Trademark Right	Date	September 30, 2020	Court	Intellectual Property High Court, Fourth Division
	Case number	2020 (Ne) 10004		
- A case in which a correction does not fall under those which "substantially enlarge or alter the scope of claims" in Article 126, paragraph (6) of the Patent Act. - A case in which ruination of presumption in Article 102, paragraph (2) of the Patent Act was approved.				

Case type: Injunction and the like

Result: Modification of the prior instance judgment

References: Article 102 of the Patent Act before Amendment of Act No. 3 of 2019 (hereinafter, referred to simply as "Article 102 of the Patent Act"), paragraph (2), Article 123, paragraph (1), item (viii), Article 126, paragraph (6) of the Patent Act

Related rights, etc.: Patent No. 4366431, Correction No. 2018-390056

Judgment of the prior instance: Osaka District Court 2017 (Wa) 7532

Summary of the Judgment

1. First court Plaintiff, who is the patentee of the patent of the invention titled "LIGHT IRRADIATION DEVICE" (Patent No. 4366431), asserted that manufacture and sales of first court Defendant's products fall under infringement of the present patent right and claimed injunction of manufacture, sales, and the like and disposal of each of Defendant's products and payment of compensation for damage (preliminary claim for return of unjust enrichment for the period where establishment of prescription matters).

The judgment in prior instance approved the claim for injunction but dismissed the claim for disposal, and regarding the compensation for damage, the ruination was approved for the presumption pursuant to Article 102, paragraph (2) of the Patent Act with the reasons of low appeal of the present patent to customers and presence of competitive products and the like. For the period when the patent right was jointly owned, by holding that the estimation of the amount of damages on the ground of the same paragraph was partially ruined to the limit of the amount corresponding to the money which should be received for the working of the patented invention on the ground of the same Article, paragraph (3) by the joint-ownership interests of the other joint owners related to non-working, and the ruination was approved also from this viewpoint, and the claim was partially approved.

First court Plaintiff instituted an appeal against the portion in which the claim for compensation for damage was partially dismissed, with limitation of the range of the

appeal, and first court Defendant instituted an appeal against the whole portion in which first court Defendant failed.

2. With regard to the present patent, a request for correction was made twice during pending of the court of prior instance, and the requests were finalized. It is undisputable that each of Defendant's Products fulfills the constituent feature of the invention (hereinafter, referred to as the "Present Re-corrected Invention") after the second correction (hereinafter, referred to as the "Present Re-correction"), and the main issues were defense such as defense of invalidity by violation of the correction requirement and the amount of damages.

3. Defense of invalidity by violation of correction requirement

(1) The Present Re-correction is to correct the phrase in Claim 1 after the primary correction that "a light irradiation device in which the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages." to "a light irradiation device in which the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages, and a plurality of the LED substrates are aligned in series along the line direction."

(2) The scope of claims (Claim 1) after the primary correction does not have the recitation specifying the number of the "LED substrates", and the description recites a light irradiation device 1 having the structure "for accommodating two LED substrates 2 continuously in the longitudinal direction" in an accommodating recess portion 301 of a housing 3 as illustrated in Figures 1 and 2 as one of embodiments of the primary corrected invention, and it can be understood that the light irradiation device 1 having such structure has the structure that "a plurality of the LED substrates are aligned in series along the line direction." Then, the number of the "LED substrates" in the Primary Corrected Invention (Claim 1) is not limited to one but includes a plurality.

(3) The determination on whether they fall under "those which substantially enlarge or alter the scope of claims" in Article 126, paragraph (6) of the Patent Act should be made on the basis of the recitation in the scope of claims before and after the correction, and whether it falls under "substantial" enlargement or alteration is reasonably determined from a viewpoint on whether or not the correction would give an unexpected disadvantage to a third party who trusts indication in the scope of claims before the correction. In view of the circumstances in (2), it is not found that the Present Re-correction would give an unexpected disadvantage to a third party who trusts indication described in the scope of claims of the Primarily Corrected Invention,

and the Present Re-correction is not such correction that substantially enlarges or alters the scope of claims.

4. Amount of damages

(1) The technical meaning of the Present Re-corrected Invention is such that, since the number of LEDs to be mounted on the LED substrate can be made the same among LEDs with different forward voltages, the sizes of the LED substrates on which the LEDs with different forward voltages are mounted can be made the same, and the same article can be used as the housing for accommodating the LED substrate, the components such as the LED substrate and the housing can be made common, and such effects of reduction in the number of the components and the manufacturing costs can be exerted and the like. The white LED mounted product and the blue LED mounted product in each of Defendant's Products have the same forward voltages, and the LED substrate of the common size can be used and thus, there is no need to prepare an exclusive LED substrate and a housing for accommodating this for the red LED mounted product and the infrared LED mounted product with different forward voltages in the Present Re-corrected Invention, and a main effect is exerted in a point that the LED substrate of the size in common with the white LED mounted product and the blue LED mounted product and the same housing can be used, but the share of the sales numbers of the red LED mounted products and the infrared LED mounted products is extremely small. In addition, by considering presence of competitive products and the like, the contribution degree of the Present Re-corrected Invention to formation of the marginal profits of each of Defendant's Products was further decreased from that in the court of prior instance, and regarding the portion beyond this contribution degree, it was held that there is no reasonable causal relations between the amount of the marginal profits of each of Defendant's Products and the amount of damages incurred to the Appellant, and ruination of presumption was approved.

(2) When the patent right is related to joint ownership, each of the joint owners can work the patented invention without limitation regardless of the jointly-owned interests of himself/herself except unless otherwise agreed upon (Article 73, paragraph (2) of the Patent Act), while if one of two joint owners is to singularly make a claim for compensation for damage of the amount of damages on the ground of Article 102, paragraph (2) of the same Act, for example, the profits that the infringer received by the infringement is caused not only by the infringement on the jointly-owned right of the one joint owner but it is considered to be caused by the infringement on the jointly-owned right of the other joint owner and thus, the portion

corresponding to the amount of damages related to the infringement on the jointly-owned right of the other joint owner in the aforementioned amount of profits has no reasonable causal relations with the amount of damages suffered by the one joint owner. Thus, when the infringer asserts/proves that the patent right is jointly owned by the other joint owner, the presumption pursuant to the same paragraph shall be ruined to the limit of the amount of damages corresponding to the amount of the working fee on the ground of the same Article, paragraph (3) by the ratio of joint ownership interests of the other joint owner, and moreover, when the infringer asserts/proves that the other joint owner is working the patented invention, the presumption pursuant to the same Article, paragraph (2) shall be ruined to the limit of the amount of damages prorated in accordance with the degree of working of the other joint owner (ratio of the amounts of profits by working between the joint owners), and in this case ruination of presumption was approved to the limit of the amount corresponding to the working fee by the ratio of the joint ownership interests of the other joint owner.

Judgment rendered on September 30, 2020
2020 (Ne) 10004 An appeal case of seeking injunction and the like against infringement of patent right (Court of prior instance: Osaka District Court, 2017 (Wa) 7532)
Date of conclusion of oral argument: July 8, 2020

Judgment

Appellant and Appellee: CCS Inc. (hereinafter, referred to as "first court Plaintiff)

Appellant and Appellee: Leimac Ltd. (hereinafter, referred to as "first court Defendant)

Main text

1. The judgment in prior instance shall be changed as follows on the ground of the appeal by first court Defendant.
   (1) The first court Defendant may not manufacture, sell, or exhibit for sales of each of the products described in the attached lists 1 to 7 of Defendant's Products.
   (2) The first court Defendant shall pay to first court Plaintiff the money of 6,155,891 yen, and interest at the rate of 5% per annum for 4,659,192 yen among that from August 11, 2017 and for 1,496,699 yen from October 1, 2018 until completion of the payments.
2. The remaining claims by first court Plaintiff shall be dismissed. The appeal by first court Plaintiff shall be dismissed.
3. The court costs shall be divided into five parts throughout the first trial and the second trial, and four parts thereof shall be borne by first court Plaintiff and the remaining shall be borne by first court Defendant.
4. The clause 1(2) of this judgment may be provisionally executed.

Facts and reasons

No. 1 Object of the appeal

1. First court Plaintiff
   (1) The judgment in prior instance shall be changed as follows.
   (2) First court Defendant may not manufacture, sell, or exhibit for sales of each of the products described in the attached lists 1 to 7 of Defendant's Products.
   (3) First court Defendant shall pay to first court Plaintiff the money of 51,522,245 yen, and interest at the rate of 5% per annum for 37,809,768 yen among that from August 11, 2017 and for 13,712,477 yen from October 1, 2018 until completion of the payments.
2. First court Defendant
   (1) In the judgment in prior instance, the portion where first court Defendant failed shall be rescinded.
   (2) With regard to the portion in the preceding clause, all of the claims by the first court Plaintiff shall be dismissed.

No. 2 Outline of the case (the abbreviations follow the judgment in prior instance unless otherwise described.)

1. Outline of the case

This case is a case in which first court Plaintiff, who is the patent right holder of the patent of the invention titled "light irradiation device" (Patent No. 4366431, hereinafter this patent shall be referred to as the "Present Patent", and the patent right according to the present patent shall be referred to as the "Present Patent Right") asserted that manufacture and sales of each of the products described in the attached lists 1 to 7 of Defendant's Products by first court Defendant (hereinafter, they shall be collectively referred to as "each of Defendant's Products" and each shall be referred to as "Defendant's Product 1" and the like according to the number described in the lists) fall under infringement of the Present Patent Right and claimed from first court Defendant [i] injunction of the manufacture, sales, and the like of each of Defendant's Products on the ground of Article 100, paragraph (1) of the Patent Act; [ii] disposal of each of Defendant's Products on the ground of paragraph (2) of the same Article; and [iii] payment of 103,074,986 yen as compensation for damage on the ground of a tort of infringement of the Present Patent Right (the total amount of the amount of damages of 93,704,533 yen on the ground of Article 102, paragraph (2) of the Patent Act before revision by 2019 Law No. 3 (hereinafter referred to simply as "Article 102 of the Patent Act") and the amount corresponding to costs of attorney and patent attorney of 9,370,453 yen) and delay damages at the rate of 5% per annum prescribed

in the Civil Code before revision by 2017 Law No. 44 (hereinafter referred to simply as the "5% per annum prescribed in the Civil Code") for 78,129,991 yen among that from August 11, 2017 (the day following the date of service of the complaint) and for 24,944,995 yen from October 1, 2018 (after the date of the last sales) until completion of the payments, and 1,022,415 yen as the preliminary claim related to the sold portion of Defendant's Products 1 to 6 (hereinafter, the sold portion in the "present period 1" in the attached table for calculating the amount of damages asserted by Plaintiff) on the ground of the claim for return of unjust enrichment and the interest for that at the rate of 5% per annum from August 11, 2017 until completion of the payment.

The court of prior instance partially approved, in the claims by first court Plaintiff of the claim for injunction of each of Defendant's Products in the aforementioned [i] and the claim for compensation for damage in the aforementioned [iii], payment to the limit of 10,004,068 yen (the amount of "total" in the [vii] column in the attached table for calculating the amount of damages in the judgment in prior instance) and of delay damages for 7,269,573 yen from August 11, 2017 and for 2,734,495 yen from October 1, 2018 until completion of the payments, and dismissed the remaining claims.

First court Plaintiff asserted that the judgment in prior instance has errors in the determination related to the grounds for ruination of presumption in Article 102, paragraph (2) of the Patent Act, instituted an appeal against the judgment in prior instance to the limit of the object of the appeal (the breakdown is as described in the attached table for calculating the amount of damages asserted by Plaintiff) in the portion in which first court Plaintiff failed, and first court Defendant instituted an appeal against the whole portion in which first court Defendant failed.

2. Basic facts (facts not indicating evidences are undisputable facts or facts found by the entire import of the oral argument.)

(1) Parties

A. First court Plaintiff is a stock company with the purpose of manufacture, sales, and the like of optical equipment.

B. First court Defendant is a stock company with the purpose of manufacture, construction, sales, and the like of industrial electric machine equipment/devices.

(2) History and the like of request for a trial for correction and request for a trial for invalidation related to the Present Patent

A. First court Plaintiff filed a patent application (Patent Application No. 2008-197040 Hereinafter referred to as the "present application") according to the Present Patent on July 30, 2008 and granted registration of establishment of the Present Patent Right

(number of claims: 3) on August 28, 2009 (Exhibits Ko 1 and Ko 2).

