27, 2012	The first oral proceeding (the conclusion of proceedings)
February 16, 2012	The first trial decision
March 23, 2012	Action (the Intellectual Property High Court 2012 (Gyo-ke) 10111)
January 28, 2013	Court decision that "the trial decision by the Japan Patent Office on February 16, 2012 regarding the case of Invalidation 2011-800130 was revoked"
February 8, 2013	Final appeal and Petition for acceptance of the final appeal
March 4, 2014	The decision, "the appeal was dismissed. The case shall not be received as final appeal proceedings" was made. (the Supreme Court 2013 (Gyo-tsu) 135, 2013 (Gyo-hi) 174)
April 4, 2014	Written Correction Request

May 12, 2014 Written refutation

The request for correction dated October 4, 2011 shall be deemed to have been withdrawn pursuant to the provisions of Article 134-2 (6) of the Patent Act.

No. 2 Request for correction dated April 4, 2014

The appropriateness of the request for correction dated April 4, 2014 (hereinafter referred to as the "Request for Correction") will be examined below.

1 Content of the Request for Correction

The Request for Correction requests to correct the Description and the scope of claims attached to the application for the Patent as described in the corrected Description and the corrected scope of claims attached to the Written Correction Request, the content of which is as follows.

(1) Correction 1

To correct "the scintillator layer formed by a gaseous phase method" of Claim 1 before the correction to "the scintillator layer formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C and having columnar crystal structure".

(2) Correction 2

To correct "the reflection layer" of Claim 1 before the correction to "the reflection layer that exists between the aforementioned substrate and the aforementioned scintillator layer having the columnar crystal structure".

(3) Correction 3

To define the formation of the reflection layer in Claim 1 by describing that "the aforementioned reflection layer is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent".

(4) Correction 4

To define the kind of the binder resin in Claim 1 by describing that "the aforementioned binder resin is a resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride

copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin".

(5) Correction 5

To define the formation of the scintillator layer in Claim 1 by describing that "the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer".

(6) Correction 6

To define the constitution of the scintillator panel in Claim 1 by describing that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element".

(7) Correction 7

To define the constitution of the scintillator panel in Claim 1 by describing that "further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate".

(8) Correction 8

Claim 3 decreases the number of cited claims and writes down the style citing Claim 1 in independent form.

(9) Correction 9

To correct "the scintillator layer formed by a gaseous phase method" before the correction to "the scintillator layer formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C and having columnar crystal structure" in Claim 3 which is written by the aforementioned Correction 8.

(10) Correction 10

To correct "the reflection layer" before the correction to "the reflection layer that exists between the aforementioned substrate and the aforementioned scintillator layer having the columnar crystal structure" in Claim 3 which is written by the aforementioned Correction 8.

(11) Correction 11

To define the formation of the reflection layer by describing that "the aforementioned reflection layer is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent" in Claim 3 which is written by the aforementioned Correction 8.

(12) Correction 12

To define the kind of the binder resin 1 by describing that "the aforementioned binder resin is a resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin, acrylic resin or urea formamide resin" in Claim 3 which is written by the aforementioned Correction 8.

(13) Correction 13

To define the formation of the scintillator layer by describing that "the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer" in Claim 3 which is written by the aforementioned Correction 8.

(14) Correction 14

To define the constitution of the scintillator panel by describing that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element" in Claim 3 which is written by the aforementioned Correction 8.

(15) Correction 15

To define the constitution of the scintillator panel by describing that "further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate" in Claim 3 which is written by the aforementioned Correction 8.

(16) Correction 16

Claim 5 decreases the number of cited claims and is written in the style citing Claim 1 as Claim 5 and the style citing Claim 3 as Claim 6 in independent form, respectively.

(17) Correction 17

To correct "the scintillator layer formed by a gaseous phase method" before the correction to "the scintillator layer formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C and having columnar crystal structure" in Claim 5 which is written by the aforementioned Correction 16.

(18) Correction 18

To correct "the reflection layer" before the correction to "the reflection layer that exists between the aforementioned substrate and the aforementioned scintillator layer having the columnar crystal structure" in Claim 5 which is written by the aforementioned Correction 16.

(19) Correction 19

To define the formation of the reflection layer by describing that "the aforementioned reflection layer is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent" in Claim 5 which is written by the aforementioned Correction 16.

(20) Correction 20

To define the kind of the binder resin by describing that "the aforementioned binder resin is a resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin,

melamine resin, phenoxy resin, silicon resin or urea formamide resin" in Claim 5 which is written by the aforementioned Correction 16.

(21) Correction 21

To define the formation of the scintillator layer by describing that "the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer" in Claim 5 which is written by the aforementioned Correction 16.

(22) Correction 22

To define the constitution of the scintillator panel by describing that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element" in Claim 5 which is written by the aforementioned Correction 16.

(23) Correction 23

To correct "the scintillator layer formed by a gaseous phase method" before the correction to "the scintillator layer formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C and having columnar crystal structure" in Claim 6 which is written by the aforementioned Correction 16.

(24) Correction 24

To correct "the reflection layer" before the correction into "the reflection layer that exists between the aforementioned substrate and the aforementioned scintillator layer having the columnar crystal structure" in Claim 6 which is written by the aforementioned Correction 16.

(25) Correction 25

To define the formation of the reflection layer by describing that "the aforementioned reflection layer is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent" in Claim 6 which is written by the aforementioned Correction 16.

(26) Correction 26

To define the kind of the binder resin by describing that "the aforementioned binder resin is a resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin, acrylic resin or urea formamide resin" in Claim 6 which is written by the aforementioned Correction 16.

(27) Correction 27

To define the formation of the scintillator layer by describing that "the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer" in Claim 6 which is written by the aforementioned Correction 16.

(28) Correction 28

To define the constitution of the scintillator panel by describing that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element" in Claim 6 which is written by the aforementioned Correction 16.

(29) Correction 29

To define the constitution of the scintillator panel by describing that "further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate" in Claim 6 which is written by the aforementioned Correction 16.

(30) Correction 30

In Claims 7 and 8, the claim numbers of Claims 6 and 7 before the correction move down, and the claim numbers of cited claims change, as the result of the aforementioned Correction 16.

2. Purpose of Corrections by the Request for Correction, Existence of new matters and Existence of expansion and change

(1) Purpose of Correction

All the corrections by the aforementioned corrections 1 to 30 fall under corrections to restrict the scope of claims.

(2) Existence of new matters

All the corrections by the aforementioned corrections 1 to 30 are corrections within the scope described in the Description or drawings attached to the application.

(3) Existence of expansion and change

None of the corrections by the aforementioned corrections 1 to 30 substantially expand or change the scope of claims.

(4) Regarding the allegation of the demandant on the request for correction

As the demandant alleges in the written refutation dated May 12, 2014 that corrections by the request for correction cannot be accepted in the following 2 points, the allegation will be examined as follows.

A. Existence of new matters

(A) Demandant's allegation

With respect to corrections by the aforementioned corrections 12 and 26 to add the restriction of "the aforementioned binder resin is a binder resin having a glass-transition temperature (Tg) of lower than 100 degrees C", the Description, the scope of claims or drawing originally attached to the application (hereinafter referred to as the "Originally Attached Descriptions, etc.") only describe that "It is preferable that it is a polymer whose glass-transition temperature (Tg) is 30-100 degrees C as a binder with respect to the film of a vacuum evaporation crystal and a substrate, and it is especially preferable that it is a polyester resin" (paragraph [0035]) and that "It is especially preferable to contain binder resin whose glass-transition temperature is 30-100 degrees C. Usually, in forming the scintillator by vacuum evaporation, substrate temperature is maintained at 150 degrees C - 250 degrees C, but a light reflection layer comes to function effectively also as an adhesive layer because glass-transition temperature is 30-100 degrees C in a reflection layer (paragraph [0038])". And, as the numerical restriction of lower than 100 degrees C having no lower limit value is not described and it cannot be said that the numerical restriction

of lower than 100 degrees C having no lower limit value is a technical matter that can be derived by generalizing the description of the Originally Attached Descriptions, etc., the corrections fall under the addition of new matters and do not comply with the provisions of Article 126 (3) of the Patent Act which is applied mutatis mutandis in the provisions of Article 134-2 (5) of the Patent Act.

(B) Judgment on the body

It is obvious that a person skilled in the art is capable of understanding from the aforementioned descriptions in paragraphs [0035] and [0038] of the Originally Attached Descriptions, etc. and taking into account matters shown by the glass-transition (Tg) that if the binder resin contains a polymer whose glass-transition temperature (Tg) is 30-100 degrees C, the binder resin softens in forming the scintillator by vacuum evaporation, and substrate temperature is maintained at 150 degrees C - 250 degrees C, and a light reflection layer comes to function effectively also as an adhesive layer. And, it is reasonable to understand from the fact that the technical meaning of the threshold value of 30 degrees C or 100 degrees C is not described in the Originally Attached Descriptions, etc. that the numerical restriction of 30 degrees C - 100 degrees C is presented simply as an example of temperature lower than the substrate temperature 150 degrees C - 250 degrees C. In particular, it can be said, from a technical meaning in that the glass-transition temperature (Tg) is lower than the substrate temperature at the time of vacuum evaporation, that the lower limit value of 30 degrees C has technical meaning.

Therefore, it cannot be said that the specification of only the upper limit value without defining the lower limit value having no technical meaning as a matter specifying the invention introduces a new technical matter in relation to the technical matters which are derived by generalizing the description of the Originally Attached Descriptions, etc.,

Therefore, the corrections in question comply with the provisions of Article 126 (3) of the Patent Act which is applied mutatis mutandis in the provisions of Article 134-2 (5) of the Patent Act.

B. Existence of expansion and change

(A) Demandant's allegation

As corrections by the aforementioned corrections 6, 7, 14, 15, 22, 28, 29 substantially change the subject of inventions according to respective claims from

"scintillator panel" to "imaging panel having a scintillator panel and an output substrate", the corrections in question do not comply with the provisions of Article 126 (4) of the Patent Act which is applied mutatis mutandis in the provisions of Article 134-2 (5) of the Patent Act.

(B) Judgment on the body

It is common general knowledge of a person skilled in the art that there are various kinds of manners of use in a scintillator panel that converts X-ray to visible light. It is reasonable to consider that inventions according to respective claims before the corrections relate to a scintillator panel, whose manner of use is not defined, that inventions after the corrections relate to the scintillator panel, whose use manner is defined in " the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element" and that inventions according to Claims 1 to 4, and 6 to 8 relate to the scintillator panel "further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate".

The demandant alleges that the aforementioned corrections substantially change the subject of inventions to "imaging panel having a scintillator panel and an output substrate". However, the end of description of respective claims after the corrections is "scintillator panel.", and it is clearly described that the subject of the invention is "scintillator panel". Moreover, there is no circumstance to understand such clearly described "scintillator panel" as substantially "imaging panel having a scintillator panel and an output substrate".

Hence, the corrections in question do not expand or change the scope of claims substantially.

Therefore, the corrections in question comply with the provisions of Article 126 (4) of the Patent Act which is applied mutatis mutandis in the provisions of Article 134-2 (5) of the Patent Act.

3. Conclusion on the request for correction

As described above, the corrections by the request for correction intend to achieve the matters enumerated in respective items of the proviso in Article 134-2 (1)

of the Patent Act and comply with Article 126 (3) and (4) of the Patent Act which are applied mutatis mutandis in the provisions of Article 134-2 (5) of the Patent Act.

Therefore, corrections by the request for correction shall be approved.

Reasons for invalidation alleged by the demandant regarding inventions according to Claims 1 to 8 after the correction (hereinafter referred to as "Corrected Patent Invention 1" to "Corrected Patent Invention 8") shall be examined.