First court Plaintiff assigned one-half of the joint-ownership interest of the Present Patent Right to Mitsubishi Chemical Corporation (hereinafter, referred to as "Mitsubishi Chemical") on August 11, 2010 on the basis of a business cooperation basic contract as of July 26 of the same year concluded between first court Plaintiff, Mitsubishi Chemical, and A (hereinafter, referred to as the "present business cooperation contract", Exhibit Ko 16-1) and went through an assignment registration (received on August 26 of the same year) of the Present Patent Right with that effect (Exhibit Ko 1).

After that, Mitsubishi Chemical assigned one-half of the joint-ownership interest of the Present Patent Right to first court Plaintiff and went through registration of the share assignment with that effect (received on November 21, 2014) (Exhibit Ko 1).

B. First court Plaintiff instituted the present lawsuit on August 3, 2017.

After that, first court Plaintiff corrected Claims 1 and 3 in the scope of claims of the Present Patent on December 25 of the same year, made a request for a correction trial with the purport that Claim 2 shall be deleted (Correction No. 2017-390157, hereinafter, the correction according to this correction trial request shall be referred to as the "primary correction", Exhibit Ko 8), the JPO decision approving the primary correction (Exhibit Ko 10) was rendered on March 20, 2018, and the JPO decision became final on the 29th of the same month (Exhibit Ko 26).

On the 15th of the month during that period, first court Plaintiff made a request for a correction trial with the effect of correcting Claim 1 in the scope of claims after the primary correction (Correction No. 2018-390056 case, Hereinafter, the correction according to this correction trial request shall be referred to as the "present re-correction", Exhibit Ko 9), the JPO decision approving the present re-correction (hereinafter, referred to as the "present correction JPO decision) was rendered on June 15 of the same year, and the present correction JPO decision became final on the 25th of the same month (Exhibit Ko 26).

C. Meanwhile, first court Defendant made a request for a patent invalidation trial for the Present Patent on April 26, 2018 (Invalidation No. 2018-800050, hereinafter, referred to as "other invalidation trial", Exhibit Ko 23).

After that, the Japan Patent Office held that no invalidation reason is found in the Present Patent according to Claims 1 and 3 after the present re-correction for the other invalidation trial on May 8, 2019, and rendered the decision of the JPO dismissing the request for a trial for invalidation of the patent (hereinafter, referred to as "other JPO decision, Exhibit Ko 23).

First court Defendant instituted a lawsuit against the JPO decision to seek rescission of the other JPO decision (Intellectual Property High Court, 2019 (Gyo-Ke) 10074 case) on the 24th of the same month, but the court rendered the judgment dismissing the request by first court Defendant (hereinafter, referred to as "other judgment" Exhibit Ko 24) on December 23 of the same year.

First court Defendant appealed against the other judgment and made a petition for the acceptance of a final appeal on the 28th of the same month (Exhibit Ko 26).

(3) Recitation in the scope of claims

A. At registration of establishment

The recitation in Claims 1 to 3 in the scope of claims at the registration of establishment of the Present Patent is as follows (hereinafter, the invention according to Claim 1 of the same will in some cases be referred to as the "Present Initial Invention", Exhibit Ko 2).

[Claim 1]

A light irradiation device comprising:

an LED substrate on which a plurality of identical LEDs are mounted; and

a housing having a substrate accommodating space for accommodating the LED substrate, wherein

the number of LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number; and

the number of LEDs mounted on the LED substrate is set to a common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages.

[Claim 2]

The light irradiation device according to Claim 1, wherein

the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages.

[Claim 3]

The light irradiation device according to Claim 1 or 2, wherein

the LED is a surface-mount type LED.

B. After primary correction

The recitation in Claims 1 and 3 in the scope of claims after the primary correction is as follows (the underlined parts are corrected parts by the primary correction, hereinafter, the invention according to Claim 1 after the primary correction

shall be referred to as the "Primary Corrected Invention", Exhibits Ko 8 and Ko 10). Claim 2 was deleted by the primary correction.

[Claim 1]

A light irradiation device for emitting line light, comprising:

an LED substrate on which a plurality of identical LEDs are mounted; and

a housing having a substrate accommodating space for accommodating the LED substrate, wherein

the number of LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number; and

the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages.

[Claim 3]

The light irradiation device according to Claim 1, wherein

the LED is a surface-mount type LED.

C. After the present re-correction

The recitation in Claim 1 in the scope of claims after the present re-correction is as follows (the underlined parts are corrected parts by the present re-correction, hereinafter, the invention according to Claim 1 after the present re-correction shall be referred to as the "Present Re-corrected Invention", Exhibits Ko 9 and 11).

[Claim 1]

A light irradiation device for emitting line light, comprising:

an LED substrate on which a plurality of identical LEDs are mounted; and

a housing having a substrate accommodating space for accommodating the LED substrate, wherein

the number of LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number;

the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages; and

a plurality of the LED substrates are aligned in series along the line direction.

(4) Separate description of constituent features of the Present Re-corrected Invention

The Present Re-corrected Invention is separately described by means of constituent features as follows.

[Present Re-corrected Invention]

C., G. A light irradiation device for emitting line light, comprising:

A. an LED substrate on which a plurality of identical LEDs are mounted; and

B. a housing having a substrate accommodating space for accommodating the LED substrate, wherein

D. the number of LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number;

E. the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages; and

F. a plurality of the LED substrates are aligned in series along the line direction.

(5) Acts and the like of first court Defendant

A. First court Defendant manufactured and sold each of Defendant's Products (Exhibits Ko 3 to 5) for a period from July, 2012 to September, 2018.

B. Outlines of the structure of each of Defendant's Products are as described in the attached article explanation (however, the voltages are approximate numerical values, and Defendant's Product 1 which is a white LED mounted product and Defendant's Product 3 which is a blue LED mounted product have the same forward voltage, and Defendant's Product 4 which is a white LED mounted product and Defendant's Product 6 which is a blue LED mounted product have the same forward voltage, and height dimensions of the substrates are all "33 mm").

Each of Defendant's Products fulfills all the constituent features A to G of the Present Re-corrected Invention.

3. Issues

(1) Establishment of defense of invalidity (issue 1)

A. Violation of correction requirement (invalidation reason 1)

B. Lack of inventive step, with the inventions according to IDB-11/14R and IDB-11/14W (publicly worked inventions) as primary cited references (invalidation reason 2)

C. Lack of inventive step, with the inventions according to IDB-C11/14R and IDB-C11/14B (publicly worked inventions) as primary cited references (invalidation reason 3)

D. Lack of novelty or lack of inventive step, with the inventions according to IDB-L600/20RS and IDB-L600/20WS (publicly worked inventions) as primary cited references (invalidation reason 4)

E. Violation of support requirement (invalidation reason 5)

(2) Establishment of prior use right (issue 2)

A. Establishment of prior use right on the basis of the inventions according to IDB-11/14R and IDB-11/14W (issue 2-1)

B. Establishment of prior use right on the basis of the inventions according to IDB-C11/14R and IDB-C11/14B (issue 2-2)

C. Establishment of prior use right on the basis of the inventions according to IDB-L600/20RS and IDB-L600/20WS (issue 2-3)

D. Establishment of prior use right on the basis of the inventions according to IDR-F60/32R and IDR-F60/32W (issue 2-4)

E. Establishment of prior use right on the basis of the inventions according to LR-F60/32R and LR-F60/32W (issue 2-5)

(3) Establishment of defense of free art (issue 3)

(4) Establishment of defense that functions and effect do not exert effect (issue 4)

(5) Presence/absence of negligence of first court Defendant (issue 5)

(6) Amount of damages awarded to first court Plaintiff (issue 6)

(7) Establishment of extinctive prescription (issue 7)

(8) Amount of profit of first court Defendant (issue 8) (preliminary claim)

(omitted)

No. 4 Judgment of this court

1. Recited matters in the present description

(1) The detailed description of the invention in the present description (Exhibit Ko 2) has the following recitation (for "Figure 1" to "Figure 7" cited in the following recitation, see the drawings in the attached description).

A. [Technical Field]

[0001]

The Present Invention relates to a light irradiation device which can emit line light, for example, by using a plurality of LEDs and particularly to those suitably used for inspection of presence/absence of a scratch in a predetermined irradiation area of a work (product) and reading of marks and the like.

[Background Art]

[0002]

The light irradiation device such as the line light irradiation device or the like includes an elongated LED substrate on which a plurality of LEDs are mounted and a housing for accommodating this LED substrate as illustrated in Patent Document 1.

[0003]

In this light irradiation device, with regard to the number of LEDs mounted on the LED substrate, the number of LEDs connected in series is limited in view of a relation between a power voltage V_E and a forward voltage V_f of the LED.

[0004]

In the case where the power voltage V_E is 24 V, for example, the forward voltage V_f of the red LED is approximately 2.2 V, and the number of the red LEDs mounted on the LED substrate is 10. Moreover, the forward voltage V_f in the case of the white LED is approximately 3.3 V, and the number of the white LEDs mounted on the LED substrate is 6. Furthermore, the forward voltage V_f in the case of the infrared LED is approximately 1.5 V, and the number of the infrared LEDs mounted on the LED substrate is 15.

[0005]

However, since the numbers of the LEDs mounted on the LED substrates are different as described above, the sizes of the LED substrates are different, and an exclusive LED substrate needs to be prepared for each of the LED types. Moreover, the housing for accommodating the LED substrate is also different depending on the type of the LED and needs to be prepared, respectively, which is a problem.

[Technical Problem]

[0006]

Thus, the Present Invention was made in order to solve the problems simultaneously and has a main desired object to realize reduction in the number of components and reduction in a manufacturing cost by making the sizes of the LED substrates the same and by commonalizing the components.

B. [Solution to Problems]

[0007]

That is, the light irradiation device according to the Present Invention is a light irradiation device including an LED substrate on which a plurality of identical LEDs are mounted and a housing having a substrate accommodating space for accommodating the LED substrate and is characterized in that the number of the LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number, and the number of the LEDs mounted on the LED substrate is a common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages.

[0008]

With the above, the number of the LEDs mounted on the LED substrate can be set to a common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages, and the numbers to be mounted on the LED substrates can be made the same for the LEDs with different forward voltages, and the sizes of the LED substrates on which the LEDs with different forward voltages are mounted can be made the same. Moreover, when the light irradiation device using the LEDs with different forward voltages is to be manufactured, the same item can be used as the housing for accommodating the LED substrate. As a result, in the manufacture of the light irradiation device, the components such as the LED substrate and the housing can be commonalized, the number of components can be reduced, and the manufacturing cost can be reduced.

[0009]

In order to improve general-purpose utility not only by making the size of the LED substrates the same but also by making the sizes as small as possible, the number of the LEDs mounted on the LED substrate is desirably a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages.

[0010]

If the LED to be mounted on the LED substrate is a surface-mount type (chip type) LED, an optical lens needs to be provided in front of the LED. At this time, exclusive optical lenses need to be prepared in accordance with the number of the LEDs to be mounted on the LED substrate. According to the Present Invention, when the surface-mount type LED is to be mounted on the LED substrate, a common optical lens can be used by making the number thereof a common multiple of the LED unit numbers so that the numbers of the LEDs to be mounted are made the same even if the forward voltages thereof are different, and the effect of the Present Invention can be made more marked.

[Advantageous Effect of Invention]

[0011]

As described above, according to the Present Invention, the number of components and the manufacturing cost can be reduced by making the sizes of the LED substrates the same.

C. [Description of Embodiments]

[0012]

Subsequently, an embodiment of a light irradiation device 1 according to the Present Invention will be described by referring to the drawings. Figure 1 is a

perspective view illustrating a light irradiation device 1 of this embodiment, Figure 2 is a sectional view of the light irradiation device 1, Figure 3 is a plan view of an LED substrate 2 on which an LED 21 is mounted, Figure 4 is a circuit diagram when a red LED 21 is mounted, Figure 5 is a circuit diagram when a white LED 21 is mounted, and Figure 6 is a circuit diagram when an infrared LED 21 is mounted.

[0014]

The light irradiation device 1 according to this embodiment is for emitting line light to a predetermined irradiation area of an article to be inspected (work), for example, and is used for a product inspection system or the like for performing automatic surface inspection on presence/absence of a scratch or the like by photographing the predetermined irradiation area by an image pickup device (not shown) and by taking in obtained image data by an image processing device (not shown).

[0015]

More specifically, this includes the LED substrate 2, a housing 3, a heat transfer member 4, and a pressing member 5 as illustrated in Figures 1 and 2.

[0016]

The LED substrate 2 is an elongated substrate on which a plurality of identical LEDs 21 are mounted as illustrated in Figure 3. More specifically, the LED substrate 2 is mechanically mounted in one row or in plural rows (three rows in the figure) in a short side direction so that a plurality of the LEDs 21 become linear in a long side direction with optical axes aligned substantially in a certain direction on the surface of the elongated printed circuit board. To the LED 21, a voltage from a power supply, not shown, is controlled and supplied by a voltage control circuit, not shown, and is of a surface-mount type (chip type) in which an LED element 212 is disposed at a center of a package 211 having a thin rectangular plate shape, for example. Such LEDs 21 are disposed so that the LED elements 212 are aligned at a predetermined interval in the long side direction and in the short side direction, respectively, for example.

[0017]

The housing 3 has an accommodating recess portion 301 forming a substrate accommodating space for accommodating the LED substrate 2 as illustrated in Figures 1 and 2. More specifically, the housing 3 is made of elongated metal and has a substantially U-shaped section orthogonal to the longitudinal direction (extension direction), and the accommodating recess portion 301 is formed by left and right side walls 31 and 32 and a bottom wall 33. The accommodating recess portion

301 of this embodiment accommodates two LED substrates 2 continuously in the longitudinal direction. Moreover, the housing 3 has a single body molded by extrusion or pultrusion, a plurality of grooves 3M extending in the longitudinal direction are provided on outer peripheral surfaces of the left and right side walls 31 and 32 and the bottom wall 33, and projecting streaks formed between them are constituted to play a role of radiation fins F. Moreover, the heat transfer member 4 is provided between the accommodating recess portion 301 and the LED substrate 2 so as to transfer heat generated by the LED substrate 2 to the housing 3.

[0019]

The pressing member 5 has a plurality of lens portions 501 corresponding to each of the plurality of LEDs 21 as illustrated in Figure 2 and presses a long-side end portion 201 of the LED substrate 2 toward a bottom surface of the accommodating recess portion 301 of the housing 3. In this embodiment, the pressing members 5 are provided continuously in series so as to correspond to the respective LED substrates 2 (see Figure 1).

[0020]

More specifically, the pressing member 5 has a substantially H-shaped section orthogonal to the longitudinal direction, for example, and is constituted by a lens forming portion 51 on which the lens portion 501 is formed and a flange portion 52 formed on both ends on the long side of the lens forming portion 51 and orthogonal to the lens forming portion 51. The flange portion 52 is arranged by facing the left and right side walls 31 and 32 of the housing 3 when the pressing member 5 is accommodated in the accommodating recess portion 301. Substantially the whole surface of a lower end surface 521 of the flange portion 52 is in contact with the long-side end portion 201 of the LED substrate 2, for more specifically with an upper surface on an outer side from the LED 21 in the LED substrate 2. As a result, a substantially uniform force is applied to the long-side end portion 201 of the LED substrate 2, whereby deflection of the LED substrate 2 toward the longitudinal direction can be prevented. Moreover, the flange portion 52 is set so that substantially all the light emitted from the LED 21 passes through the lens portion 501 in a state where the lower end surface 521 of the flange portion 52 is in contact with the long-side end portion 201 of the LED substrate 2.

[0021]

The pressing member 5 is fixed to the housing 3 by a fixing mechanism 6 constituted by a first surface 61 provided on either one of the housing 3 and the pressing member 5 and facing a bottom surface side of the accommodating recess

portion 301 as illustrated in a partially enlarged view in Figure 2 and a second surface 62 provided on the other of the housing 3 and the pressing member 5 and facing an opening side of the accommodating recess portion 301 in contact with the first surface 61.

[0022]

Moreover, a positioning mechanism for positioning is included so that center axes of the plurality of lens portions 501 are matched with the optical axes of the plurality of LEDs 21 by fitting of a projecting portion (not shown) provided on one of the LED substrate 2 and the pressing member 5 with a recess portion (not shown) provided on the other of the LED substrate 2 and the pressing member 5 and to be fitted with the projecting portion in the state where the first surface 61 and the second surface 62 of the fixing mechanism 6 are in contact. By means of this positioning mechanism, the LED 21 and the lens portion 501 are positioned in the long side direction and in the short side direction.

D. [0023]

Thus, the number of the LEDs 21 mounted on the LED substrate 2 of this embodiment is set to a least common multiple of the LED unit numbers determined for each of the LEDs 21 of different types. The LEDs 21 with different types include not only the LEDs with emitted light with different wavelengths but also LEDs with different numbers of LED elements disposed on the package 211 even if the wavelengths of the emitted light are the same. In any case, the packages 211 of the LEDs 21 of the different types preferably have the same shape. Moreover, a method for determining the number of the LEDs 21 to be mounted on the LED substrate 2 is effective only when the plurality of LEDs 21 are voltage-controlled.

[0024]

Here, the "LED unit number" is the number of the LEDs 21 such that a difference (V_E - V_f × N) between the power voltage V_E and the total (V_f × N) of the forward voltage V_f when the LEDs 21 are connected in series is within a predetermined allowable range, and the number of the LEDs 21 connected in series to the power voltage V_E.

[0025]

The forward voltage V_f in this embodiment is the forward voltage of each of the packaged LEDs 21. Moreover, the "predetermined allowable range" is determined by the condition which can realize a desired irradiation area by one or a plurality of the LED substrates 2 (more specifically, the condition that the least common multiple of the LED unit numbers determined for each of the LEDs 21 of different types is

made as small as possible) and the condition that the LED unit number is made as large as possible for each of the LEDs 21 of different types when the LEDs 21 are mounted on the LED substrate 2 by the common multiple of the LED unit numbers determined for each of the LEDs 21 of different types.

[0026]

There will be described a case in which the light irradiation device 1 to be incorporated and used in an FA (industrial automatic device), for example; that is, the light irradiation device 1 of three types; that is, the red LED 21, the white LED 21, and the infrared LED 21, is to be manufactured, when the power voltage V_E is a DC voltage of 24V.

[0027]

The forward voltage V_f of the red LED 21 is approximately 2.2V, and the number of the red LEDs 21 that can be connected in series to the power voltage V_E is 10. That is, the LED unit number of the red LED 21 is 10.

[0028]

Moreover, the forward voltage V_f of the white LED 21 is approximately 3.3V, and the number of the white LEDs 21 that can be connected in series to the power voltage V_E is 6. That is, the LED unit number of the white LED 21 is 6. The number of the white LED 21 that can be connected in series can be 7, but in relation with the LED unit numbers of the LEDs 21 of the other types, the value is set so as to make the least common multiple as small as possible.

[0029]

Moreover, the forward voltage V_f of the infrared LED 21 is approximately 1.5V, and the number of the infrared LEDs 21 that can be connected in series to the power voltage V_E is 15. That is, the LED unit number of the infrared LED 21 is 15.

[0030]

The number 30; that is, the least common multiple of the LED unit number of the red LED 21 (10), the LED unit number of the white LED 21 (6), and the LED unit number of the infrared LED 21 (15) is set to the number of the LEDs 21 to be mounted on the LED substrates 2 in each color.

[0031]

As a method of connecting each of the LEDs 21 on the circuit, the LEDs 21 in the number corresponding to the LED unit number are connected in series, and the serially connected LED group is connected in parallel so as to be the least common multiple. That is, in the case of the red LED 21, as illustrated in Figure 4, 10 pieces of the red LEDs 21 are connected in series so as to have the red LED group, and they

are connected in parallel so that the number of the red LEDs 21 becomes 30 in total (that is, three rows of the red LED groups). Moreover, in the case of the white LED 21, as illustrated in Figure 5, 6 pieces of the white LEDs 21 are connected in series so as to have the white LED group, and they are connected in parallel so that the number of the white LEDs 21 becomes 30 in total (that is, five rows of the white LED groups). Furthermore, in the case of the infrared LED 21, as illustrated in Figure 6, 15 pieces of the infrared LEDs 21 are connected in series so as to have the infrared LED group, and they are connected in parallel so that the number of the infrared LEDs 21 becomes 30 in total (that is, two rows of the infrared LED groups).

[0032]

As a disposition mode of the LEDs 21 on the LED substrate 2, the LED substrates 2 in each color are the same, and as described above, the LEDs 21 are disposed in plural rows (three rows in Figure 3) so as to be linear in the long side direction with the optical axes substantially in the certain direction as illustrated in Figure 3.

E. [0033]

<Advantageous Effect of the Embodiment>

[0034]

According to the light irradiation device 1 according to this embodiment constituted as above, since the number of the LEDs 21 to be mounted on the LED substrate 2 is set to the least common multiple of the LED unit numbers of the LEDs 21 of different types, which is the same even for the LEDs 21 with different types, the sizes of the LED substrates 2 on which the LEDs 21 of different types are mounted can be made the same. Moreover, when the light irradiation device 1 using the LEDs 21 of different types is to be manufactured, the identical article can be used as the housing 3 for accommodating the LED substrate 2. As a result, in the manufacture of the light irradiation device 1, the components of the LED substrate 2 and the housing 3 and the like can be made common, and the number of the components can be reduced, whereby the manufacturing cost can be reduced.

[0035]

Moreover, not only can the sizes of the LED substrates 2 be made the same, the numbers of the LEDs are the same and thus, the position of the LED 21 on the LED substrate 2 can be made the same for each of the LEDs 21 in each color, and even if a lens member (the pressing member 5 in this embodiment) is provided in front of the LED 21, the same lens member (pressing member 5) can be used regardless of the type of the LED 21, the lens member (pressing member 5) can have general-purpose utility, the number of components can be reduced, and the manufacturing cost can be

reduced.

[0036]

Moreover, since the number of LEDs 21 to be mounted on the LED substrate 2 is set to the least common multiple of the LED unit numbers of the LEDs 21 of different types, the size of the LED substrate 2 can be made as small as possible, whereby the general-purpose utility can be improved.

F. [0037]

<Other modified embodiments>

[0038]

The Present Invention is not limited to the aforementioned embodiment. In the following description, the same reference numerals are assigned to the members corresponding to those in the aforementioned embodiment.

[0039]

The pressing member 5 of the aforementioned embodiment includes a plurality of the lens portions 501, for example, but in the case where the LED 21 to be mounted on the LED substrate 2 is of a bullet type, as illustrated in Figure 7, the pressing member 5 may have a through hole 502 provided correspondingly to each of the plurality of the LEDs 21. With this, a mold portion 213 of the bullet-type LED 21 has a structure that can be inserted into the through hole 502, and the light emitted from the mold portion 213 can be emitted as it is to the outside. Alternatively, even in the case of the surface-mount type LED 21, the light emitted from the surface-mount type LED 21 can be emitted as it is to the outside.

[0040]

Moreover, the light irradiation device 1 of the embodiment may include a diffuser plate which diffuses the light from the LED 21, or an optical filter which selectively transmits only a predetermined wavelength.

[0041]

Moreover, by making the LED substrate correspond to the pressing member, the numbers of the LED substrates and the pressing members aligned in series may be changed so that the length of the light irradiation device is changed.

[0042]

In addition, by preparing a plurality of the pressing members having lens portions with different curvatures and by changing the pressing member to be fixed to the housing, the curvature of the lens portion can be changed, and the light irradiation device having directivity according to various purposes can be manufactured.

[0043]

Moreover, in the aforementioned embodiment, although the number of the LEDs is set to the least common multiple, it may be other multiples.

[0044]

Furthermore, the light irradiation device of the aforementioned embodiment has a substantially cuboid shape, and the LED substrate has an elongated shape, but they are not limiting. In the case where the light irradiation device has a substantially annular shape, for example, the LED substrate may have a partially annular shape.

[0045]

In addition, a part or the whole of the aforementioned embodiment or modified embodiments may be combined as appropriate, and it is needless to say that the Present Invention is not limited to the aforementioned embodiment but is capable of various modifications within a range not departing from its purpose.

(2) According to the described matter in the aforementioned (1), the detailed description of the invention in the present description is found to disclose the following in relation with the present re-corrected invention.

A. Conventionally, in the light irradiation device including the LED substrate on which the plurality of LEDs are mounted and the housing for accommodating this LED substrate and emitting the line light, the number of LEDs connected in series is limited from the relation between the power voltage V_E and the forward voltage V_f of the LED, the number of LEDs to be mounted on the LED substrate is different for each type of the LEDs with different forward voltages of the LEDs, and the sizes of the LED substrates are different and thus, there has been a problem that the exclusive LED substrate and the housing for accommodating the LED substrate need to be prepared for each type of the LEDs ([0001] to [0005]).