The Description, scope of claims or drawings after the correction shall be referred to as the "Corrected Descriptions, etc.".

No. 3 Corrected Patent Inventions

Corrected Patent Inventions 1 to 8 are the following ones that are defined by matters described in Claims 1 to 8 of the scope of claims of the Corrected Descriptions, etc.

"[Claim 1]

A scintillator panel which is a scintillator panel having a reflection layer and a scintillator layer which has the columnar crystal structure and is formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium on a substrate and is characterized by

that the reflection layer exists between the substrate and the scintillator layer having the columnar crystal structure, is made of at least 1 type of white pigments chosen from alumina, yttrium oxide, zirconium oxide, and titanium oxide and binder resin, is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent wherein the binder resin is binder resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin,

that the scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer

that the aforementioned scintillator panel absorbs the energy of incident

radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element and

that further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate.

[Claim 2]

The scintillator panel according to claim 1, wherein the aforementioned reflection layer surface is smoothed by calendering process.

[Claim 3]

A scintillator panel that has a reflection layer and a scintillator layer which has the columnar crystal structure and is formed by vacuum evaporation at the substrate temperature of 150 degrees C - 250 degrees C by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium on a substrate and is characterized by

that the reflection layer exists between the substrate and the scintillator layer having the columnar crystal structure, is made of at least 1 type of white pigments chosen from alumina, yttrium oxide, zirconium oxide, and titanium oxide and binder resin, is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent wherein the white pigment is a white pigment having a mean particle diameter of 0.1-3.0 micrometers and the binder resin is a resin having a glass-transition temperature (Tg) of 100 degrees C selected from selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin, acrylic resin or urea formamide resin,

that the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer,

that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output

substrate is provided with a photoelectric conversion element, and

that "further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate.

[Claim 4]

The scintillator panel according to claim 3, wherein the white pigment with an aforementioned mean particle diameter of 0.1-3.0 micrometers is a titanium dioxide.

[Claim 5]

The scintillator panel that has a reflection layer and a scintillator layer which has the columnar crystal structure and is formed by vacuum evaporation at the substrate temperature of 150 degrees C - 250 degrees C by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium on a substrate

made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less and is characterized by

that the reflection layer exists between the substrate and the scintillator layer having the columnar crystal structure, is made of at least 1 type of white pigment chosen from alumina, yttrium oxide, zirconium oxide, and titanium oxide and binder resin, is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent wherein the binder resin is binder resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin,

that the scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer and

that the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element.

[Claim 6]

A scintillator panel that has a reflection layer and a scintillator layer which has

the columnar crystal structure and is formed by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium on a substrate

made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less and is characterized by

that that the reflection layer exists between the substrate and the scintillator layer having the columnar crystal structure, is made of at least 1 type of white pigments chosen from alumina, yttrium oxide, zirconium oxide, and titanium oxide and binder resin, is formed by applying and drying the aforementioned white pigment and the aforementioned white pigment is white pigment having a mean particle diameter of 0.1-3.0 micrometers and the binder resin is a resin having a glass-transition temperature (Tg) of 100 degrees C selected from selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin, acrylic resin or urea formamide resin,

that the aforementioned scintillator layer having the columnar crystal structure is formed by growing the columnar crystal body on the surface of the aforementioned reflection layer,

that the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element, and

that further, the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate.

[Claim 7]

The scintillator panel according to Claim 5 or Claim 6, wherein the aforementioned high polymer film is polyimide (PI) or a polyethylene naphthalate (PEN) film.

[Claim 8]

The scintillator panel according to any one of the Claims 1 to 7, wherein a

thickness of the aforementioned reflecting layer is 50 micrometers or greater and 500 micrometers or less."

No. 4 Reasons for Invalidation alleged by the demandant

The outline of reasons for invalidation alleged by the demandant is organized and stated as follows based on the content of the written demand for trial dated July 20, 2011, the written refutation dated November 14, 2011, the written procedures for statement in oral hearing dated January 13, 2012 and the written rebuttal dated May 12, 2014 of the demandant.

1. Reason or invalidation 1 (Violation of Article 29(2) of the Patent Act)

In the reason or invalidation 1, the demandant raises the violation of Article 29(1) (iii) of the Patent Act as the reason. With regard to this reason, the demandant alleges in "6." and "6-1" of the written procedures for statement in oral hearing of the demandant dated January 13, 2012 that it will withdraw its allegation if the correction (the correction by the request for correction dated October 4, 2011) is approved. As stated in "No. 2" in the foregoing, since the correction by the request for correction (including all of corrections based on the request for correction dated October 4, 2011) has been approved, the reason or invalidation 1 shall not be accepted.

(1) Corrected Patent Invention 1

The Corrected Patent Invention 1 and the invention described in Evidence A No. 1 are generally different in that the Corrected Patent Invention 1 has the following matters specifying the invention that the invention described in Evidence A No. 1 does not have.

(A) The scintillator layer has the columnar crystal structure formed on the surface of the reflection layer by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C.
(B) The binder resin is a specified resin such as polyurethane.
(C) The scintillator panel composes an imaging panel together with an output substrate having the photoelectric conversion element and changes its form into a shape which is in line with the surface of the photoelectric conversion element of the output substrate.

Regarding the different feature (A)

The formation of the scintillator layer on the surface of the reflection layer by vacuum evaporation is well-known as shown in Evidence A No. 7.

The vacuum evaporation of the scintillator layer at the substrate temperature of 150 degrees C - 250 degrees C is well-known as shown in Evidence A No. 8, A No. 13 and A No. 14.

Therefore, the formation of the scintillator layer on the surface of the reflection layer by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C is easy for a person skilled in the art.

Regarding the different feature (B)

The use of a specified resin such as polyurethane as the binder resin is described in Evidence A No. 8, and Evidence A No. 14 and A No. 15 describe that, when the scintillator layer is formed by vacuum evaporation, a resin whose glass-transition temperature is lower than the substrate temperature at the time of vacuum evaporation is used for the subject surface of the scintillator layer and Evidence A No. 15 describes that such use has excellent effect in contact nature (adhesive nature).

The use of a specified resin such as polyurethane as the binder resin is easy for a person skilled in the art, and it is well-known by a person skilled in the art that such use improves the adhesive nature.

Regarding the different feature (C)

As the fluorescent screen of the invention described in Evidence A No. 1 and the scintillator panel used for well-known FPD have the same effect and function in that they absorb X-ray radiation and emit a light, it is easy for a person skilled in the art to use the invention described in Evidence A No. 1 as the scintillator panel for well-known FPD.

Accordingly, the Corrected Patent Invention 1 could have been easily conceived by a person skilled in the art by applying well-known art to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 1 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(2) Corrected Patent Invention 2

The Corrected Patent Invention 2 and the invention described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (a) to (c), the Corrected Patent Invention 2 has the following matter specifying the invention that the invention described in Evidence A No. 1 does not have.

(D) The reflection layer surface is smoothed by calendering process.

Regarding the different features (A) to (C)

Same as mentioned above.

Regarding the different feature (D)

As the problem to be solved that, when a fluorescent layer is formed by vacuum evaporation, the surface of substrate on which the fluorescent layer is provided is required to be smooth is described in Evidence A No. 2, and the processing by calendering roll as smoothing process is described in Evidence A No. 3, they are well-known respectively, and it is easy for a person skilled in the art that the smoothing of the surface of substrate on which the fluorescent layer is provided is carried out by the calendering process in the invention described in Evidence A No. 1.

Accordingly, the Corrected Patent Invention 2 could have been easily conceived by a person skilled in the art by applying well-known art to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 2 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(3) Corrected Patent Invention 3

The Corrected Patent Invention 3 and inventions described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (A) and (C), the Corrected Patent Invention 3 has the following matters specifying the invention that the invention described in Evidence A No. 1 does not have.

(B)' The binder resin is a resin having a glass-transition temperature of 100 degrees C

or lower and is a specified resin such polyurethane.
(E) the white pigment is a white pigment whose particle diameter is 0.1-3.0 micrometers.

Regarding the different features (A) and (C)

Same as mentioned above.

Regarding the different feature (B)'

In addition to the aforementioned different feature (B), as resins having a glass-transition temperature of 100 degrees C or lower are described in Evidence A No. 15, it is easy for a person skilled in the art to use specified resins having a glass-transition temperature of 100 degrees C or lower such as polyurethane, and a fact that the use of such resin improves the adhesive nature is well-known to a person skilled in the art.

Regarding the different feature (E)

As the use of titanium oxide having a mean particle diameter of 0.2 micrometers and titanium dioxide having a mean particle diameter of 1 micrometer as light reflective fine particles is described in Evidence A No. 4 and A No. 5 respectively, it is easy for a person skilled in the art to use white pigments having a white pigment whose particle diameter is 0.1-3.0 micrometers as the white pigment.

Accordingly, the Corrected Patent Invention 3 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 4 and A No. 5 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 3 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(4) Corrected Patent Invention 4

The Corrected Patent Invention 4 and inventions described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (A), (B)', (C) and (E), the Corrected Patent Invention 4 has the following matter specifying the invention that the invention described in Evidence A No. 1 does not have.

(F) The white pigment is titanium dioxide.

Regarding the different feature (A), (B)', (C), (E)

Same as mentioned above.

Regarding the different feature (F)

As the use of titanium dioxide as light reflective fine particles is described in Evidence A No. 5, it is easy for a person skilled in the art to use titanium dioxide as the white pigments.

Accordingly, the Corrected Patent Invention 4 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 4 and A No. 5 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 4 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(5) Corrected Patent Invention 5

The Corrected Patent Invention 5 and the invention described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (A) and (B)', the Corrected Patent Invention 5 has the following matters specifying the invention that the invention described in Evidence A No. 1 does not have.

(C)' The scintillator panel composes an imaging panel together with an output substrate which is provided with a photoelectric conversion element.
(G) The substrate is made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less.

Regarding the different feature (A), (B)'

Same as mentioned above.

Regarding the different feature (C)'

Same as (C) mentioned above.

Regarding the different feature (G)

As Evidence A No. 1 describes a base material made of elastic resin material having a thickness of 50-1,000 micrometers and Evidence A No. 6 describes a base material made of polyethylene naphthalate having a thickness of 200 micrometers, it is easy for a person skilled in the art to use a base material made of a flexible high polymer film having a thickness of 50-1,000 micrometers in inventions described in Evidence A No. 1.

Accordingly, the Corrected Patent Invention 5 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 6 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 5 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(6) Corrected Patent Invention 6

The Corrected Patent Invention 6 and the invention described in Evidence A No. 1 are generally different in the aforementioned different features (A), (B)', (C), (E) and (G).

Regarding the different feature (A), (B)', (C), (E), (G)

Same as mentioned above.

Accordingly, the Corrected Patent Invention 6 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 4 to A No. 6 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 6 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(7) Corrected Patent Invention 7

The Corrected Patent Invention 7 and the invention described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (A), (B), or (B)', (C), or (C)', (E), and (G), the Corrected Patent Invention 7 has the following matter specifying the invention that the invention described in Evidence A No. 1 does not have.

(H) The high polymer film is made of polyimide or polyethylene naphthalate.

Regarding the different feature (A), (B) or (B)', (C) or (C)', (E), and (G)

Same as mentioned above.

Regarding the different feature (H)

As Evidence A No. 1 and A No. 6 describe that the base material is made of polyimide or polyethylene naphthalate, it is easy for a person skilled in the art to form the high polymer film using polyimide or polyethylene naphthalate.