B. The "Present Invention" has a main object to solve the aforementioned problem and to realize reduction of the number of components and reduction of the manufacturing costs by making the sizes of the LED substrates the same and by commonalizing the components in the light irradiation device using the LEDs of the types with different forward voltages, and as means for solving the problem, such a structure was employed that the number of LEDs for which the difference between the power voltage and the total of the forward voltages when the LEDs are connected in series is within the predetermined allowable range is set to the LED unit number, and the number of LEDs to be mounted on the LED substrate is set to the "least common multiple" of the LED unit numbers determined for each of the LEDs with different forward voltages ([0006], [0007]).

As a result, in the "Present Invention", the numbers of the LEDs to be mounted

on the LED substrates can be made the same among the LEDs with different forward voltages, the sizes of the LED substrates on which the LEDs with different forward voltages are mounted can be made the same, and the same article can be used as a housing for accommodating the LED substrate. Thus, in the manufacture of the light irradiation device, such effects can be exerted that the components such as the LED substrate and the housing and the like can be commonalized, the number of components can be reduced, and the manufacturing costs can be reduced, and moreover, not only can the sizes of the LED substrates on which the LEDs with different forward voltages are mounted be made the same, but also the size of the LED substrate can be made as small as possible, whereby the general-purpose utility can be improved ([0008], [0009], [0011], [0036]).

C. The light irradiation device 1 according to the embodiment of the "Present Invention" is for emitting the line light to the predetermined irradiation area on an article to be inspected (work), for example, and is used for a product inspection system and the like for photographing the predetermined irradiation area by an image pickup device, for taking in the obtained image data by an image processing device, and for performing automatic surface inspection on presence/absence of a scratch or the like, and as illustrated in Figures 1 and 2, it includes the LED substrate 2, the housing 3, the heat transfer member 4, and the pressing member 5 ([0012], [0014], [0015]), and the housing 3 has the accommodating recess portion 301 forming the substrate accommodating space for accommodating the LED substrate 2, and the accommodating recess portion 301 has the structure that "accommodates two LED substrates 2 continuously in the longitudinal direction" ([0017]). The length of the light irradiation device may be changed by changing the numbers of the LED substrates and the pressing member to be aligned in series ([0041]).

2. Issue 1 (establishment of defense of invalidity)

(1) Invalidation reason 1 (violation of correction requirement)

First court Defendant asserted that the present re-correction adds a feature portion that the LED substrates are aligned to the invention-specifying matter in the present initial invention having the feature portion only of the structure of the LED substrate, and since a person ordinarily skilled in the art could not expect such addition of the invention-specifying matter, the present re-correction would give an unexpected disadvantage to a third party, and the present re-correction falls under those which "substantially enlarge or alter the claims" in Article 126, paragraph (6) of the Patent Act and violates the correction requirement in the

paragraph and thus, the Present Patent according to the present re-correction invention has reasons of invalidation (invalidation reasons 1) in Article 123, paragraph (1), item (viii) of the Act. Therefore, determination shall be made as follows.

A. Corrected matter according to the present re-correction

The JPO decision approving the primary correction became final on March 29, 2018 is as described in No. 2, 2(2)b. The present re-correction corrects the "light irradiation device in which the number of LEDs to be mounted on the LED substrate is set to the least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages." in Claim 1 after the primary correction to the "light irradiation device in which the number of LEDs to be mounted on the LED substrate is set to the least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages, and the plurality of LED substrates are aligned in series along the line direction.".

B. Meaning of the "LED substrate" in the scope of claims (Claim 1) of the present re-corrected invention

(A) The scope of claims (Claim 1) after the primary correction is the "light irradiation device emitting line light and comprising an LED substrate on which a plurality of the same LEDs are mounted and a housing having a substrate accommodating space for accommodating the LED substrate, wherein the number of LEDs for which a difference between a power voltage and a total of forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to an LED unit number; and the number of LEDs mounted on the LED substrate is set to a least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages."

According to the aforementioned recitation, it can be understood that the "LED substrate" in the primary corrected invention is "accommodated" in the "housing having a substrate accommodating space" "included" in the "light irradiation device for emitting line light" and on which a "plurality of identical LEDs are mounted", and the "number of the LEDs to be mounted" on the "LED substrate" is set to the "least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages".

On the other hand, the scope of claims (Claim 1) after the primary correction does not have recitation specifying the number of the "LED substrates".

(B) Subsequently, according to the disclosed matter of the present description in the aforementioned 1(2)A and B, the technical meaning of the primary corrected

invention is, in the light irradiation device for emitting the line light by using the LEDs of the types with different forward voltages and having a main object to realize reduction of the number of components and reduction of the manufacturing costs by making the sizes of the LED substrates the same and by communalizing the components, in the light irradiation device using the LEDs with different forward voltages, the numbers of the LEDs to be mounted on the LED substrate can be made the same among the LEDs with the different forward voltages and the sizes of the LED substrates on which the LEDs with the different forward voltages are mounted can be made the same by employing the structure that the number of LEDs for which the difference between the power voltage and the total of the forward voltages when the LEDs are connected in series is within the predetermined allowable range is set to the LED unit number, and the number of the LEDs to be mounted on the LED substrate is set to the "least common multiple" of the LED unit numbers determined for each of the LEDs with the different forward voltages, and since the same housing can be used for accommodating the LED substrate, such effects can be exerted that the components such as the LED substrate and the housing can be made common, the number of components can be reduced, and the manufacturing costs can be reduced and moreover, such effects are found to be exerted that the size of the LED substrate is made as small as possible, and the general-purpose utility is improved.

Moreover, according to the disclosed matter of the present description in the aforementioned 1(2)C, it is found that the present description describes the light irradiation device 1 having the structure that "accommodates two LED substrates 2 continuously in the longitudinal direction" in the accommodating recess portion 301 of the housing 3 ([0017]) as illustrated in Figures 1 and 2 as one of embodiments of the primary corrected invention. From the aforementioned recitation, it can be understood that the light irradiation device 1 with the aforementioned structure has the structure in which "the plurality of LED substrates are aligned in series along the line direction".

(C) By comprehensively examining the recitation in the scope of claims (Claim 1) after the primary correction and the recitation in the present description above, it is interpreted that the number of the "LED substrates" in the primary corrected invention (Claim 1) is not limited to one but also includes a plurality thereof.

C. Appropriateness of correction

Once a JPO decision to the effect that the correction should be made has become final, the correction takes effect retroactively to the time of filing (Article 128 of the Patent Act), and by considering that the effect of the patent right of the patent

invention for which the technical scope is specified on the basis of the recitation in the corrected scope of claims exerts influence on a third party, the determination on whether or not it is one of those which "substantially enlarge or alter the scope of claims" in Article 126, paragraph (6) of the Patent Act should be made on the basis of the recitations in the scope of claims before and after the correction, and it is reasonable to be determined from a viewpoint on whether or not the correction would give an unexpected disadvantage to a third party who trusts indication of the scope of claims before the correction.

By considering that regarding this case, the corrected matter by the present re-correction is as described in the aforementioned A, and Claim 1 after the primary correction before the present re-correction did not specify the number or specific disposition of the LED substrates, the present re-correction specifies the structure in which "a plurality of the LED substrates are aligned in series along the line direction".

Then, as described in the aforementioned B, the number of the "LED substrates" in the primary corrected invention (Claim 1) is not limited to one but is interpreted to include a plurality thereof, and the present description has recitation of the light irradiation device 1 with the structure that "accommodates two LED substrates 2 continuously in the longitudinal direction" ([0017]) in the accommodating recess portion 301 of the housing 3 as one of the embodiments of the primary corrected invention. In view that it can be understood that the light irradiation device 1 with the aforementioned structure has the structure in which "a plurality of the LED substrates are aligned along the line direction", it cannot be found that the present re-correction would give an unexpected disadvantage to a third party who trusts the indication described in the scope of claims of the primary corrected invention and thus, it is found that the present re-correction is not a matter that substantially enlarges or alters the scope of claims.

Therefore, the present re-correction is found to conform to the requirement in Article 126, paragraph (6) of the Patent Act and thus, the aforementioned assertion by first court Defendant (invalidation reason 1) has no grounds.

(2) Invalidation reason 2 (Lack of inventive step, with the inventions according to IDB-11/14R and IDB-11/14W (publicly worked inventions) as primary cited references)

A. Presence/absence of public working of the inventions according to IDB-11/14R and IDB-11/14W

According to the evidences (Exhibits Otsu 8, Otsu 9, Otsu 15), it is found that first court Defendant sold IDB-11/14R on March 7, 2005 and IDB-11/14W on January 20,

2006, and the internal structures of IDB-11/14R and IDB-11/14W could be known by disassembling and analyzing each of the aforementioned products in an ordinary method.

Therefore, the invention according to IDB-11/14R and IDB-11/14W is found to be an invention publicly worked before filing of this case.

B. According to the contents evidences (Exhibits Otsu 8, Otsu 9, Otsu 15) of the invention according to IDB-11/14R and IDB-C11/14W, the following inventions can be found to be the invention according to IDB-C11/14R and IDB-C11/14W.

"An LED Direct Bar Light including:

a printed substrate on which a plurality of identical LEDs are mounted; and

a case for accommodating the printed substrate, wherein

a power voltage (12V) with a DC power and the LED are connected;

in the case of the red LED mounted on the printed substrate of IDB-11/14R, six pieces of the LEDs are connected in series;

the red LED is GL3UR43;

a TYP forward voltage of the GL3UR43 is 1.85V;

in the case of the white LED mounted on the printed substrate of IDB-11/14W, three pieces of the LEDs are connected in series, and two such serial circuits are connected in parallel;

the white LED is NSPW310BS-CR or NSPW310BS-CS;

a standard forward voltage of the NSPW310BS is 3.6V;

the number of the LEDs to be mounted on the printed substrate is 6; and

one piece of the printed substrate is disposed."

C. Comparison between the present re-corrected invention and the invention according to IDB-11/14R and IDB-11/14W

(A)When the present re-corrected invention and the invention according to IDB-11/14R and IDB-11/14W are compared with each other, it is found that the invention according to IDB-11/14R and IDB-11/14W is different in a point that the structure (constituent feature F) that "a plurality of the LED substrates are aligned in series along the line direction" in the present re-corrected invention is not included (hereinafter, this difference is referred to as the "Present Difference 1" in some cases) and matches in a point that the other structures are included.

(B) On the other hand, first court Plaintiff asserted that, other than the Present Difference 1, the present re-corrected invention "emits line light", while it is not clear if the invention according to IDB-11/14R and IDB-11/14W "emits line light" or not (Difference 1-1-2), in the present re-corrected invention, "the number of the LEDs to

be mounted on the LED substrate is set to the least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages", while the invention according to IDB-11/14R and IDB-11/14W is different in a point that "the number of the LEDs to be mounted on the LED substrate is" not "the least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages" (Difference 1-1-3).

However, the aforementioned assertion by first court Plaintiff cannot be employed. The reason is, in addition to correction as follows, as described from page 36, line 8 to page 37, line 5 in the judgment in prior instance and thus, this shall be cited.

a. Each of "IDB-11/14R" on page 36, lines 8, 9, 14, 20 to 21, and the last line in the judgment in prior instance shall be altered to "IDB-11/14R and IDB-11/14W".

b. The phrase "as described in the aforementioned (2)A, IDB-11/14R is" on page 36, line 11 in the judgment in prior instance shall be altered to "IDB-11/14R and IDB-11/14W".

c. The phrase "IDB-11/14R" on page 37, line 4 in the judgment in prior instance shall be altered to the "invention according to IDB-11/14R and IDB-11/14W".

D. Well-known art and common general technical knowledge at the time of filing of this case

(A) Well-known art

a. IDB-L600/20RS and IDB-L600/20WS

(a) According to the evidences (Exhibits Otsu 12, Otsu 13, Otsu 15), it is found that first court Defendant had manufactured and sold IDB-L600/20RS and IDB-L600/20WS since before the filing of this case and was in such a situation that first court Defendant could know the internal structure by disassembling and analyzing each of the aforementioned products in an ordinary method. Thus, the invention according to IDB-L600/20RS and IDB-L600/20WS is found to be a publicly worked invention before filing of this case.

According to the evidences described above, the following invention can be approved as the invention according to IDB-L600/20RS and IDB-L600/20WS.