Accordingly, the Corrected Patent Invention 7 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 4 to A No. 6 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 7 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(8) Corrected Patent Invention 8

The Corrected Patent Invention 8 and inventions described in Evidence A No. 1 are generally different in that, in addition to the aforementioned different features (A), (B), or (B)', (C), or (C)', (D), (E), (F), (G), and (H), the Corrected Patent Invention 8 has the following matter specifying the invention that the invention described in Evidence A No. 1 does not have.

(I) A thickness of the reflection layer is 0.2-3.0 micrometers.

Regarding the different feature (A), (B) or (B)', (C) or (C)', (D), (E), (F), (G), and (H)

Same as mentioned above.

Regarding the different feature (I)

As Evidence A No. 4 describes that the reflection layer is made of aluminum thin metal film having a thickness of about 0.2 micrometers, it is easy for a person skilled in the art to make the defusing reflection layer having a thickness of 0.2-3.0 micrometers in the invention described in Evidence A No. 1.

Accordingly, the Corrected Patent Invention 8 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 4 to A No. 6 to the invention described in Evidence A No. 1.

Therefore, the Patent according to the Corrected Patent Invention 8 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

2 Reason for invalidation 2 (Violation of Article 29 (2) of the Patent Act)

(1) Corrected Patent Invention 1

The Corrected Patent Invention 1 and the invention described in Evidence A No. 6 are generally different in that the Corrected Patent Invention 1 generally has the following matters specifying the invention that the invention described in Evidence A No. 6 does not have.

(A) Constitution wherein the scintillator layer has the columnar crystal structure formed on the surface of the reflection layer by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C

(C) Constitution wherein the scintillator panel composes an imaging panel together with an output substrate having a photoelectric conversion element and changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate change

(J) Constitution wherein the reflection layer is formed by the white pigment made of alumina and the binder resin

(B) Constitution wherein the binder resin is a specified resin such as polyurethane

Regarding the different feature (A), (C), (B)

Same as mentioned above.

Regarding the different feature (J)

The constitution wherein the defusing reflection layer is formed by the white pigment made of alumina and the binder resin is described in Evidence A No. 1, and therefore it is easy for a person skilled in the art to apply the defusing reflection layer described in Evidence A No. 1 to the invention described in Evidence A No. 6.

Accordingly, the Corrected Patent Invention 1 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 1 and A No. 7 to the invention described in Evidence A No. 6.

Therefore, the Patent according to the Corrected Patent Invention 1 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(2) Corrected Patent Inventions 2 to 8

The same conclusion as the one which is obtained by adding the description of the aforementioned different feature (J) to the aforementioned "1" "(2)" to "(8)".

Accordingly, the Corrected Patent Inventions 2 to 8 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 1, A No. 4, A No. 5 and A No. 7 to the invention described in Evidence A No. 6.

Therefore, the Patent according to the Corrected Patent Inventions 2 to 8 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and are subject to the provisions of Article 123 (1)(ii) of the Patent the Patent Act and should be invalidated.

3 Reason for invalidation 3 (Violation of Article 29 (2) of the Patent Act)

(1) Corrected Patent Invention 1

The Corrected Patent Invention 1 and the invention described in Evidence A No. 8 are generally different in that the Corrected Patent Invention 1 has the following matters specifying the invention that the invention described in Evidence A No. 8 does not have.

(A) Constitution wherein the scintillator layer has the columnar crystal structure formed on the surface of the reflection layer by vacuum evaporation at a substrate temperature of 150 degrees C - 250 degrees C
(B) Constitution wherein the binder resin is a specified resin such as polyurethane
(C) Constitution wherein the scintillator panel composes an imaging panel together with an output substrate having the photoelectric conversion element and changes its form into a shape which is in line with the surface of the photoelectric conversion element of the output substrate
(K) Constitution wherein the scintillator layer is formed by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium

Regarding the different feature (A), (B), (C)

Same as mentioned above.

Regarding the different feature (K)

As the constitution wherein the scintillator layer is formed by CsI of TI is described in Evidence A No. 1 and A No. 7, it is easy for a person skilled in the art to apply the scintillator layer described in Evidence A No. 1 and A No. 7 to the invention described in Evidence A No. 8.

Accordingly, the Corrected Patent Invention 1 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 1 and A No. 7 to the invention described in Evidence A No. 8.

Therefore, the Patent according to the Corrected Patent Invention 1 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and is subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

(2) Corrected Patent Inventions 2 to 8

The same conclusion as the one which is obtained by adding the description of the aforementioned different feature (K) to the aforementioned "1" "(2)" to "(8)".

Accordingly, the Corrected Patent Inventions 2 to 8 could have been easily conceived by a person skilled in the art by applying technology and well-known art described in Evidence A No. 1, A No. 4 to A No. 7 to the invention described in

Evidence A No. 8.

Therefore, the Patent according to the Corrected Patent Inventions 2 to 8 is a patent which has been granted in violation of the provisions of Article 29 (2) of the Patent Act and are subject to the provisions of Article 123 (1)(ii) of the Patent Act and should be invalidated.

4. Means of proof submitted by the demandant

Means of proof submitted by the demandant are as follows:

Evidence A No. 1: Japanese Unexamined Patent Application Publication No. 2001-255610
(Date of publication: September 21, 2001)

Evidence A No. 2: Japanese Unexamined Patent Application Publication No. 2006-194860
(Date of publication: July 27, 2006)

Evidence A No. 3: Japanese Unexamined Patent Application Publication No. 2001-59898
(Date of publication: March 6, 2001)

Evidence A No. 4: Japanese Unexamined Patent Application Publication No. 2006-52980
(Date of publication: February 23, 2006)

Evidence A No. 5: Japanese Unexamined Patent Application Publication No. 2005-283483
(Date of publication: October 13, 2005)

Evidence A No. 6: Japanese Unexamined Patent Application Publication No. H10-90498
(Date of publication: April 10, 1998)

Evidence A No. 7: Japanese Unexamined Patent Application Publication No. 2001-183464
(Date of publication: July 6, 2001)

Evidence A No. 8: Japanese Unexamined Patent Application Publication No. 2003-207862
(Date of publication: July 25, 2003)

Evidence A No. 9: Japanese Unexamined Patent Application Publication No. 2002-243859
(Date of publication: August 28, 2002)

Evidence A No. 10: Japanese Unexamined Patent Application Publication No. 2006-335887
(Date of publication: December 14, 2006)
Evidence A No. 11: Japanese Unexamined Patent Application Publication No. 2002-303947
(Date of publication: October 18, 2002)
Evidence A No. 12: Domestic Re-Publication of PCT international Publication for Patent Applications No. WO2002/023220
(Date of issue: January 22, 2004)
Evidence A No. 13: Japanese Unexamined Patent Application Publication No. 2004-340933
(Date of publication: December 2, 2004)
Evidence A No. 14: Japanese Unexamined Patent Application Publication No. 2005-147923
(Date of publication: June 9, 2005)
Evidence A No. 15: Japanese Unexamined Patent Application Publication No. 2006-138642
(Date of publication: June 1, 2006)
Evidence A No. 16: Japanese Unexamined Patent Application Publication No. 2004-61172
(Date of publication: February 26, 2004)

No. 5 The demandee's allegation

The outline of the allegation by the demandee is organized and stated as follows based on the content of the written demand for trial dated October 4, 2011, the written procedures for statement in oral hearing of the demandee dated January 13, 2012 and the content alleged in "No. 5 Inventions according to respective claims after the correction do not have reasons for invalidation" of the written demand for correction dated April 4, 2014.

1 Regarding the reason for invalidation 1

The demandee generally alleges as follows with respect to the reason for invalidation 1 alleged by the demandant.

(1) Corrected Patent Invention 1

Corrected Patent Invention 1 restricts the substrate temperature when the

scintillator layer is made by vacuum evaporation to 150 degrees C - 250 degrees C, and the binder resin is restricted to specified resins such as polyurethane.

That a glass-transition temperature (Tg) of these specified resins such as polyurethane is lower than 150 degrees C - 250 degrees C which is the substrate temperature when the scintillator layer is made by vacuum evaporation is held. By this restriction, it becomes evident that Corrected Patent Invention 1 exercises an excellent effect to improve the contact between the scintillator layer and the reflection layer. And, such effect is neither disclosed nor suggested in Evidence A No. 1 to A No. 13.

Further, Corrected Patent Invention 1 restricts the constitution wherein the scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the output substrate. By this restriction, it becomes evident that Corrected Patent Invention 1 is capable of exercising an excellent effect to obtain uniform sharpness on overall light-receiving surface of FPD.

And, such constitution and effect are neither disclosed nor suggested in Evidence A No. 1.

Therefore, Corrected Patent Invention 1 could not easily be invented by a person skilled in the art by making reference to the descriptions of Evidence A No. 2 to A No. 13 in addition to Evidence A No. 1 and well-known art.

(2) Corrected Patent Invention 3

As Corrected Patent Invention 3 further restricts Corrected Patent Invention 1 in that "the aforementioned white pigment is a white pigment having a mean particle diameter of 0.1-3.0 micrometers" and that "is a resin having a glass-transition temperature (Tg) of 100 degrees C or lower", Corrected Patent Invention 3 could not, similarly to the foregoing, easily be invented by a person skilled in the art by making reference to the descriptions of Evidence A No. 2 to A No. 13 in addition to Evidence A No. 1 and well-known art.

(3) Corrected Patent Invention 5

Corrected Patent Invention 5 further restricts Corrected Patent Invention 1 in being "made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less" and deletes that "the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the output substrate". As the scintillator panel is

capable of changing its form into a shape which is in line with the surface of the photoelectric conversion element of the output substrate by the restriction of "made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less", Corrected Patent Invention 5 could not, similarly to the foregoing, have been easily invented by a person skilled in the art by making reference to the descriptions of Evidence A No. 2 to A No. 13 in addition to Evidence A No. 1 and well-known art.

(4) Corrected Patent Invention 6

As Corrected Patent Invention 6 further restricts Corrected Patent Invention 1 in that "the aforementioned white pigment is a white pigment having a mean particle diameter of 0.1-3.0 micrometers", that the resin " is a resin having a glass-transition temperature (Tg) of 100 degrees C or lower" and that the resin "made of a flexible high polymer resin having a thickness of 50 micrometers or greater and 500 micrometers or less", Corrected Patent Invention 6 could not, similarly to the foregoing, easily have been invented by a person skilled in the art by making reference to the descriptions of Evidence A No. 2 to A No. 13 in addition to Evidence A No. 1 and well-known art.

(5) Corrected Patent Inventions 2, 4, 7, and 8

As Corrected Patent Invention 2 cites Corrected Patent Invention 1, and Corrected Patent Invention 4 cites Corrected Patent Invention 3, and Corrected Patent Invention 7 cites Corrected Patent Inventions 5 and 6 and Corrected Patent Invention 8 cites Corrected Patent Inventions 1 to 7, they could not, similarly to the foregoing, have been easily invented by a person skilled in the art by making reference to the descriptions of Evidence A No. 2 to A No. 13 in addition to Evidence A No. 1 and well-known art.

2 Regarding the reasons for invalidation 2 and 3

Same as mentioned in "1" above.

3. Means of proof of the demandee

Means of proof submitted by the demandee are as follows.