"An LED Linear Array Light including:

a printed substrate on which a plurality of identical LEDs are mounted; and

a case for accommodating the printed substrate, wherein

a power voltage (12V) and the LED are connected;

in the case of the red LED mounted on the printed substrate of IDB-L600/20RS, six pieces of the LEDs are connected in series, and 29 such serial circuits are connected in parallel;

the red LED is LT1U40A;

a TYP forward voltage of the LT1U40A is 1.85V;

in the case of the white LED mounted on the printed substrate of IDB-L600/20WS, three pieces of the LEDs are connected in series, and 58 such serial circuits are connected in parallel;

the white LED is E1S30-AW0A7-03;

a Typ. standard DC forward voltage of the E1S30-AW0A7-03 is 3.2V;

the number of the LEDs to be mounted on one piece of the printed substrate is 174; and

two pieces of the printed substrates are aligned in series in two pieces in the longitudinal direction."

(b) According to the aforementioned (a), in the invention according to IDB-L600/200RS and IDB-L600/20WS, since two printed substrates on which a plurality of identical LEDs are mounted are aligned in series in two pieces in the longitudinal direction, it is found that it includes the structure that "a plurality of the LED substrates are aligned in series along the line direction."

b. Exhibit Otsu 18

(a) Exhibit Otsu 18 (Patent No. 3481599), which is publication distributed before filing of this case, has the following recitation (for "Figure 11" and "Figure 13" cited in the following recitation, see the attached Exhibit Otsu 18 drawings.).

[0001]

[Technical Field]

The Present Invention relates to a lighting device for an imaging device and the like for recognition and inspection of an article to be tested by using a camera, and particularly to the illumination device including a line light source and a reflector adapted to the same.

[0041]

[Embodiment]

As a specific structural example of the line lighting device according to the Present Invention, a connection type line lighting device will be described by using Figures 11 to 14. The line lighting device in this embodiment can constitute a line lighting device having an arbitrary length by consecutively connecting a plurality of line lighting device units each having a certain length aligned on a rail. Figure 11 is a sectional view of the line lighting device unit 10 fixed onto the rail 11. The unit 10 is made of a case 12 and a lighting unit 13 fixed therein. In the case 12, a slide groove 14 having a recessed section corresponding to a section of the rail 11 is

formed, whereby the entire unit 10 can slide on the rail 11. The case 12 can be fabricated by extrusion molding of aluminum or plastic.

[0042]

As illustrated in Figure 12, the lighting unit 13 is constituted by an LED holding plate 15 and a reflection mirror 16, and the LED holding plate 15 is fixed to a bottom part of the reflection mirror 16 by a screw, an adhesive, or the like. The LED holding plate 15 is constituted by a printed substrate, holes for mounting LEDs 17 are drilled at a certain interval, and a printed wiring for connecting each of the holes is formed. The LED 17 is fixed to the printed wiring by soldering after a lead wire thereof is passed through each of the holes. A reflection surface of the reflection mirror 16 is elliptic or parabolic, and the LED holding plate 15 is fixed to the reflection mirror 16 so that the reflection surface and a light emitting part of the LED 17 have the aforementioned positional relation following the Present Invention. It is advantageous from the viewpoint of costs that the reflection mirror 16 is fabricated by resin molding, and the reflection surface is formed by depositing a metal film such as aluminum.

[0045]

As illustrated in Figure 13, the plurality of line lighting device units 10 are continuously arranged on the rail 11, and both ends thereof are fixed by a fixing tool 25 through side plates 24. The fixing tool 25 is fixed to the rail 11 by a screw and the like. The adjacent line lighting device units 10 are electrically connected by a pair of positive/negative connecting tools 23a and 23b for connecting power supply boards 20 of the two. As a result, only by connecting a power line to an end of one of them, electricity can be supplied to all the LEDs 17 of all the line lighting device units 10.

[0046]

The line lighting device unit 10 of this embodiment can be used in an arbitrary length by consecutive connection as above, and it is needless to say that using only one of them singularly without using the rail is also possible. Moreover, such consecutive connection may be performed during use by a user, or before shipment at a manufacturer.

(b) According to the aforementioned (a), it is found that Exhibit Otsu 18 discloses that the line lighting device with an arbitrary length can be constituted by consecutively connecting a plurality of the line lighting device units each having a certain length arranged on the rail, and this line lighting device unit is constituted by a case and the lighting unit constituted by the LED holding plate 15 (printed substrate) and the

reflection mirror 16 fixed therein (Figures 11 and 12).

c. Summary

According to the aforementioned a and b, it is found that the structure in which "the plurality of LED substrates are aligned in series along the line direction" (structure of the present re-corrected invention according to the Present Difference 1) was well known at the time of filing of this case in a line light irradiation device.

(B) Common general technical knowledge

a. According to "4. (1)" described in the Exhibit Otsu 17 (page 2) and the entire import of the oral argument, at the time of filing of the present case, it is found to have been common general technical knowledge that "in design of an LED substrate, a person ordinarily skilled in the art should reduce wiring and soldering between the LED substrates as much as possible in order to prevent failures, to maintain quality, and to improve efficiency of the work".

b(a) The material 2 of the Exhibit Otsu 40 (Patent Application Publication No. 2005-283563) has recitations that [i] "... this light irradiation device 1 is for emitting line light to a predetermined irradiation area of an article to be inspected (work), for example, and is used for a product inspection system and the like for photographing the predetermined irradiation area by an image pickup device (not shown), for taking in the obtained image data by an image processing device (not shown), and for performing automatic surface inspection on presence/absence of a scratch or the like." ([0021]), "... the wiring boards 5 on which the LED 3 is mounted are arranged in one or plural rows in series according to a required length and pasted to an inner surface of the casing bottom plate 22 through a heat transfer member 7 in the same number." ([0025]), "moreover, since the wiring board 5 holding a certain number of the LEDs 3 in one row is arranged in one or plural in series and mounted on the casing 2, the light irradiation devices 1 with various lengths can be manufactured flexibly although in stages by changing the number of serial rows of the wiring boards 5 while the components are standardized." ([0030]), and "... the wiring boards 5 on which the LED 3 is mounted are arranged in one or plural in series according to the required length and pasted to the inner surface of the casing bottom plate 22 through the heat transfer member 7 in the same number. ..." ([0038]), and [ii] Figures 2 and 4 illustrate states in which the wiring boards 5 on which the LED 3 is mounted are arranged in plural in series.

(b) Material 6 (Patent Application Publication No. 2006-275790) of the Exhibit Otsu 40 has recitations that "more specifically, the line light irradiation device 1 includes, as illustrated in Figures 1 to 5, a casing 2, a light emitting unit 3 constituted by a

plurality of LEDs 32 mounted in one row on an elongated wiring board 31, and a pair of reflector members 4 supported by side plates 21 of the casing 2 and disposed on the right and left of the light emitting unit 3." ([0029]), "instead of incorporating one light emitting unit in the casing, the light emitting units may be arranged in plural in series or in parallel. In that case, the reflector member may be made to correspond to the light emitting unit in a one-to-one manner, or those longer or shorter than the light emitting unit may be used, as long as the overall lengths match. As a result, the line light irradiation devices with various lengths can be manufactured by using fewer types of the light emitting units and the reflector member" ([0062]).

c. According to the aforementioned a and b, at the time of filing of the present case, when the line light irradiation devices with various lengths are to be manufactured, other than a method of using a single LED substrate according to a predetermined length, a method of arranging a plurality of the LED substrates in series in accordance with the predetermined length is found to have been common general technical knowledge.

E. How easily the difference could have been conceived of

(A) As found in the aforementioned B, the invention according to IDB-11/14R and IDB-11/14W is the "LED Direct Bar Light" using the "one printed substrate on which six LEDs are mounted".

Then, according to Exhibit Otsu 8 ("2004 ~ LED lighting comprehensive catalogue"), it is found that IDB-11/14R and IDB-11/14W are positioned as a product in "Direct Bar Light / IDB" series sold by first court Defendant, and the Exhibit Otsu 8 has recitation under the heading that "Widely usable for oblique lighting, backlight and the like!" that "high brightness LED is mounted on a planar substrate. Can be used for oblique lighting or backlight in plural. Size variation is extremely wide, and desired sizes outside the standard are accommodated. ...Manufacture of red / white / blue / green / infrared / ultraviolet is available." (page 16).

Moreover, in view of the relation among the "model", "dimensions", and "LED number" of the product lineup in the Exhibit Otsu 8, it can be read that the LED number to be mounted on the single printed substrate increases as the dimension of the product becomes longer and thus, it can be understood that the LED substrates according to the irradiation areas are made available by increasing the "size variation" of the LED substrate in order to handle the irradiation areas with different lengths in the "Direct Bar Light / IDB" series. On the other hand, Exhibit Otsu 8 does not have any recitation or suggestion on serial connection of the "plurality of LED substrates" of the same size as a method for handling the irradiation areas with different lengths.

In addition, in view that "in design of an LED substrate, a person ordinarily skilled in the art should reduce wiring and soldering between the LED substrates as much as possible in order to prevent failures, to maintain quality, and to improve efficiency of the work" was common general technical knowledge (aforementioned D(B)a) at the time of filing of this case, even if consideration is given to the situation that the structure that "the plurality of LED substrates are aligned in series along the line direction" (structure of the present re-corrected invention according to Present Difference 1) was well known at the time of filing of this case in the line light irradiation device (aforementioned D(A)), it cannot be found that a person ordinarily skilled in the art who contacted IDB-11/14R and IDB-11/14W was motivated to apply the well-known structure (well-known art) to the invention according to IDB-11/14R and IDB-11/14W.

(B) In response to that, first court Defendant asserts that the technical field of the invention according to IDB-11/14R and IDB-11/14W and the well-known art in the aforementioned D(A) is the same, the design method of preparing the single LED substrate according to the length of the predetermined irradiation area was a matter of common general technical knowledge in designing of the LED substrate at the time of filing of this case, the design method of aligning the plurality of LED substrates in accordance with the length of the predetermined irradiation area was also a matter of common general technical knowledge, and which designing method is to be employed is a design matter that a person ordinarily skilled in the art could have selected as appropriate and thus, a person ordinarily skilled in the art would be motivated to employ the well-known art for the invention according to IDB-11/14R and IDB-11/14W.

However, even if the technical field of the invention according to IDB-11/14R and IDB-11/14W and the well-known art is the same, it does not immediately lead to motivation to employ the well-known art, and at the time of filing of this case when the line light irradiation devices with various lengths are to be manufactured, even by considering the situation that the method of aligning a plurality of LED substrates in series in accordance with the predetermined length was also a matter of common general technical knowledge (aforementioned E(B)c) other than the method of using the single LED substrate according to the predetermined length, in view that the LED substrates according to the irradiation areas are made available by increasing the "size variation" of the LED substrate in order to handle the irradiation areas with different lengths in the "Direct Bar Light / IDB" series, as described in the aforementioned (A), it cannot be found that a person ordinarily skilled in the art was motivated to apply the

well-known art to the invention according to IDB-11/14R and IDB-11/14W.

Therefore, the aforementioned assertion by first court Defendant cannot be employed.

(C) According to the above, it cannot be found that a person ordinarily skilled in the art could have easily conceived of the structure of the present re-corrected invention according to Present Difference 1 on the basis of the invention according to IDB-11/14R and IDB-11/14W and the well-known art.

Therefore, invalidation reason 2 asserted by first court Defendant has no grounds.

(3) Invalidation reason 3 (lack of inventive step, with the invention according to IDB-C11/14R and IDB-C11/14B (publicly worked invention) as the primary cited example)

A. Presence/absence of public working of the invention according to IDB-C11/14R and IDB-C11/14B

According to the evidences (Exhibits Otsu 10, Otsu 11, Otsu 15), first court Defendant sold IDB-C11/14R on May 23, 2007 and IDB-C11/14B on June 12 of the same year, and it is found that the internal structures thereof could be known by disassembling and analyzing each of the aforementioned products in an ordinary method.

Therefore, the invention according to IDB-C11/14R and IDB-C11/14B is found to be an invention publicly worked before filing of this case.

B. According to the contents evidence on IDB-C11/14R and IDB-C11/14B (Exhibits Otsu 10, Otsu 11, Otsu 15), the following invention can be approved as the invention according to IDB-C11/14R and IDB-C11/14B.

"A Direct Bar Light, including:

a printed substrate on which a plurality of identical LEDs are mounted; and

a case for accommodating the printed substrate, wherein

a power voltage (12V) of DC power and the LED are connected;

in the case of the red LED mounted on the printed substrate of IDB-C11/14R, six pieces of the LEDs are connected in series;

the red LED is GL3UR43;

a TYP forward voltage of the GL3UR43 is 1.85V;

in the case of the blue LED mounted on the printed substrate of IDB-C11/14B, three pieces of the LEDs are connected in series, two of such serial circuits are connected in parallel, and the blue LED is NSPW310A-WS or NSPW310A-WS;

a standard forward voltage of the NSPW310A is 3.6V, and the number of the LEDs to be mounted on the printed substrate is six; and

one piece of the printed substrate is disposed."