Evidence B No. 1: "Standard Digital X-ray Image Measurement" Edited by Katsuhiro Ichikawa, Takayuki Ishida

Issued by Ohmsha, Ltd.
Issued on October 10, 2010
p. 25-26, p. 36, p. 39, p. 41-42

Evidence B No. 2: Japanese Unexamined Patent Application Publication No. S63-313100
(Date of publication: December 21, 1988)

Evidence B No. 3: "New Edition: Study on Radiation Equipment - Diagnostic Surface Equipment (1) "
Authored by Taiji Aoyagi and other 3 persons
Issued by Colona Publishing Co., Ltd.
Issued on November 30, 2010
p. 177, p. 180, p. 183-184

Evidence B No. 4: Japanese Unexamined Patent Application Publication No. 2005-148060
(Date of publication: June 9, 2005)

Evidence B No. 5: Written report signed and sealed by Takehiko Shoji of Konica Minolta MG Co., Ltd. dated January 13, 2012 (total 1 page)

Evidence B No. 6: Japanese Unexamined Patent Application Publication No. 2000-180597
(Date of publication: June 30, 2000)

Evidence B No. 7: Japanese Unexamined Patent Application Publication No. H06-36714
(Date of publication: February 10, 1994)

Evidence B No. 8: Japanese Unexamined Patent Application Publication No. 2004-117347
(Date of publication: April 15, 2004)

Evidence B No. 9: Catalogue of "Vylon" of Toyobo Co., Ltd. (total 8 pages)

Evidence B No. 10: Japanese Unexamined Patent Application Publication No. H10-283925
(Date of publication: October 23, 1998)

Evidence B No. 11: Japanese Unexamined Patent Application Publication No. 2008-139156
(Date of publication: June 19, 2008)

Evidence B No. 12: Japanese Patent Publication No. S59-23400
(Date of publication: June 1, 1984)

Evidence B No. 13: Japanese Unexamined Patent Application Publication No.

2002-357698
(Date of publication: December 13, 2002)

Evidence B No. 14: Japanese Unexamined Patent Application Publication No. 2002- 357698
(Date of publication: May 9, 2002)

Evidence B No. 15-1: Notification of Reasons for Refusal drafted on March 31, 2011 in the examination of Japanese Patent Application No. 2010-225851 (total 2 pages)

Evidence B No. 15-2: Written opinion dated May 31, 2011 in the examination of Japanese Patent Application No. 2010-225851 (total 4 pages)

Evidence B No. 16: Japanese Patent Publication No. 3276614
(Date of issue: April 22, 2002)

No. 6 Judgment on the body

1 Regarding the reason for invalidation 1

(1) Corrected Patent Invention 1

(A) Evidence A No. 1

A Description of Evidence A No. 1

Evidence A No. 1, which is in the public domain prior to the application of the Patent, describes the following technical matters together with drawings (underlines are put by the body).

(a) "[0001]
[Technical field of the Invention] The present invention relates to a radiation image forming method that utilizes a storage phosphor, and a radiation image forming material advantageously used in the method."

(b) "[0007] In the radiation image conversion method, conventionally many stimulable phosphors have been proposed and put to practical use, however, all the stimulable phosphors are the ones that directly absorb radiations and store the energy. In other words, since a phosphor that absorbs the radiation serves also as the phosphor that stores the energy, when selecting a phosphor, an optimum phosphor cannot be selected in sufficient consideration of a level of radiation absorptivity. Therefore, it cannot be said that the stimulable phosphors that have been conventionally proposed or put to practical use are always the phosphors whose radiation absorption is at a sufficiently satisfying level.
[0008] Also, while a rare earth-activated alkaline earth rare metal fluoride halide-based

phosphor is well known as a stimulable phosphor for a radiation image conversion method, for this phosphor, a response when being excited by excitation light and indicating stimulated emission is not always sufficiently fast for all uses, and a stimulable phosphor with excellent responsiveness is desired. However, when a system of simultaneously reading a plurality of pixels such as line sensor read is utilized, there are cases that there is practically no problem even if the responsiveness is insufficient.

[0009] Japanese Patent Publication No.6-31904 describes a radiation image conversion panel formed of a phosphor layer including a stimulable phosphor which absorbs the radiation of <250 nm wavelength and ultraviolet rays of 250-400 nm wavelength, holds their energy and emits the energy as light by being irradiated with visible light to infrared light, and a layer including a phosphor which is excited by the radiation of <250 nm and emits ultraviolet rays of 250-400 nm wavelength, in order to improve radiation absorptivity of the radiation image conversion panel used in a radiation image conversion method. That is, by using the phosphor capable of absorbing not only the radiation but also the ultraviolet rays as the stimulable phosphor of the phosphor layer and simultaneously adding a layer including the phosphor of ultraviolet emission to a lower layer, the ultraviolet emission phosphor is made to absorb the radiation transmitted through the phosphor layer, the stimulable phosphor is made to absorb and store the ultraviolet emission light, the radiation absorptivity of the radiation image conversion panel is improved, and the ultraviolet emission phosphor plays an auxiliary role for improving the radiation absorptivity.

[0010] As a stimulable phosphor used in a radiation image conversion method, that is, as a stimulable phosphor that absorbs radiation and stores the energy, Japanese Unexamined Patent Application Publication No.S55-12142 discloses a ZnS phosphor, and Japanese Unexamined Patent Application Publication No. H2-692 discloses an alkaline earth metal sulfide-based phosphor such as CaS or SrS. However, the radiation absorptivity of these stimulable phosphors is extremely low, and is not practical as long as the radiation is to be directly absorbed.

[0011]

[Technical Problem] The present invention is to provide a new radiation image forming method with high detective quantum efficiency. In particular, the present invention provides the radiation image forming method capable of supplying radiation images with high image quality and reducing exposure dose. Also, the present invention provides a radiation image forming material formed of a highly sensitive radiation image conversion panel and a fluorescent screen.

[0012]
[Solution to Problem] The inventor has found that, as a result of generally examining the detective quantum efficiency (DQE) of the radiation image forming method, that is, the radiation absorptivity, stimulated emission efficiency and extraction efficiency of emission light of the radiation image conversion panel used in this method, by separating a radiation absorbing function and an energy storing function in a conventional stimulable phosphor and making two kinds of phosphors be in charge of the respective functions, it becomes possible to use the phosphor with excellent radiation absorption and the radiation absorptivity of the method can be improved as a result. Also, the inventor has found that the phosphor with excellent light emission responsiveness can be used as a storage phosphor in charge of the energy storing function, and the extraction efficiency of the emission light can be improved. Further, by arranging a layer (or a fluorescent screen) including a radiation absorptive phosphor on both sides of a layer (or a radiation image conversion panel) including an energy storage phosphor, the storage phosphor layer (or a panel) can be exposed from both sides thereof to store radiation energy, and the radiation images with high detective quantum efficiency and high image quality can be obtained.
[0013] The present invention is the radiation image forming method including arranging a radiation image conversion panel having a radiation absorptive phosphor layer including a phosphor that absorbs radiation for image formation and emits emission light of an ultraviolet to visible region and a storage phosphor layer including a storage phosphor that absorbs the emission light, stores the energy, and emits the energy as the emission light when excited by the light of a visible to infrared region, and a fluorescent screen having a radiation absorptive phosphor layer including a phosphor that absorbs the radiation for image formation and emits the emission light of the ultraviolet to visible region such that the screen is tightly attached to a storage phosphor layer side surface of the panel, emitting the radiation transmitted through a subject, diffracted or scattered by the subject, or radiated from the subject from the side of the panel or the screen, making the panel record spatial energy distribution information of the radiation as latent images, then separating the panel from the screen, irradiating the storage phosphor layer side surface of the panel with excitation light, photoelectrically reading the emission light emitted from the latent images of the panel, converting it to image signals, and forming images corresponding to the spatial energy distribution of the radiation from the image signals.
[0014] The present invention is also the radiation image forming method including arranging a radiation image conversion panel having a storage phosphor layer including

a storage phosphor that absorbs the emission light, stores the energy and emits the stored energy as the emission light when excited by the light of the visible to infrared region between two fluorescent screens each having a radiation absorptive phosphor layer including a phosphor that absorbs the radiation for image formation and emits the emission light of the ultraviolet to visible region respectively in a tightly attached state, emitting the radiation transmitted through a subject, diffracted or scattered by the subject, or radiated from the subject from the side of one of the screens, making the panel record spatial energy distribution information of the radiation as latent images, then separating the panel from both screens, then irradiating the surface of the panel with excitation light, photoelectrically reading the emission light emitted from the latent images from one side or both sides of the panel, converting it to image signals, and forming images corresponding to the spatial energy distribution of the radiation from the image signals."

(c) "[0027] An example of a configuration of the radiation image forming material of the present invention is described with reference to attached drawings. FIGS. 1-5 are respectively schematic sectional views illustrating a representative example of the configuration of the radiation image forming material of the present invention. An arrow is a radiating direction of the radiation such as X-rays.

[0028] In FIG. 1, a radiation image forming material 10 is formed of a front side radiation image conversion panel 10a and a back side fluorescent screen 10b. The front side radiation image conversion panel 10a is configured in order from a support 11a, a radiation absorptive phosphor layer 12a, a storage phosphor layer 13, and a protective layer 14a. The back side fluorescent screen 10b is configured in order from a support 11b, a radiation absorptive phosphor layer 12b, and a protective layer 14b. Note that it is also possible to arrange a fluorescent screen on a front side and arrange a radiation image conversion panel on a back side.

[0029] A layer thickness of the radiation absorptive phosphor layer 12a on the front side is generally in a range of 50 to 200 μm, and is preferably in the range of 100 to 150 μm. Also, a layer thickness of the radiation absorptive phosphor layer 12b on the back side is preferably equal to or larger than the layer thickness of the radiation absorptive phosphor layer 12a on the front side, is generally in the range of 50 to 300 μm, and is preferably in the range of 100 to 250 μm. However, in the case that the radiation absorptive phosphor layer is anisotropic, both in the case of the front side and the case of the back side, the film thickness of the phosphor layer may be the thickness of about 600 μm (preferably, equal to or smaller than 500 μm).

[0030] On the other hand, for the storage phosphor layer 13, since the energy is stored by absorption of the light of the ultraviolet to visible region, the layer thickness can be thinned, is generally in the range of 1 to 50 μm, and is preferably in the range of 5 to 20 μm. Preferably, the storage phosphor layer 13 is thinner than the radiation absorptive phosphor layer 12a, and further preferably, the layer thickness of the storage phosphor layer 13 is in the range of 0.2 to 20% of the entire layer thickness of the radiation absorptive phosphor layers 12a and 12b.

[0031] Also, the thickness of the supports 11a and 11b is generally in the range of 50 to 1000 μm, and is preferably in the range of 120 to 350 μm. The support may be attached to a substrate of a carbon fiber sheet or an aluminum sheet or the like. The layer thickness of the protective layers 14a and 14b is generally in the range of about 1 μm to 20 μm, and is preferably in the range of 3 to 15 μm.

[0032] In FIG. 2, a radiation image forming material 20 is formed of a front side fluorescent screen 20b, a back side fluorescent screen 20c, and a center radiation image conversion panel 20a between them. The front side fluorescent screen 20b is configured in order from a support 21b, a radiation absorptive phosphor layer 22b, and a protective layer 24b. The back side screen 20c is configured in order from a support 21c, a radiation absorptive phosphor layer 22c, and a protective layer 24c. The center panel 20a is configured in order from a protective layer 24a, a storage phosphor layer 23, and a protective layer 24'a."

(d) "[0048] (Support) The support is normally a sheet or a film which is formed of a flexible resin material and whose thickness is 50 μm to 1 mm. The support may be transparent, or the support may be filled with a light reflective material (examples: alumina particles, titanium dioxide particles, barium sulfate particles) for reflecting excitation light (primary, secondary) or simulated emission light, or may be provided with a gap. Or, a light absorptive material (example: carbon black) may be filled in order to make the support absorb the excitation light or the stimulated emission light. Examples of a resin material that can be used for forming the support are various kinds of resin materials such as polyethylene-telephthalate, polyethylene naphthalate, aramid resin, or polyimide resin. As needed, the support may be a metal sheet, a ceramic sheet, a glass sheet or a quartz sheet.