C. Comparison between the present re-corrected invention and the invention according to IDB-C11/14R and IDB-C11/14B

(A) When the present re-corrected invention and the invention according to IDB-C11/14R and IDB-C11/14B are compared with each other, it is found that the invention according to IDB-C11/14R and IDB-C11/14B is different in a point that the structure (constituent feature F) that "a plurality of the LED substrates are aligned in series along the line direction" in the present re-corrected invention is not included (hereinafter, this difference is referred to as "Present Difference 2" in some cases) and matches in a point that the other structures are included.

(B) On the other hand, first court Plaintiff asserts that, other than Present Difference 2, there is a difference similar to Difference 1-1-2 and Difference 1-1-3.

However, the invention according to IDB-11/14R and IDB-11/14W and the invention according to IDB-C11/14R and IDB-C11/14B are different only in the point that the "white LED" is mounted on the printed substrate for the former, and the "blue LED" is mounted on the printed substrate for the latter, while the other structures are the same and thus, the aforementioned assertion by first court Plaintiff cannot be employed, for reasons similar to those described in the aforementioned (2)C(B).

D. How easily the difference could have been conceived of

For reasons similar to those described in the aforementioned (2)E, it cannot be affirmed that a person ordinarily skilled in the art could have easily conceived of the structure of the present re-corrected invention according to Present Difference 2 on the grounds of the invention according to IDB-C11/14R and IDB-C11/14B and the well-known art.

Therefore, the invalidation reason 3 asserted by first court Defendant has no grounds.

(4) Invalidation reason 4 (lack of novelty or lack of inventive step, with the invention according to IDB-L600/20RS and IDB-L600/20WS (publicly worked invention) as the primary cited example)

A. Public working of the invention according to IDB-L600/20RS and IDB-L600/20WS and the like

The fact that the invention according to IDB-L600/20RS and IDB-L600/20WS is an invention publicly worked before filing of this case and the contents of the invention are as described in the aforementioned (2)D(A)a(a).

B. The present re-corrected invention and identicalness between IDB-L600/20RS as well as IDB-L600/20WS and the present re-corrected invention

(A) When the present re-corrected invention and the invention according to IDB-L600/20RS and IDB-L600/20WS are compared with each other, in the invention according to IDB-L600/20RS and IDB-L600/20WS, the LED unit number of the red LED is 6, the LED unit number of the white LED is 3, and the number of LEDs mounted on the single printed substrate is 174 and thus, the number of the LEDs is the "common multiple" of the LED unit numbers but not the "least common multiple", which is 6. Thus, it is found that the invention according to IDB-L600/20RS and IDB-L600/20WS is different in a point of not including the structure (constituent feature E) that "the number of the LEDs mounted on the LED substrate is set to the least common multiple of the LED determined for each of the LEDs with different forward voltage" in the present re-corrected invention (hereinafter, this difference shall be referred to as "Present Difference 3" in some cases.) but matches in a point that the other structures are included.

(B) On the other hand, first court Defendant asserts that the number of the LEDs to be mounted on the LED substrate being not the common multiple but the least common multiple has no technical meaning and thus, Present Difference 3 is not a substantial difference.

However, the aforementioned assertion by first court Defendant cannot be employed. The reason is as described on page 46, lines 9 to 14 in the judgment in prior instance, which is cited.

(C) According to the above, it is not found that the present re-corrected invention is the invention identical to IDB-L600/20RS and IDB-L600/20WS and thus, the assertion by first court Defendant that the present re-corrected invention lacks novelty has no grounds.

C. How easily the difference could have been conceived of

Other than the correction shall be made as follows, it is as described from page 47, line 1 to page 48, line 5 in the judgment in prior instance, which is cited.

(A) The phrase that the "structure according to Difference 3-1 according to IDB-L600/20RS" on page 47, line 1 in the judgment in prior instance shall be altered to "the structure of IDB-L600/20RS in the invention according to IDB-L600/20RS and IDB-L600/20WS", and the "least common multiple" on the same page, line 9 to "least common multiple (the structure of the present re-corrected invention according to Present Difference 3)", and the following shall be added after "connected." from the same page, lines 10 to 11.

"On the other hand, by examining the structure of IDB-L600/20WS in the invention according to IDB-L600/20RS and IDB-L600/20WS, the LED unit number

of the white LED is 3, and the number of the white LEDs mounted on the LED substrate is 174, and the white LEDs connected in series with three pieces in one row are mounted with 58 rows connected in parallel on a single substrate, but to have the structure in which the number of the LEDs to be mounted on the LED substrate is set to the 'least common multiple' of the LED unit numbers determined for each of the LEDs with different forward voltages (the structure of the present re-corrected invention according to Present Difference 3) by using this, the white LEDs connected in series with three pieces in one row are mounted with two rows connected in parallel (the number of mounted white LEDs is six) on the single substrate, and 29 pieces of such substrates are connected."

(B) The phrase "and IDB-L600/20WS" on page 47, line 12 in the judgment in prior instance shall be added after "IDB-L600/20RS", and the phrase from "moreover" on the same page, line 18 to page 48, the end of line 2 shall be altered as follows.

"In addition, at the time of filing of this case, in view that 'in design of an LED substrate, a person ordinarily skilled in the art should reduce wiring and soldering between the LED substrates as much as possible in order to prevent failures, to maintain quality, and to improve efficiency of the work' was a matter of common general technical knowledge (aforementioned (2)D(B)a), even if the structure that 'the number of the LEDs to be mounted on the LED substrate is the least common multiple of the LED unit numbers determined for each of the LEDs with different forward voltages' (the structure of the present re-corrected invention according to Present Difference 3) was well known at the time of filing of this case, it cannot be found that a person ordinarily skilled in the art who contacted IDB-L600/20RS and IDB-L600/20WS was motivated to apply the aforementioned structure to the invention according to IDB-L600/20RS and IDB-L600/20WS."

(C) The phrase "as described in the aforementioned (A)" on page 48, line 5 in the judgment in prior instance shall be altered to "in view of the found facts in the aforementioned (A)", and the following shall be added as a new paragraph after the end of the same page, line 5.

"... Moreover, first court Defendant asserts that, in the product of 'chip LED surface-emitting lighting/IDM' including IDM-32/62RT described in the Exhibit Otsu 41, the red (IDM-**/**RT) has the same LED unit number as that of the IDB-L600/20RS and the white (IDM-**/**WT-12V) has the same the LED unit number as that of the IDB-L600/20WS, and the number of the LEDs to be mounted on the LED substrate is 36, which is the common multiple, and in view that 16 sheets of the LED substrates (576 pieces/ 36 pieces) are aligned at the maximum (IDM-122/122RT and

IDM-122/122WT-12V-SC), commonality of the technical field of each of the products, and the well-known art and the common general technical knowledge at the time of filing of this case, in view of this, there is sufficient motivation to set the number of the LEDs to be mounted on the LED substrates of the IDB-L600/20RS and IDB-L600/20WS to the 'least common multiple' of the LED unit numbers determined for each of the LEDs with different forward voltages" (structure of the present re-corrected invention according to the Present Difference 3).

However, the aforementioned assertion by first court Defendant does not specify specific contents of the well-known art and the common general technical knowledge at the time of filing of this case, and in view of the found facts in the aforementioned (A), the aforementioned assertion by first court Defendant cannot be employed.

(D) According to the above, it cannot be found that a person ordinarily skilled in the art could have easily conceived of the structure of the present re-corrected invention according to Present Difference 1 on the basis of the invention according to IDB-L600/20RS and IDB/L600/20WS and the well-known art.

Therefore, invalidation reason 4 asserted by first court Defendant has no grounds.

(5) Invalidation reason 5 (violation of support requirement)

First court Defendant asserts that [i] the present description has the recitation as the functions and effects of the present re-corrected invention that "the number of components and the manufacturing costs can be reduced by making the sizes of the LED substrates the same." ([0011]), and the components attracting attention in reduction of "the number of components and the manufacturing costs" is the "pressing member 5" provided on the individual "lens portions 501" at the respective positions of the "LED 21" on the "LED substrate 2" ([0035]) and thus, one not including the structure corresponding to the "pressing member 5" cannot be considered to exert the functions and effects of the present re-corrected invention; and [ii] the scope of claims (Claim 1) of the present re-corrected invention includes also those not including the structure corresponding to the "pressing member 5", and since even those not exerting the functions and effects of the present re-corrected invention are included in the technical scope, it does not conform to the requirement prescribed in Article 36, paragraph (6), item (i) of the Patent Act (support requirement).

A. Then, when the above is examined, Article 36, paragraph (6), item (i) of the Patent Act prescribes that the recitation in the scope of claims should not be beyond the scope of the invention recited in the detailed description of the invention, and the purport thereof is interpreted to be that, if the invention not recited in the detailed description of the invention is described in the scope of claims, a monopolistic and

exclusive right would be claimed for the invention not disclosed, which is not appropriate and thus, it is to be prevented. But the detailed description of the invention in the present description (Exhibit Ko 2) recites that, as found in the aforementioned 1(2), the present re-corrected invention has a main object to solve the problems of the prior art ([0001] to [0005]) and to realize reduction of the number of components and reduction of manufacturing costs by making the sizes of the LED substrates the same and by communalizing the components in the light irradiation device using the LEDs of types with different forward voltages, and as means for solving the problems, such structure was employed that the number of the LEDs for which a difference between the power voltage and the total of the forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to the LED unit number, and the number of LEDs to be mounted on the LED substrate is set to the "least common multiple" of the LED unit numbers determined for each of the LEDs with different forward voltages ([0006], [0007]). As a result, the numbers of the LEDs to be mounted on the LED substrates can be made the same among the LEDs with different forward voltages, the sizes of the LED substrates on which the LEDs with different forward voltages are mounted can be made the same, and moreover, the same article can be used for the housing for accommodating the LED substrate. Thus, in the manufacture of the light irradiation device, such effects can be exerted that the components such as the LED substrate and the housing can be made common, the number of components can be reduced, and the manufacturing costs can be reduced and moreover, not only are the sizes of the LED substrates on which the LEDs with different forward voltages are mounted made the same, but also the size of the LED substrate can be made as small as possible so that the effect that the general-purpose utility is improved can be exerted ([0008], [0009], [0011], [0036]), and the embodiments thereof ([0012], [0014], [0015], [0017], [0041], Figures 1 and 2). In view of the recitation as above, it is found that the present re-corrected invention (Claim 1) is the invention described in the detailed description of the invention of the present description.

B. Moreover, in view of the recitation in [0008], [0011], and [0034] in the present description, it is found that the detailed description of the invention of the present description has recitation that reduction in the number of components and the manufacturing costs by commonalizing the LED substrate and the housing is also the effect of the present re-corrected invention and thus, it cannot be considered that those not including the structure corresponding to the "pressing member 5" ([0035]) do not exert the functions and effects of the present re-corrected invention.

C. According to the above, the present re-corrected invention is found to conform to the support requirement and thus, the aforementioned assertion by first court Defendant (invalidation reason 5) has no grounds.

3. Issue 2 (establishment of prior use right) (1)

(1) Issue 2-1 (establishment of prior use right on the basis of the invention according to IDB-11/14R and IDB-11/14W)

Other than the correction as follows, it is as described in the recitation from page 39, line 11 to page 40, line 14 in the judgment in prior instance, which is cited.

A. The number "(1)" on page 39, line 11 in the judgment in prior instance shall be altered to "A", the phrase "or at least a part thereof" on the same page, line 18 shall be deleted, the phrase "needs to belong to the technical scope of the patent invention" on the same page, lines 20 to 21 shall be altered to "needs to be the same invention of the patent invention", and the part from "(2)" on the same page, line 22 to "not belong" on line 24 shall be altered as follows.

"B. The invention according to IDB-11/14R and IDB-11/14W does not include the structure that 'a plurality of the LED substrates is aligned in series along the line direction' (constituent feature F) in the present re-corrected invention as described in the aforementioned 2(2)C(A) and thus, it cannot be found to be the same invention as the present re-corrected invention."

B. The phrase "application of the present patent" on page 39, line 24 in the judgment in prior instance shall be altered to the "present application", and the "ordinary working right" on the same page, lines 25 to 26 shall be altered to the "prior use right".

C. The number "(3)" on page 40, line 1 in the judgment in prior instance shall be altered to "C", the "JPO decision related to the present re-correction" on the same page, line 3 to the "present corrected JPO decision", and "those as described in the 'present re-corrected invention' in the 'scope of claims' in the attached comparison table 1 of the present claims" on the same page, lines 6 to 7 to "Claims 1 and 3 after the present re-correction".

(2) Issue 2-2 (Establishment of prior use right on the basis of the invention according to IDB-C11/14R and IDB-C11/14B)

Other than the correction as follows, it is as described in the recitation on page 44, lines 1 to 8 in the judgment in prior instance, which is cited.

A. The part from "IDB-C11/14R" on page 44, line 1 to "not belong." on line 3 in the judgment in prior instance shall be altered as follows.

"The invention according to IDB-C11/14R and IDB-C11/14W does not include the structure that ‘a plurality of the LED substrates are aligned in series along the line

direction’ (constituent feature F) in the present re-corrected invention as described in the aforementioned 2(3)C(A) and thus, it cannot be found to be the same invention as the present re-corrected invention."

B. The term "ordinary working right" on the page 44, lines 4 to 5 in the judgment in prior instance shall be altered to the "prior use right", and the term "aforementioned 3(3)" on the same page, line 8 to the "aforementioned (1)C".

(3) Issue 2-3 (Establishment of prior use right on the basis of the invention according to IDB-L600/20RS and IDB-L600/20WS)

Other than the correction as follows, it is as described in the recitation on page 48, lines 19 to 23 in the judgment in prior instance, which is cited.

A. The part from "IDB-L600/20RS" on page 48, line 19 to "not belong." on line 21 in the judgment in prior instance shall be altered as follows.

"The invention according to IDB-L600/20RS and IDB-L600/20WS does not include the structure that 'the number of the LEDs to be mounted on the LED substrate is set to the least common multiple of the LEDs determined for each of the LEDs with different forward voltages' (constituent feature E) in the present re-corrected invention as described in the aforementioned 2(4)B(A) and thus, it cannot be found to be the same invention as the present re-corrected invention."

B. The term "ordinary working right" on page 48, line 23 in the judgment in prior instance shall be altered to the "prior use right".

(4) Issue 2-4 (Establishment of prior use right on the basis of the invention according to IDR-F60/32R and IDR-F60/32W)

Other than the correction as follows, it is as described in the recitation on page 48, the last line to page 51, line 15 in the judgment in prior instance, which is cited.

A. The number "(1)" on page 48, last line in the judgment in prior instance shall be altered to "A".

B. Each of the phrases "before the filing of the present patent" on page 49, lines 1 and 3 in the judgment in prior instance shall be altered to "before filing of this case", the number "(2)" on the same page, line 5 to "B", the "A" on the same page, line 8 to "(A)", and "B" on the same page, line 18 to "(B)".

C. The phrase "(3) Comparison between the present re-corrected invention and IDR-F60/32R as well as IDR-F60/32W" on page 50, line 2 in the judgment in prior instance shall be altered to "C. Comparison between the present re-corrected invention and the invention according to IDR-F60/32R and IDR-F60/32W", the same page, line 3 to "(A) Common feature", the same page, line 9 to "(B) Difference", "(A)" on the same page, line 10 to "a", and each of "IDR-F60/32R"

on the same page, lines 11 to 12, line 15, and line 20 to "the invention according to IDR-F60/32R and IDR-F60/32W", "(B)" on the same page, line 13 to "b", and "(C)" on the same page, line 18 to "c".

D. The part from page 50, line 21 to page 51, line 6 in the judgment in prior instance shall be deleted.

E. The number "(4) on page 51, line 7 in the judgment in prior instance shall be altered to "D", and the part from "IDR-F60/32R" on the same page, line 8 to the phrase "not belong" on line 10 shall be altered as follows.

"The invention according to IDR-F60/32R and IDR-F60/32W does not include the structure of the present re-corrected invention according to Differences 4-1-1 to 4-1-3 as described in the aforementioned B and thus, it cannot be found to be the same invention as the present re-corrected invention."

F. The term "ordinary working right" on the page 51, line 12 in the judgment in prior instance shall be altered to the "prior use right" and "the aforementioned 3(3)" on the same page, line 15 to "the aforementioned (1)C", and the following shall be added as a new line after the line break.

"Moreover, first court Defendant asserts that, in order for the prior use right to be established, it is not an indispensable condition for the prior use article to belong to the technical scope of the patent invention, and it is interpreted to be only necessary that the prior use article and the patent invention have the same technical idea, and that since it can be considered that the invention according to IDR-F60/32R and IDR-F60/32W belongs to the scope according to equivalence of the present re-corrected invention, the invention according to IDR-F60/32R and IDR-F60/32W and the present re-corrected invention have the identical technical idea, and first court Defendant has the prior use right for the present patent right within the scope of the invention according to IDR-F60/32R and IDR-F60/32W.

However, since there is insufficient evidence to find that the invention according to IDR-F60/32R and IDR-F60/32W belongs to the scope according to equivalence of the present re-corrected invention, the aforementioned assertion by first court Defendant lacks the premise for that and cannot be employed."

(5) Issue 2-5 (establishment of the prior use right on the basis of the invention according to LR-F60/32R and LR-F60/32W)

Other than the correction as follows, it is as described in the recitation from page 51, line 18 to page 54, line 7 in the judgment in prior instance, which is cited.

A. The number "(1)" on page 51, line 18 in the judgment in prior instance shall be altered to "A", and each of the phrases "before filing of the present patent" on the

same page, line 19 and line 21 to "before filing of this case", the number "(2)" on the same page, line 23 to "B", and "A" on the same page, line 26 to "(A)".

B. "B" on page 52, line 10 in the judgment in prior instance shall be altered to "(B)", the phrase "(3) Comparison between the present re-corrected invention and LR-F60/32R as well as LR-F60/32W" on the same page, line 20 to "C. Comparison between the present re-corrected invention and the invention according to LR-F60/32R as well as LR-F60/32W", and "A" on the same page, line 21 to "(A)".

C. The part on page 53, line 1 in the judgment in prior instance shall be altered to "(B) Difference", "(A)" on the same page, line 2 to "a", and each of "LR-F60/32R" on the same page, lines 3 to 4, 7, and 12 to "the invention according to LR-F60/32R as well as LR-F60/32W".

D. "(B)" on page 53, line 5 in the judgment in prior instance shall be altered to "b" and "(C)" on the same page, line 10 to "c", the part on the same page, lines 13 to 24 shall be deleted, and "(4)" on the same page, line 25 to "D".

E. The part from "LR-F60/32R" on page 53, line 26 to "not belong." on page 54, line 2 in the judgment in prior instance shall be altered as follows.

"Since the invention according to LR-F60/32R and LR-F60/32W does not include the structure of the present re-corrected invention according to Differences 5-1-1 to 5-1-3 as described in the aforementioned B, it cannot be found that it is the same invention as the present re-corrected invention."

F. The term "ordinary working right" on page 54, line 4 in the judgment in prior instance shall be altered to the "prior use right", and the term "aforementioned 3(3)" on the same page, line 7 to the "aforementioned (4)D".

4. Issue 3 (establishment of defense of free art)

First court Defendant asserted that, in view of the facts that [i] first court Defendant had manufactured and sold IDR-F60/32R and IDR-F60/32W (Exhibits Otsu 3, Otsu 4) and LR-F60/32R and LR-F60/32W (Exhibit Otsu 5) belonging to the technical scope of the present initial invention, IDB-11/14R and IDB-11/14W (Exhibits Otsu 8, Otsu 9) as well as IDB-C11/14R and IDB-C11/14B (Exhibits Otsu 10, Otsu 11) belonging to the technical scope of the primary corrected invention before filing of this case; and [ii] adjustment of the product length by continuously providing the LED substrates in the longitudinal direction is not beyond the scope that a person ordinarily skilled in the art performs a publicly-known art as appropriate in view of the common general technical knowledge at the time of filing of this case, manufacture and sales of each of Defendant's Products by first court Defendant is only practice of the publicly known art (free art).

However, since there is insufficient evidence to find that the present re-corrected invention is the publicly-known art, the aforementioned assertion by first court Defendant lacks the premise for that and has no grounds.

5. Issue 4 (establishment of defense that functions and effect do not exert effect)

First court Defendant asserts that [i] those not including the structure corresponding to the "pressing member 5" in [0035] of the present description cannot be considered to exert the functions and effects of the present re-corrected invention; [ii] since each of Defendant's Products does not include the component corresponding to the "pressing member 5", it does not exert the functions and effects of the present re-corrected invention and the Present Patent Right according to the present re-corrected invention does not take effect to manufacture and sales of each of Defendant's Products by first court Defendant.

However, as taught in the aforementioned 2(5)B, it cannot be considered that those not including the structure corresponding to the "pressing member 5" do not exert the functions and effects of the present re-corrected invention and thus, the aforementioned assertion by first court Defendant lacks the premise for that and has no grounds.

6. Issue 5 (presence/absence of negligence of first court Defendant)

Other than the correction as follows, it is as described in the recitation from page 54, the last line to page 55, line 25 in the judgment in prior instance, which is cited.

(1) The part from page 54, the last line to page 55, line 2 in the judgment in prior instance shall be altered as follows.

"(1) As described in the aforementioned No. 2, 2(5)B, since each of Defendant's Products fulfills all the constituent features A to G of the present re-corrected invention, each of Defendant's Products belongs to the technical scope of the present re-corrected invention.

Therefore, manufacture and sales of each of Defendant's Products by first court Defendant falls under infringement of the Present Patent Right according to the present re-corrected invention.

And since it is presumed that first court Defendant is negligent (Article 103 of the Patent Act), first court Defendant shall take liability for compensation for damage on the ground of a tort for the aforementioned infringement to first court Plaintiff."

(2) The phrase "with only that fact" on page 55, line 23 in the judgment in prior instance shall be deleted, and the following shall be added to the end of the same page, line 25.

"Moreover, it was as taught in the aforementioned 2 that the invalidation reasons 1

to 5 asserted by first court Defendant have no grounds, and there is insufficient evidence to find that there are reasonable reasons for first court Defendant to believe that manufacture and sales of each of Defendant's Products do not infringe the Present Patent Right, since there are invalidation reasons for the Present Patent according to the present re-corrected invention."

7. Issue 6 (Amount of damages of first court Plaintiff)

(1) Amount of damages on the ground of Article 102, paragraph (2) of the Patent Act

A. Presence/absence of application of Article 102, paragraph (2) of the Patent Act

Other than correction of the phrase "(hereinafter, these products shall be collectively referred to as 'each of Defendant's Products')" from page 56, lines 14 to 15 in the judgment in prior instance shall be altered to "(each of Plaintiff's Products)", it is as described from page 56, line 3 to page 57, line 9 in the judgment, which is cited.

B. Amount of marginal profit related to sales of each of Defendant's Products

(A) It is undisputable that the sales of each of Defendant's Products in the present periods 1 to 4 are, as described in column [i] in the attached table for calculating the amount of damages asserted by Plaintiff, the total of ●●●●●●●●●● yen, consisting of ●●●●●●●● yen for the present period 1, ●●●●●●●● yen for the present period 2, ●●●●●●●● yen for the present period 3, and ●●●●●●●●● yen for the present period 4.

Subsequently, as described in the attached article description, the white LED is mounted on Defendant's Products 1 and 4, the red LED on the Defendant's Products 2 and 5, the blue LED on Defendant's Products 3 and 6, and the infrared LED on Defendant's Product 7.

And according to the evidences (Exhibits Otsu 25, Otsu 28, Otsu 29, Otsu 30, Otsu 33) and the entire import of oral argument, the sold number of each of Defendant's Products in each year during the present periods 1 to 4 is found to be as follows.

a. Fiscal year of 2012; Defendant's Products 1 and 4: ●● units
Defendant's Products 2 and 5: ●● units

b. Fiscal year of 2013; Defendant's Products 1 and 4: ●● units
Defendant's Products 2 and 5: ●● units
Defendant's Products 3 and 6: ●● units

c. Fiscal year of 2014; Defendant's Products 1 and 4: ●● units
Defendant's Products 3 and 6: ●● units

d. Fiscal year of 2015; Defendant's Products 1 and 4: ●● units

Defendant's Products 2 and 5: ●● units
Defendant's Products 3 and 6: ●● units

e. Fiscal year of 2016; Defendant's Products 1 and 4: ●● units
Defendant's Products 2 and 5: ●● units
Defendant's Products 3 and 6: ●● units

f. Fiscal year of 2017; Defendant's Products 1 and 4: ●● units
Defendant's Products 2 and 5 ●● units
Defendant's Products 3 and 6: ●● units
Defendant's Product 7: ●● units

g. Fiscal year of 2018; Defendant's Products 1 and 4: ●● units
Defendant's Products 3 and 6: ●● units

h. All the periods from a to g; Defendant's Products 1 and 4: ●● units
Defendant's Products 2 and 5: ●● units
Defendant's Products 3 and 6: ●● units
Defendant's Product 7: ●● units
(total) ●● units

(B) It is undisputable that the amount of profits (marginal profits) received by Defendant from sales of each of Defendant's Products during the present periods 1 to 4 is, as described in column [ii] in the attached table for calculating the amount of damages asserted by Plaintiff, the total of ●●●●●●●●● yen, consisting of ●●●●●●●●● yen for the present period 1, ●●●●●●●● yen for the present period 2, ●●●●●●●●● yen for the present period 3, and ●●●●●●●●● yen for the present period 4.