[0049] (Radiation absorptive phosphor layer) First, the radiation absorptive phosphor particles and a binder are added to a solvent, they are sufficiently mixed, and a coating liquid for which the radiation absorptive phosphor particles are uniformly dispersed in the binder solvent is prepared. Various kinds of resin materials are known for the

binder that disperses and supports the phosphor particles, and a selection can be appropriately made and used from optional resin materials featuring these well-known binder resins also in manufacture of the radiation image conversion panel of the present invention. While a mixing ratio of the binder and the phosphor in the coating liquid is different depending on characteristics of a target radiation image conversion panel and a kind of the phosphor or the like, generally the mixing ratio (binder/phosphor) of the binder and the phosphor is selected from the range of 1 to 0.01 (weight ratio). Note that, to the coating liquid, various kinds of additive agents such as a dispersant for improving dispersibility of the phosphor in the coating liquid, a plasticizer for improving binding force between the binder and the phosphor in a phosphor layer after formation, a yellowing inhibitor for preventing discoloration of the phosphor layer, a hardener, a crosslinking agent may be mixed further.

[0050] By uniformly applying the coating liquid prepared in this way to a surface of the support next, a coating film is formed. An applying operation can be performed by a method of using normal application means, a doctor blade, a roll coater, a knife coater or the like for example. The coating film is dried, and the formation of the radiation absorptive phosphor layer onto the support is completed. Note that the phosphor layer is not necessarily needed to be formed by directly applying the coating liquid onto the support as described above, and for example, a method of separately forming the phosphor layer by applying the coating liquid onto a temporary support such as a glass plate, a metal plate or a plastic sheet and drying it, and then pressurizing it onto the support or using an adhesive or the like and joining the phosphor layer onto the support may be utilized. Or, the phosphor layer for which a needle-like phosphor is oriented and made anisotropic as described in Japanese Patent Application No. 2000-158213 description may be also used.

[0051] The radiation absorptive phosphor layer according to the present invention may be not only the one formed of the radiation absorptive phosphor and the binder that contains and supports it in a dispersed state but also the one configured only from aggregate of the radiation absorptive phosphor without including the binder or the phosphor layer for which a polymer material is impregnated in a vapor deposition film or the aggregate of the radiation absorptive phosphor or the like.

[0052] (Partition) Also, the radiation absorptive phosphor layer may be provided with partitions that finely section the phosphor layer along a planar direction for the purpose of preventing scattering of the emission light and improving image quality of the images to be obtained. Since the layer thickness of the radiation absorptive phosphor layer is relatively thick, by providing the partitions, diffusion of the emission light can be

effectively prevented. The partition can be provided in an optional shape such as a stripe shape or a grid shape, or may be formed so that the partition surrounds a region filled with the radiation absorptive phosphor in an optional shape such as a circular shape or a hexagonal shape. Also, a peak part and a bottom part of the partition may be both exposed to both surfaces of the phosphor layer, or both or one of the peak part and the bottom part may be buried in the phosphor layer.

[0053] The partition can be formed by performing suitable etching treatment to a plate made of a metal such as aluminum, titanium or stainless steel, a sheet made of ceramics such as an aluminum oxide or aluminum silicate, or a sheet composed of an organic polymer material such as a photosensitive resin for example to prepare a honeycomb-like sheet where many recesses (holes) or through-holes are formed, and by mounting the phosphor layer onto the honeycomb-like sheet and then heating and compressing it to push the honeycomb-like sheet into the phosphor layer. Or, it can be also formed by a lamination slice method of forming many phosphor sheets in a thin film shape formed of the binder that disperses and contains fluorescent particles and many sheets for the partition in the thin film shape formed of the polymer material respectively, alternately laminating many of the phosphor sheets and the sheets for the partition, and then vertically cutting them in a lamination direction. Or, in the case that the phosphor layer is formed of the aggregate of the radiation absorptive phosphor like the vapor deposition film or the like as described above, the partition can be attained by forming a crack. Examples of such a phosphor layer are needle-like crystal films of CsI:Na, CsI:Tl, CsBr:Tl or the like. In the partition, lowly light absorptive minute particles such as aluminum oxide or titanium dioxide may be dispersed and contained, or it may be colored with a coloring agent that selectively absorbs the emission light from the radiation absorptive phosphor.

[0054] Or, the partition may be formed of a phosphor layer material (however, the ratio of the binder:the phosphor and/or a particle size is changed from that in the case of forming the phosphor layer). Since the radiation absorptive phosphor generally has a high refractive index, scattering in the planar direction can be effectively prevented. Also, the images with high sharpness can be obtained while maintaining high radiation absorption."

(e) "[0084] (Diffuse reflection layer) Also, in the case that the radiation image conversion panel is on the front side, it is preferable to provide a diffuse reflection layer as illustrated in FIG. 14 between the support and the radiation absorptive phosphor layer. The diffuse reflection layer that can be used in the image forming material of the

present invention is a layer having a function of reflecting the emission light from the radiation absorptive phosphor. By installation of the diffuse reflection layer, a light quantity of the emission light (primary excitation light) from the radiation absorptive phosphor made incident on the storage phosphor layer can be increased and the highly sensitive radiation image conversion panel can be attained. In FIG. 14, a radiation image conversion panel 10a" is configured in order from the support 11a, a diffuse reflection layer 16, the radiation absorptive phosphor layer 12a, the storage phosphor layer 13, and the protective layer 14a.

[0085] The diffuse reflection layer is the layer including a light reflective material such as titanium dioxide, yttrium oxide, zirconium oxide, or aluminum oxide (alumina). For the light reflective material, considering that the diffuse reflection layer is provided on the front side panel or screen, absorption of the radiation such as X rays needs to be small and it is desirable that a refractive index is high from a point of sharpness of reflection. Therefore, the titanium dioxide is preferable as the light reflective material, and in particular a rutile type of the higher refractive index is preferable. However, since the titanium dioxide indicates high reflectance in a region of a wavelength longer than about 430 nm, it is suitable in the case that the radiation absorptive phosphor is Gd_2O_2S:Tb or the like. In the case that a light emission wavelength of the radiation absorptive phosphor is shorter than about 430 nm, a material without the absorption in the light emission wavelength region such as the aluminum oxide, the yttrium oxide or the zirconium oxide needs to be selected.

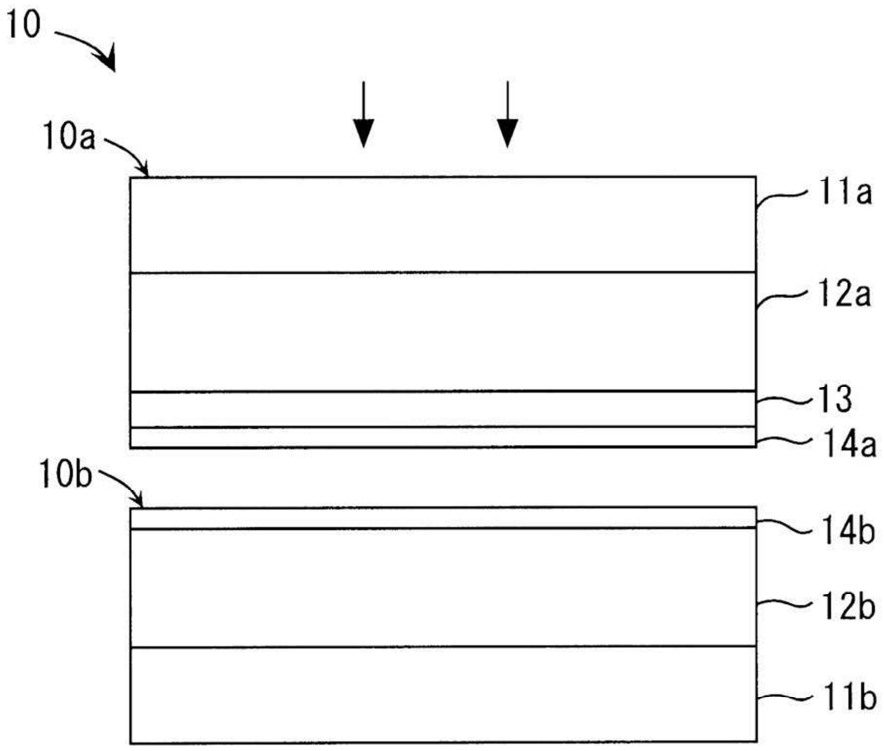
[0086] For the diffuse reflection layer, from the point of sensitivity and sharpness, it is desirable to achieve high light reflectance with a layer thickness as thin as possible. In the case that the diffuse reflection layer exists alone, it is preferable that a relation between the layer thickness and the diffuse reflectance is in a region indicated by diagonal lines in FIG. 15. Here, the diffuse reflectance is, as described in detail in Japanese Unexamined Patent Application Publication No. H09-21899, the reflectance obtained for a standard white board using an integrating sphere for which $BaSO_4$ powder is uniformly applied on the entire surface. For that, an average particle diameter of the light reflective material is generally in the range of 0.1 to 0.5 μm, and is preferably in the range of 0.1 to 0.4 μm. A volume filling ration in the diffuse reflection layer of the light reflective material is generally in the range of 25 to 75%, and is preferably 40% or greater. The layer thickness of the diffuse reflection layer is generally in the range of 15 to 100 μm.

[0087] The diffuse reflection layer can be formed by preparing a coating liquid by mixing and dispersing the light reflective material in a minute particle shape and the

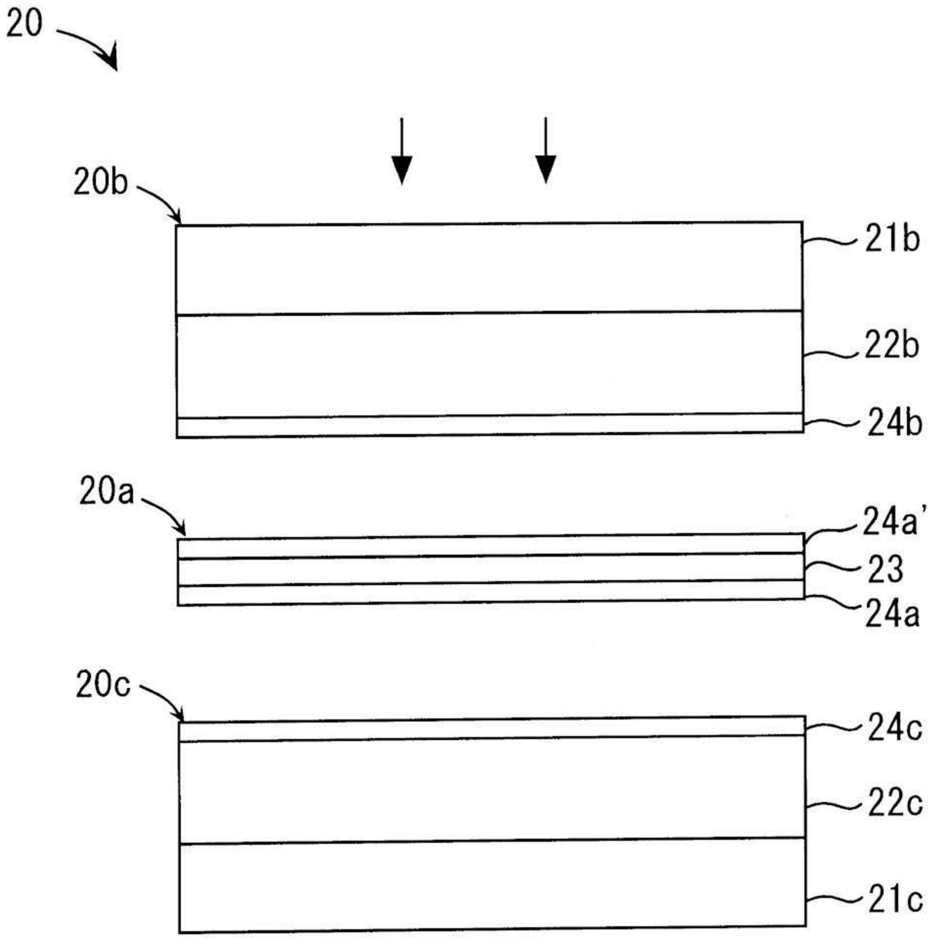
binder in the solvent and then applying and drying it on the support. The binder and the solvent can be appropriately selected from the ones that can be used for the phosphor layer and used.

[0088] Instead of providing the diffuse reflection layer on the support, the light reflective material as described above may be dispersed and contained in the support itself to attain the support having a diffuse reflection function. Also, as described later, the diffuse reflection layer and/or the support may be colored. Note that it is desirable to provide the diffuse reflection layer or the support having the diffuse reflection function also in the case of using the fluorescent screen on the front side. Also, when used for the panel or the screen used on the back side, it is easy to design the one with excellent sensitivity."

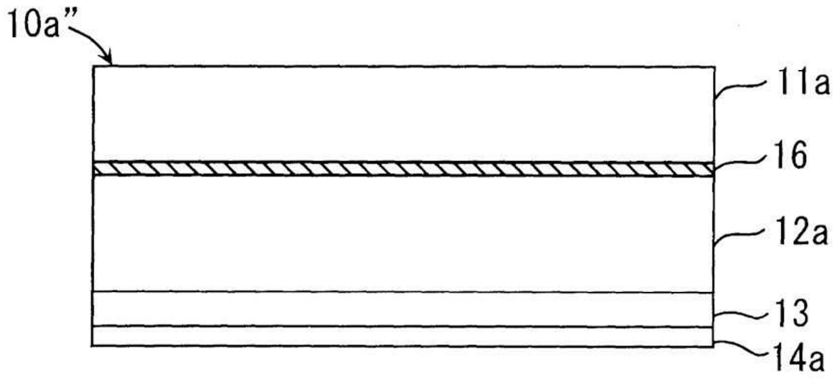
(f) "[Fig. 1]



[Fig.2]


20
20b
21b
22b
24b
20a
24a'
23
24a
20c
24c
22c
21c

[Fig. 14]


10a"
11a
16
12a
13
14a

"

B Invention described in Evidence A No. 1

Taking matters describes in the aforementioned Evidence A No. 1 and drawings into account generally, it is recognized that Evidence A No. 1 describes the following inventions (hereinafter referred to as "A1 Invention").

"A front-side fluorescent screen 20b forming the radioactive ray image forming material 20 jointly with a back-side fluorescent screen 20c and a radiation image conversion panel 20a existing at the center in the meantime, wherein

in order, the front-side fluorescent screen 20b comprises a base material 21b, a radioactive ray absorptive phosphor layer 22b, and a protective layer 24b,

the base material 21b is a sheet or a film made of polyimide resin having a thickness of 50 micrometers to 1 mm,

the radioactive ray absorptive phosphor layer 22b comprises an evaporated film which is a needle crystal film of CsI:Ti,

a defusing reflection layer is provided between the base material 21b and the radioactive ray absorptive phosphor layer 22b,

the defusing reflection layer is formed by carrying out application drying of this on a base material, after carrying out mixture dispersion of titanium dioxide, a mean particle diameter of which is within the range of 0.1-0.5 micrometers, and binding agent into a solvent and preparing coating liquid, and a thickness of the layer being in the range of 15 to 100 micrometers,

the binding agent is a resin material,

in order, the radiation image conversion panel 20a comprises a protection layer 24a, accumulative fluorescent layer 23 and a protection layer 24'a."

(B) Comparison of Corrected Patent Invention 1 with A1 Invention

A "Base material 21b", "defusing reflection layer" and " front-side fluorescent screen 20b" of A1 Invention correspond to the "substrate", "reflection layer" and "scintillator panel" of Corrected Patent Invention 1 respectively.

B The "radioactive ray absorptive phosphor layer 22b" "comprising vacuum evaporated film of CsI:TI needle crystal film" of A1 Invention corresponds to the "scintillator layer having the columnar crystal structure formed by vacuum evaporation" "by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium" of Corrected Patent Invention 1.

C As "titanium dioxide whose mean particle diameter is within the range of 0.1-0.5 micrometers" and " binding agent" of A1 Invention obviously correspond to "one or more kind sof white pigment selected from alumina, yttrium oxide, zirconium oxide and titanium oxide" and "binder resin" of Corrected Patent Invention 1 respectively, the constitution of A1 Invention wherein "the defusing reflection layer is formed by carrying out application drying of this on a base material, after carrying out mixture dispersion of titanium dioxide, a mean particle diameter of which is within the range of 0.1-0.5 micrometers, and binding agent into a solvent and preparing coating liquid", "the defusing reflection layer is provided between the base material 21b and the radioactive ray absorptive phosphor layer 22b" and "the binding agent is a resin material" corresponds to the constitution of Corrected Patent Invention 1 wherein "the aforementioned reflection layer exists between the aforementioned substrate and the aforementioned scintillator layer having the columnar crystal structure and is made of at least one kind of white pigment and the binder resin selected from alumina, yttrium oxide, zirconium oxide and titanium oxide and is formed by carrying out application drying of the aforementioned white pigment and the aforementioned binder resin after carrying out mixture dispersion solved in solvent".

D The constitution of A1 Invention wherein "in order, the front-side fluorescent screen 20b comprises the base material 21b, the radioactive ray absorptive phosphor layer 22b, and the protective layer 24b" and "the defusing reflection layer is provided between the base material 21b and the radioactive ray absorptive phosphor layer 22b" of A1 Invention corresponds to the constitution of Corrected Patent Invention 1 wherein "the scintillator panel" "has the reflection layer and" "the scintillator layer on the base material".

E As features that "the radioactive ray absorptive phosphor layer 22b" of A1 Invention which comprises "the front-side fluorescent screen 20b" absorbs the radioactive ray and emits an electromagnetic wave according to the energy of the radioactive ray and that "the accumulative fluorescent layer 23" which comprises "the radiation image conversion panel 20a" absorbs the electromagnetic wave emitted from "the radioactive ray absorptive phosphor layer 22b" and forms an image (latent image) are the technical common sense, it can be said that "the front-side fluorescent screen 20b" of A1 Invention comprises, jointly with "the radiation image conversion panel 20a", a panel which takes an image; that is to say, an imaging panel.

Then, a feature of A1 Invention that "a front-side fluorescent screen 20b forms

the radioactive ray image forming material 20 jointly with the back-side fluorescent screen 20c and the radiation image conversion panel 20a existing at the center in the meantime" and a feature of Corrected Patent Invention 1 that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with an output substrate absorbing the aforementioned electromagnetic wave and outputting an image signal, and the aforementioned output substrate is provided with a photoelectric conversion element" are common in that "the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with a substrate absorbing the aforementioned electromagnetic wave".

(C) Corresponding features of Corrected Patent Invention 1 and A1 Invention

Then, Corrected Patent Invention 1 and A1 Invention are common in that

"A scintillator panel which is a scintillator panel having a reflection layer and a scintillator layer which has the columnar crystal structure and is formed by vacuum evaporation by making into raw material an additive agent containing cesium iodide and one or more kinds of thallium on a substrate and is characterized in

that the reflection layer exists between the substrate and the scintillator layer having the columnar crystal structure is made of at least 1 type of white pigments chosen from alumina, yttrium oxide, zirconium oxide, and titanium oxide, and binder resin, is formed by applying and drying the aforementioned white pigment and the aforementioned binder resin that are distributed and dissolved in solvent,

that the aforementioned scintillator panel absorbs the energy of incident radiation and emits an electromagnetic wave according to its strength and composes an imaging panel together with a substrate absorbing the aforementioned electromagnetic wave and forming an image." and are different in the following features.

(D) Different features between Corrected Patent Invention 1 and A1 Invention

a While "the scintillator layer having the columnar crystal structure" of Corrected Patent Invention 1 is formed by "growing columnar crystal body on the surface of the reflection layer" "made of the white pigment of titanium oxide and the binder resin" "at the substrate temperature of 150 degrees C - 250 degrees C", "the radioactive ray absorptive phosphor layer 22b" of A1 Invention which is made of "evaporated film of a needle crystal film of CsI:TI" does not have the aforementioned matters specifying

the invention.

b While "the binder resin" of Corrected Patent Invention 1 is "a resin selected from polyurethane, vinyl chloride copolymer, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin", the "binding agent" of A1 Invention is simply defined as "resin material".

c In Corrected Patent Invention 1, a device that absorbs the electromagnetic wave emitted from "the scintillator panel" is "the output substrate" which is "provided with a photoelectric conversion element" and "outputs an image signal", and "the aforementioned scintillator panel changes its form into a shape which is in line with the surface of the photoelectric conversion element of the aforementioned output substrate". However, in A1 Invention, a device that absorbs the electromagnetic wave emitted from "the radioactive ray absorptive phosphor layer 22b" is "the radiation image conversion panel 20a" having "the accumulative fluorescent layer 23", and it is unknown whether "the front-side fluorescent screen 20b" changes its form into a shape which is in line with the surface of "the accumulative fluorescent layer 23".

(E) Judgment

A Regarding the different feature a

It is considered a matter of technical common sense to arrange the substrate temperature when CsI:TI is formed by vacuum evaporation in the range of 150 degrees C - 300 degrees C based on descriptions in Evidence B No. 6 (in particular, paragraph [0010]), Evidence B No. 7 (in particular, paragraph [0014]), Evidence B No. 8 (in particular, paragraph [0032]) (See "No. 5" "1" "(2)" "C" "(A)", p. 48 of the judgment for the aforementioned 2012 (gyoke) 10111) (hereinafter referred to as the "Previous Judgment").

Further, based on descriptions of Evidence A No. 7 (in particular, paragraph [0013]), Japanese Unexamined Patent Application Publication No. 2004-163410 (in particular, paragraphs [0028], [0030] to [0033], [0039], [0060] to [0061]), Evidence A No. 8 (in particular, paragraphs [0099], [0117], [0169] to [172]), it is considered a

matter of technical common sense to form a phosphor layer on the surface of a reflection layer by vacuum evaporation in case of a phosphor panel/screen for which the reflection layer is provided between a substrate and the phosphor layer formed by vacuum evaporation. And, as described in Japanese Unexamined Patent Application Publication No. 2004-163410 (in particular, paragraphs [0028], [0030] to [0033], [0039], [0060] to [0061]), Evidence A No. 8 (in particular, paragraphs [0099], [0117], [0169] to [172]), Evidence A No. 16 (in particular, paragraphs [0022] to [0024]), it is considered to be well-known art to form a phosphor layer by vacuum evaporation on the surface of a reflection layer containing a binder resin or on the surface of a resin substrate having reflection function (See "No. 5" "2" "(4)" "B", p. 62 of the Previous Judgment).

And, detailed conditions for vacuum evaporation when forming a CsI:TI having the columnar crystal structure by vacuum evaporation are not described at all in Evidence A No. 7 in which there is described the technology to form CsI of TI dope having the columnar structure by vacuum evaporation on the surface of AI film as a reflection layer and in Evidence A No. 16 in which the technology to form a layer of columnar crystal such as CsI:TI by vacuum evaporation on the white resin material in which the pigment such as titanium oxide or aluminum oxide is mixed. Based on this fact, it is considered that an operation to evaporate CsI:TI having the columnar crystal structure on AI film or resin substrate is commonly practiced without specific difficulty (See No. 5" "2" "(5)" "C", p. 63 of the Previous Judgment).

Then, in A1 Invention, that is to say, in the invention "a radioactive ray absorptive phosphor layer 22b is made of evaporated film which is a needle crystal film of CsI:TI, and a defusing reflection layer is provided between a base material 21b and the radioactive ray absorptive phosphor layer 22b where in the defusing reflection layer is formed by carrying out application drying of this on a base material 21b, after carrying out mixture dispersion of titanium dioxide having a mean particle diameter in the range of 0.1-0.5 micrometers and the binding agent into a solvent and preparing coating liquid", the growing of the columnar crystal on "the defusing reflection layer" by vacuum evaporation of CsI:TI is not considered to be an operation that requires a person skilled in the art to use specific creative idea or device (See No. 5" "2" "(5)" "D", p. 64 of the Previous Judgment).

B Regarding the different feature b

In Evidence A No. 8 (in particular, paragraphs [0117] to [0123]), polyurethane, polyester (for example, polyethylene terephthalate, polyethylene naphthalate), vinyl

chloride copolymer, (for example, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, etc.), butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic (nitrocellulose, etc.), styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin are listed as resin for the reflection layer made of the white pigment such as titanium oxide or aluminum oxide and resin.

In Evidence A No. 16 (in particular, paragraphs [0022] to [0024]), polyethylene terephthalate and polyethylene naphthalate are listed as resin material for the substrate made of white resin in which pigments such as titanium oxide or aluminum oxide is mixed in the resin material.

Based on these descriptions, the use of resin selected from polyurethane, polyester (for example, polyethylene terephthalate, polyethylene naphthalate), vinyl chloride copolymer, (for example, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, etc.), butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic (nitrocellulose, etc.), styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin as the resin for the reflection layer made of white pigment such as titanium oxide or aluminum oxide and resin or a resin substrate having a reflection function is considered to be well-known art.

And, in Evidence A No. 14 (in particular, paragraphs [0020] to [0034]), polyvinyl chloride acetate copolymer, polyvinyl chloride, polyvinyl chloride vinylidene, polyvinyl acetate, polyester, silicon, styrene butadiene copolymer, ABS rubber, acrylonitrile butadiene copolymer, polyurethane, silicon acryl copolymer, acrylonitrile, styrene, vinyl acetate, polyvinyl alcohol, butadiene, vinyl chloride, and polyvinylidene chloride are listed as thermoplastic resin for thermoplastic resin film on whose surface a fluorescent body is evaporated, and copolymers combining two or more monomers, thermoplastic resin which saponifies vinyl acetate combined in the copolymer and leads to a part of vinyl acetate into vinylalcohol, and polyurethane-silicon-acryl copolymer are also listed.

And, in Evidence A No. 15 (in particular, paragraphs [0018] to [0028]), cellulose compounds, such as carboxymethyl cellulose, diacetyl cellulose and triacetyl cellulose, polyester resin, a styrene butadiene copolymer, a polyester system, a urethane system, epoxy system resin, polyvinyl chloride, and polyvinylidene chloride are listed as polymer on whose surface a fluorescent body is evaporated.

Based on these descriptions, polyvinyl chloride acetate copolymer, polyvinyl chloride, polyvinyl chloride vinylidene, polyvinyl acetate, polyester, silicon, styrene butadiene copolymer, ABS rubber, acrylonitrile butadiene copolymer, polyurethane, silicon acryl copolymer, acrylonitrile, styrene, vinyl acetate, polyvinyl alcohol, butadiene, vinyl chloride, and polyvinylidene chloride are listed as resin on whose surface a fluorescent body is evaporated, the use of resin selected from copolymers combining two or more monomers, thermoplastic resin which saponifies vinyl acetate combined in the copolymer and leads to a part of vinyl acetate into vinylalcohol, polyurethane-silicon-acryl copolymer, cellulose compounds, such as carboxymethyl cellulose, diacetyl cellulose and triacetyl cellulose, polyester resin, a styrene butadiene copolymer, a polyester system, a urethane system, epoxy system resin, polyvinyl chloride, a polyvinylidene chloride is considered to be well-known art.

Then, in A1 Invention, that is to say, in the invention "a radioactive ray absorptive phosphor layer 22b is made of evaporated film which is a needle crystal film of CsI:TI, and a defusing reflection layer is provided between a base material 21b and the radioactive ray absorptive phosphor layer 22b where in the defusing reflection layer is formed by carrying out application drying of this on a base material 21b, after carrying out mixture dispersion of titanium dioxide having a mean particle diameter in the range of 0.1-0.5 micrometers" and "the binding agent" is resin material, the use of resin selected from polyurethane, polyester (for example, polyethylene terephthalate, polyethylene naphthalate), vinyl chloride copolymer, (for example, polyvinyl chloride acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, etc.), butadiene acrylonitrile copolymer, cellulosic (nitrocellulose, etc.), styrene butadiene copolymer, various kinds of synthetic rubber system resin, epoxy resin, and silicon resin which are common to the resin for a reflection layer made of the aforementioned white pigment such as titanium oxide or aluminum oxide and resin or the resin for resin substrate having the reflection function and the resin on whose surface the fluorescent body is evaporated as "the resin material" is easy for a person skilled in the art.

C Regarding the different feature c

The constitution of the scintillator panel that absorbs the radiation ray and emits the electromagnetic wave as the imaging panel together with the output substrate having the photoelectric conversion element is considered to be the well-known art as described in Evidence A No. 7 (in particular, paragraph [0013], Fig. 2), Evidence A No. 9 (in particular, paragraphs [0026] to [0029], Fig. 1), Evidence A No. 10 (in

particular, paragraph [0004], Fig. 16), Evidence A No. 12 (in particular, lines 5 to 49 on page 7, Figs. 1 to 3), Evidence A No. 16 (in particular, paragraphs [0005], [0046], Fig. 4).

And, A1 Invention constitutes "the radioactive ray absorptive phosphor layer 22b" that absorbs the radiation ray and emits the electromagnetic wave as "the radioactive ray image forming material 20" jointly with "the radiation image conversion panel 20a" having "the accumulative phosphor layer 23", and as the aforementioned "output substrate having the photoelectric conversion element" and "the radiation image conversion panel 20a" having "the accumulative phosphor layer 23" are common in that they are means to receive the electromagnetic wave from the scintillator panel (phosphor screen) and obtain an image, the constitution of using the output substrate having a well-known photoelectric conversion element in lieu of "the radiation image conversion panel 20a" having "the accumulative phosphor layer 23" could have easily been conceived by a person skilled in the art.

Further, a method to affix a scintillator panel and an output substrate having the photoelectric conversion element using a roller is considered to be an ordinary method as a method to form the imaging panel from the scintillator panel and the output substrate having the photoelectric conversion element as described in Evidence A No. 9 (in particular, paragraph [0068], Fig. 9 (b)), Evidence A No. 10 (in particular, paragraph [0021]), Evidence A No. 16 (in particular, paragraph [0046]). And, as it is inherently presented that, if a scintillator panel having a substrate is made of elastic resin material and an output substrate having the photoelectric conversion element using a roller, the scintillator panel changes its form into a form in line with the surface of the photoelectric conversion element, the use of the aforementioned ordinary method, as a method to form the imaging panel from the "fluorescent screen 20b" having a substrate made of elastic resin material which is, as aforesaid, "a base material 21b is a sheet or film made of polyimide resin having a thickness of 50 micrometers to 1 mm" of A1 invention and the output substrate having the well-known photoelectric conversion element, can be performed by a person skilled in the art without specific difficulty. And, it is a matter of course that the scintillator panel changes its form into a form in line with the surface of the photoelectric conversion element as the result.

D Regarding the effect

The demandee alleges in Corrected Patent Invention 1 that "the scintillator layer having the columnar crystal structure which is formed by vacuum evaporation at the

substrate temperature 150 degrees C - 250 degrees C" "is formed by growing columnar crystal body on the surface of the aforementioned reflection layer", that, as the result of the constitution wherein the aforementioned binder resin is a resin selected from polyurethane, vinyl chloride copolymer, vinyl chloride vinyl acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin or urea formamide resin, as a glass-transition temperature (Tg) of the "binder resin" is lower than "the substrate temperature of 150 degrees C - 250 degrees C" and that Corrected Patent Invention 1 exercises an excellent effect that improves the adhesive nature between "the scintillator layer" and "the reflection layer".

However, it is well known to a person skilled in the art that, when a phosphor body is evaporated on the surface of a resin material layer, the adhesive nature between the resin material layer and the phosphor layer is improved if a glass-transition temperature (Tg) of the resin material is lower than the substrate temperature of 150 degrees C - 250 degrees C at the time of vacuum evaporation as Evidence A No. 14 (in particular, paragraph [0028]) describes that a thermoplastic resin having the glass-transition point of 30 degrees C - 150 degrees C, preferably 50 degrees C - 120 degrees C, is preferable for a thermoplastic resin film on whose surface a phosphor body is evaporated and list the aforementioned thermoplastic resin as an example and Evidence A No. 15 (in particular, paragraphs [0016], [0024]) describes that the glass-transition point (Tg) of 30 degrees C - 100 degrees C is preferable for exercising the excellent effect for the contact (adhesive nature) between the base material and the phosphor layer. Therefore, the aforementioned effect alleged by the demandee could be easily conceived by a person skilled in the art from Evidence A No. 1, well-known art and technical common sense and is nothing special.

(F) Summary

As aforesaid, as Corrected Patent Invention 1 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to the Corrected Patent Invention 1 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(2) Corrected Patent Invention 2

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 2 with A1 Invention

Comparing Corrected Patent Invention 2 with A1 Invention, they are further different, in addition to the different features a, b and c mentioned in the aforementioned "1" "(1)" "(D)", in the following point.

(C) Different feature between Corrected Patent Invention 2 and A1 Invention

While "the surface of the aforementioned reflection layer" of Corrected Patent Invention 2 "is smoothed by calendering process", whether or not "the defusing reflection layer" of A1 Invention "is smoothed by calendering process" is unknown.

(D) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B Regarding the different feature b

Same as the aforementioned "1" "(1)" "(E)" "B".

C Regarding the different feature c

Same as the aforementioned "1" "(1)" "(E)" "C".

D Different feature d

As Evidence A No.2 describes "[0003] In formation of the stimulable phosphor by a vapor deposition method or the like, a substrate needs to be heat resistant (about 80°C-200°C) from vapor flow or crucible radiant heat during vapor deposition and possibility of needing substrate heating or the like. Also, it is demanded that a substrate surface to be provided with the phosphor layer is extremely smooth.", the problem that the substrate surface to be provided with the phosphor layer needs to be extremely smooth is recognized as a known problem for a person skilled in the art.

And, the calendering process is generally well-known as a method for smoothing processing. As described in Evidence A No. 3 "[0001] [Technical field of the

Invention] The present invention relates to the manufacturing method of the radiation image conversion panel using the accelerated-phosphorescence characteristic of the photostimulable phosphor.", "[0031] A calendering roll can perform data smoothing, for example....(later sentences are omitted)....", the calendering process is also used for the manufacturing method of the radiation image conversion panel.

And, as aforesaid, growing the columnar crystal by evaporating CsI:TI on the surface of the "defusing reflection layer" of A1 Invention can be done by a person skilled in the art without specific creativity, and smoothing the surface of the "defusing reflection layer" by calendering prior to the vacuum evaporation to solve the aforementioned well-known problem can be performed by a person skilled in the art as necessary.

(E) Summary

As aforesaid, as Corrected Patent Invention 2 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 2 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(3) Corrected Patent Invention 3

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 3 with A1 Invention

Comparing Corrected Patent Invention 3 with A1 Invention, as "titanium dioxide having a mean particle diameter within a range of 0.1-0.5 micrometers" of A1 Invention corresponds to "the aforementioned white pigment is the white pigment having a mean particle diameter of 0.1-3.0 micrometers" of Corrected Patent Invention 3, they are further different, in addition to the aforementioned different feature a and different feature c raised in the aforementioned "1" "(1)" (D)", in the following point.

(C) Different feature between Corrected Patent Invention 3 and A1 Invention

b' While "the binder resin" of Corrected Patent Invention 3 is "the resin having the

glass-transition temperature (Tg) lower than 100 degrees C and is selected from polyurethane, vinyl chloride copolymer, vinyl chloride vinyl acetate copolymer, vinyl chloride vinylidene chloride copolymer, vinyl chloride acrylonitrile copolymer, butadiene acrylonitrile copolymer, polyamide resin, polyvinyl butyral, polyester, cellulosic, nitrocellulose, styrene butadiene copolymer, various kinds of synthetic rubber system resin, phenol resin, epoxy resin, urea resin, melamine resin, phenoxy resin, silicon resin, acryl system resin or urea formamide resin", it is only restricted in A1 Invention that "the binding agent is resin material".

(D) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B the different feature b'

The different feature b' is constituted by further adding "resin having a glass-transition temperature (Tg) of 100 degrees C or lower", "polyamide resin" and "acryl system resin" to the different feature b as different matters. And, as the addition of "polyamide resin" and "acryl system resin" just adds materials listed as "binder resin" and does not influence the judgment on the aforementioned "1" "(1)" "(E)" "B", the meaning of the addition of "resin having a glass-transition temperature (Tg) of 100 degrees C or lower" is examined below.

As is instructed in the aforementioned "1" "(1)" "(E)" "D", it is well known to a person skilled in the art that, when a phosphor body is evaporated on the surface of a resin material layer, the adhesive nature between the resin material layer and the phosphor layer is improved if a glass-transition temperature (Tg) of the resin material is lower than the substrate temperature of 150 degrees C - 250 degrees C at the time of vacuum evaporation as Evidence A No. 14 describes that a thermoplastic resin having the glass-transition point of 30 degrees C - 150 degrees C, preferably 50 degrees C - 120 degrees C, is preferable for a thermoplastic resin film on whose surface a phosphor body is evaporated and lists the aforementioned thermoplastic resin as an example and Evidence A No. 15 describes that the glass-transition point (Tg) of 30 degrees C - 100 degrees C is preferable to exercise the excellent effect for the contact (adhesive nature) between the base material and the phosphor layer. And, if a fact that the value of "100 degrees C" does not have specific technical meaning (in particular, critical meaning) in Corrected Patent Invention 3 is taken into account, the use of resin having a glass-transition temperature (Tg) of 100 degrees C or lower

for "the resin material" of A1 Invention could be easily conceived by a person skilled in the art.

C Regarding the different feature c

Same as the aforementioned "1" "(1)" "(E)" "C".

(E) Summary

As aforesaid, as Corrected Patent Invention 3 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 3 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(4) Corrected Patent Invention 4

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 4 with A1 Invention

Comparing Corrected Patent Invention 4 with A1 Invention, as "titanium dioxide having a mean particle diameter of 0.1-0.5 micrometers" of A1 Invention corresponds to "the aforementioned white pigment having a mean particle diameter of 0.1-3.0 micrometers is titanium dioxide" of Corrected Patent Invention 4, they are different in the aforementioned different feature a and different feature c raised in "1" "(1)" (D)" and in the different feature b' raised in the aforementioned "1" "(3) "(C)"

(C) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B the different feature b'

Same as the aforementioned "1" "(3)" "(D)" "B".

C Regarding the different feature c

Same as the aforementioned "1" "(1)" "(E)" "C".

(D) Summary

As aforesaid, as Corrected Patent Invention 4 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 4 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(5) Corrected Patent Invention 5

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 5 with A1 Invention

Comparing Corrected Patent Invention 5 with A1 Invention, as "a base material 21b is a sheet or film made of polyimide resin having a thickness of 50 micrometers to 1 mm" of A1 Invention" corresponds to "made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less" of Corrected Patent Invention 5 they are further different, in addition to the aforementioned different feature a and different feature b raised in the aforementioned "1" "(1)" (D)", in the following point.

(C) Different feature between Corrected Patent Invention 5 and A1 Invention

c' In Corrected Patent Invention 5, a device that absorbs the electromagnetic wave emitted from "the scintillator panel" is "the output substrate" which is "provided with a photoelectric conversion element" and "outputs an image signal". However, in A1 Invention, a device that absorbs the electromagnetic wave emitted from "the radioactive ray absorptive phosphor layer 22b" is "the radiation image conversion panel 20a" having "the accumulative fluorescent layer 23".

(D) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B Regarding the different feature b

Same as the aforementioned "1" "(1)" "(E)" "B".

C Different feature c'

As the different feature c' is constituted by deleting "the scintillator panel changes its form into a form in line with the surface of the photoelectric conversion element", which is a point of difference, from the different feature C raised in the aforementioned "1" "(1)" "(D)", the constitution of using the output substrate having a well-known photoelectric conversion element in lieu of "the radiation image conversion panel 20a" having "the accumulative phosphor layer 23" of A1 Invention could have easily been conceived by a person skilled in the art similarly in case of the aforementioned "1" "(1)" "(E") "C".

D Regarding effect

The demandee alleges that Corrected Patent Invention 5 exercises an excellent effect of enabling to obtain the uniform sharpness all over the light-receiving surface of the flat panel detector by changing the scintillator panel into a form in line with the form of surface of the flat light receiving element using the constitution of "made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less".

However, as instructed in the aforementioned in "1" "(1)" "(E)" "C", a method to affix a scintillator panel and an output substrate having the photoelectric conversion element using a roller is considered to be an ordinary method as a method to form the imaging panel from the scintillator panel and the output substrate having the photoelectric conversion element, and it is inherently presented that, if a scintillator panel having a substrate is made of elastic resin material and an output substrate having the photoelectric conversion element using a roller, the scintillator panel changes its form into a form in line with the surface of the photoelectric conversion element.

And, as a person skilled in the art is capable of conceiving that the image quality including sharpness becomes uniform all over the light-receiving surface if the scintillator panel changes into a form in line with the form of surface of the photoelectric conversion element, the aforementioned effect alleged by the demandee could easily be conceivable by a person skilled in the art based on Evidence A No. 1, well-known art and technical common sense and is nothing special.

(E) Summary

As aforesaid, as Corrected Patent Invention 5 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 5 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(6) Corrected Patent Invention 6

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 6 with A1 Invention

Comparing Corrected Patent Invention 6 with A1 Invention, as "a base material 21b is a sheet or film made of polyimide resin having a thickness of 50 micrometers to 1 mm" and "titanium dioxide having a mean particle diameter within the range of 0.1-0.5 micrometers" of A1 Invention" correspond to "made of a flexible high polymer film having a thickness of 50 micrometers or greater and 500 micrometers or less" and "the aforementioned white pigment is a white pigment having a mean particle diameter of 0.1-3.0 micrometers" of Corrected Patent Invention 6 respectively, they are different in the different feature a and different feature c raised in "1" "(1)" (D)" and the different feature b' raised in the aforementioned "1" "(3)" (C)".

(C) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B Regarding the different feature b'

Same as the aforementioned "1" "(3)" "(D)" "B".

C Regarding the different feature c

Same as the aforementioned "1" "(1)" "(E)" "C".

(D) Summary

As aforesaid, as Corrected Patent Invention 6 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical

common sense, and as the patent pertaining to Corrected Patent Invention 6 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(7) Corrected Patent Invention 7

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 7 with A1 Invention

Comparing the invention citing Claim 5 of Corrected Patent Invention 7 with A1 Invention, as "a base material 21b is a sheet or film made of polyimide resin having a thickness of 50 micrometers to 1 mm" of A1 Invention corresponds to "the aforementioned high polymer film is made of polyimide (PI) or polyethylene naphthalate (PEN) film" of Corrected Patent Invention 7, they are different in the different feature a and the different feature b raised in the aforementioned "1" "(1)" (D)" and the different feature c' raised in the aforementioned "1" "(5)" (C)".

(C) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B Regarding the different feature b

Same as the aforementioned "1" "(1)" "(E)" "B".

C Regarding the different feature c'

Same as the aforementioned "1" "(5)" "(D)" "C".

(D) Summary

As aforesaid, as Corrected Patent Invention 7 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 7 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

(8) Corrected Patent Invention 8

(A) Invention described in Evidence A No. 1

A1 Invention is the invention as described in the aforementioned "1" "(1)" "(A)" "B".

(B) Comparison of Corrected Patent Invention 8 with A1 Invention

Comparing the invention citing Claim 1 of Corrected Patent Invention 8 with A1 Invention, they are further different, in addition to the different feature a, the different feature b and the different feature c raised in the aforementioned "1" "(1)" (D)", in the following point.

(C) Different feature between Corrected Patent Invention 8 and A1 Invention

e While "a thickness of the aforementioned reflection layer is 0.2-3.0 micrometers" in Corrected Patent Invention 8, "a thickness of layer" "of the defusing reflection layer" "is within the range of 15-100 micrometers".

(D) Judgment

A Regarding the different feature a

Same as the aforementioned "1" "(1)" "(E)" "A".

B Regarding the different feature b

Same as the aforementioned "1" "(1)" "(E)" "B".

C Regarding the different feature c

Same as the aforementioned "1" "(1)" "(E)" "C".

D Different feature e

Evidence A No. 1 describes that "As for a diffusing reflection layer, it is desirable to attain the rate of a light reflection high as much as possible at film thickness from a point of sensitivity and sharpness" (paragraph [0086]: the aforementioned "No. 6" "(1)" "(A)" "A" "(e)"), and it is inherently presented to a person skilled in the art that a thickness of "the defusing reflection layer" is decided suitably taking various element into account including light reflection material used, mean particle diameter of the light reflection material, density of the light reflection material in "the defusing reflection layer", desired sensitivity, desired sharpness,

desired light reflection rate, and, further considering that other elements are not described in Corrected Patent Invention 8 and as no specific technical meaning (marginal meaning) is recognized in a fact that only the thickness is restricted to "0.2-3.0 micrometers", the constitution that "the thickness" of "the defusing reflection layer" is 0.2-3.0 micrometers is just a matter that a person skilled in the art is capable of designing and changing suitably in A1 Invention.

(E) Summary

As aforesaid, as Corrected Patent Invention 8 could have easily been invented by a person skilled in the art based on A1 Invention, well-known art and technical common sense, and as the patent pertaining to Corrected Patent Invention 8 was granted in violation of the provisions of Article 29 (2) of the Patent Act and subject to the provisions of Article 123 (1)(ii) of the Patent Act, the patent in question should be invalidated.

2 Regarding reasons for invalidation 2 and 3

As described above, it is not necessary to examine reasons for invalidation 2 and 3 other than reason for invalidation 1.

No. 7 Conclusion

As aforesaid, the patent pertaining to the patent according to Claims 1 to 8 of the Patent No. 4725533 should be invalidated by reason for invalidation 1.

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.

June 24, 2014

Chief administrative judge: YOKOBAYASHI, Shujiro
Administrative judge: ITO, Masaya
Administrative judge: TSUCHIYA, Tomohisa