Then, the amount of the aforementioned marginal profits received by first court Defendant is presumed to be the amount of damages incurred by first court Plaintiff pursuant to Article 102, paragraph (2) of the Patent Act (hereinafter, this presumption shall be referred to as the "Present Presumption").

C. Grounds for ruination of presumption

First court Defendant asserts that [i] for the portion sold during the present periods 1 to 4, presence of competitive products of each of Defendant's Products was such that there are few sales results of the products on which the LEDs with different forward voltages are mounted in each of Defendant's Products sold by first court Defendant; [ii] with regard to the portion sold during the present periods 1 and 2, the Present Patent Right being jointly owned by first court Defendant and Mitsubishi Chemical both fall under the circumstances ruining the Present Presumption, and by considering such circumstances, the Present Presumption is ruined, and determination

is made as follows.

(A) For the portion sold during the present periods 1 to 4, presence of competitive products of each of Defendant's Products was such that there are few sales results of the products on which the LEDs with different forward voltages are mounted in each of the Defendant's Products sold by first court Defendant

a First court Defendant asserts that [i] the functions and effects of the present re-corrected invention such that the number of components and the manufacturing costs can be reduced by making the sizes of the LED substrates the same and general-purpose utility can be improved by making the size of the LED substrate as small as possible are based on the fabrication of the LED mounted products with different forward voltages, and since the white LED and the blue LED have the same forward voltage in each of Defendant's Products, and only the red LED has a different forward voltage, the functions and effects of the present re-corrected invention are exerted by the product on which the red LED is mounted, but there are few sales results of the red LED mounted products (Defendant's Products 2 and 5) in each of Defendant's Products sold by first court Defendant during the present periods 1 to 4; [ii] from the viewpoint of a customer, there is no significant difference in a buying motive between the product in which the unit substrates in the "least common multiple" of the LED unit numbers are consecutively provided in the length direction, which is the worked product of the present re-corrected invention and the product in which the unit substrates in a "common multiple", which is not the least common multiple, are consecutively provided in the design of the LED substrate, and the point that a plurality of the LED substrates are aligned in series in the present re-corrected invention has a high possibility that nonconformity can occur at a connection spot of the substrate, which is a circumstance that can lower the evaluation as the product and shows that the present re-corrected invention worked on each of Defendant's Products does not have appeal to customers. Thus, it falls under the circumstances to ruin the Present Presumption.

(a) [i]

It is taught in the aforementioned 2(1)A, B(B) and C that the present re-correction specifies the number and arrangement of the "LED substrates" in the primary corrected invention (Claim 1) before the present re-correction to the structure that "a plurality of the LED substrates are aligned in series along the line direction" and what the technical meaning of the primary corrected invention is. Moreover, it can be understood from the recitation in [0009] and [0041] in the present description that by changing the number of the LED substrates to be aligned in series to as small a value

as possible by setting the number of the LEDs determined for each of the LEDs with different forward voltages to the "least common multiple" of the LED unit numbers, this LED substrate can be used for the light irradiation devices with various lengths.

When the above is considered comprehensively, in the light irradiation device for emitting the line light using the LEDs of the types with different forward voltages, having the main object to realize reduction of the number of components and reduction of the manufacturing costs by making the sizes of the LED substrates the same and by commonalizing the components, it is found that the technical meaning of the present re-corrected invention is that the numbers of the LEDs to be mounted on the LED substrates can be made the same among the LEDs with different forward voltages, the sizes of the LED substrates on which the LEDs with different forward voltages are mounted can be made the same, and the same article can be used as a housing for accommodating the LED substrate can be used by employing the structure that the number of the LEDs for which the difference between the power voltage and the total of the forward voltages when the LEDs are connected in series is within a predetermined allowable range is set to the LED unit number, and the number of the LEDs to be mounted on the LED substrate is set to the "least common multiple" of the LED unit numbers determined for each of the LEDs with different forward voltages. Thus, such effects that the components such as the LED substrate and the housing can be commonalized, the number of components can be reduced, and the manufacturing costs are reduced are exerted and moreover, the effects that the size of the LED substrate is made as small as possible and the general-purpose utility is improved are exerted. In addition, it is found that such an effect that the LED substrate can be used for the light irradiation devices with various lengths by changing the number of the LED substrates to be aligned in series and made as small as possible by employing the structure that "a plurality of the LED substrates are aligned in series along the line direction".

The white LED mounted product and the blue LED mounted product in each of Defendant's Products have the same forward voltage (it is undisputable that Defendant's Product 1 which is the white LED mounted product as well as Defendant's Product 3 which is the blue LED mounted product and Defendant's Product 4 which is the white LED mounted product as well as Defendant's Product 6 which is the blue LED mounted product have the same forward voltage), and the LED substrate with the same size can be used and thus, in each of Defendant's Products, the present re-corrected invention does not have to prepare the exclusive LED substrate and the housing for accommodating this for the red LED mounted product

(Defendant's Products 2 and 5) and the infrared LED mounted product (Defendant's Product 7) having a forward voltage different from that of the white LED mounted product and the blue LED mounted product, and it is found that the main effect is exerted in the point that the LED substrate of the size in common with those of the white LED mounted product and the blue LED mounted product and the same housing can be used.

However, the number of each of Defendant's Products sold during the present periods 1 to 4 is ●●● units in total, and Defendant's Products 2 and 5 among them are ● units and Defendant's Product 7 is ● units (aforementioned B(A)) and thus, the ratio of the sold numbers (●● units in total) of Defendant's Products 2, 5, and 9 is approximately ●●●● of the total.

On the other hand, it is likely that even those who purchased the white LED mounted product or the blue LED mounted product in each of Defendant's Products would also purchase the red LED mounted product at the purchase or already have the red LED mounted product or are scheduled to purchase the red LED mounted product in the future and thus, it cannot be considered that the main effect of the present re-corrected invention cannot be exerted in the white LED mounted product and the blue LED mounted product. But even if such a point is considered, the sold number (●● units in total) of Defendant's Products 2, 5, and 7 being approximately ●●●● of the total indicates that the degree of contribution of the present re-corrected invention to the sales of each of Defendant's Products during the present periods 1 to 4 is considerably low.

Therefore, the fact that the sold number (●● units in total) of Defendant's Products 2, 5, and 7 is approximately ●●●● of the total is found to fall under the circumstance to ruin the Present Presumption.

The assertion by first court Plaintiff contradicting that cannot be employed.

(b) [ii]

First court Defendant asserts that, from the viewpoint of a user, there is no significant difference in a buying motive between the product in which the unit substrates in the "least common multiple" of the LED unit numbers are consecutively provided in the length direction, which is the worked product of the present re-corrected invention, and the product in which the unit substrates in a "common multiple", which is not the least common multiple, are consecutively provided in the design of the LED substrate, and the point that a plurality of the LED substrates are aligned in series in the present re-corrected invention has a high possibility that nonconformity can occur at a connection spot of the substrate, which is a

circumstance that can lower the evaluation as the product and shows that the present re-corrected invention worked on each of Defendant's Products does not have appeal to customers. Thus, these circumstances fall under the circumstances to ruin the Present Presumption.

However, since there is insufficient evidence to support the circumstances on which the aforementioned assertion by first court Defendant is based, the assertion by first court Defendant cannot be employed.

b. Subsequently, first court Defendant asserts that the line light irradiation device which is a worked product of the present re-corrected invention and the line light irradiation device which is not the worked product have no difference in performances as lighting equipment, and in view that all the line light irradiation devices could be competitive products of each of Defendant's Products and each of Plaintiff's Products sold by Plaintiff, even if each of Defendant's Products had not been sold, demand corresponding to the sales quantity of each of Defendant's Products would have been directed toward the line light irradiation device by the other companies described in the list of competitive products (asserted by Defendant) attached to the judgment in prior instance and thus, presence of each of such Defendant's Products falls under the circumstance to ruin the Present Presumption.

By examining the above, it is found that the line light irradiation devices of the other companies described in the list of competitive products (asserted by Defendant) attached to the judgment in prior instance described in the list of competitive products (asserted by Defendant) attached to the judgment in prior instance fall under the competitive products of each of Defendant's Products, and presence of such competitive products of each of Defendant's Products is found to fall under the circumstance to ruin the Present Presumption. The reasons are as corrected as follows and as described from page 60, line 2 to page 61, line 8 of the judgment in prior instance, which is cited.

(a) "(C)" on page 60, line 2 in the judgment in prior instance shall be altered to "(a)" and "(D)" on the same page, the last line to "(b)".

(b) The part from "in the present case," on page 61, line 3 in the judgment in prior instance to the same page, the end of line 4 shall be altered to "presence of such competitive products of each of Defendant's Products is found to fall under the circumstance to ruin the Present Presumption".

(c) The following shall be added to the end of page 61, line 8 in the judgment in prior instance.

"there is no description found in the catalog (Exhibit Ko 3) and web pages

(Exhibits Ko 4, Ko 13) of each of Defendant's Products, suggesting that the present re-corrected invention is worked in each of Defendant's Products or performance as the light irradiation device is improved by the working, and the reduction of the number of components and manufacturing costs can be realized and the like. On the other hand, in view of the fact that the functions related to the intensity of the light amount of each of Defendant's Products such as 'the industry's highest level light amount is realized', 'astonishing brightness is realized' as the advertising phrases, working of the present re-corrected invention in each of Defendant's Products cannot be considered to be a great appeal to customers."

c. By examining the above as the premise, when the contents of the circumstances ruining the present presumption in the aforementioned a(a) and b and the technical meanings of the present re-corrected invention and the like are comprehensively considered, it is reasonable to find that contribution of the present re-corrected invention to formation of the marginal profits of each of Defendant's Products is ●●, and regarding the portion beyond the contribution rate, no reasonable causal relation is found between the amount of marginal profits of each of Defendant's Products and the amount of damages suffered by the Appellant.

Therefore, the Present Presumption is found to be ruined to the aforementioned limit by the circumstances ruining the present presumption in the aforementioned a(a) and b.

Then, the amount of the marginal profits of each of Defendant's Products after the ruination of the presumption is 5,622,270 yen described in the column ③ in the attached table for calculating allowed amounts.

d. On the other hand, first court Defendant asserts that [i] in each of Defendant's Products, the present re-corrected invention has a great appeal to customers even in the white LED mounted product and the blue LED mounted product; [ii] regarding the domestic share (on the quantity basis) of the image processing LED lighting, first court Plaintiff was ranked first, and first court Defendant was ranked second throughout the period from 2014 to 2018, the share of first court Plaintiff exceeded 20% (Exhibits Ko 18 to 22), and since first court Plaintiff has the share of 20% or more of the image processing LED lighting as above, if there were no sales of each of Defendant's Products, it is obvious that at least 20% of that would be directed to each of Plaintiff's Products, and from the viewpoint of reliability of the company whose share is ranked on the top, it is highly probable that customers who purchased each of Defendant's Products having the second-rank share would purchase each of Plaintiff's Products having the first-rank share if there were no sales of each of Defendant's

Products; [iii] in each of the products described in the list of competitive products attached to the judgment in prior instance (asserted by Defendant), with the large quantity of types of each of Plaintiff's Products, if there were no sales of each of Defendant's Products, it is considered that the rate of demand corresponding to this toward each of Plaintiff's Products is extremely high and thus, the Present Presumption is not ruined beyond 50%.

However, with regard to [i], as taught in the aforementioned b (portion cited from the judgment in prior instance), the present re-corrected invention's appeal to customers is not considered to be large.

Moreover, with regard to [ii], each of Plaintiff's Products and each of Defendant's Products is a light irradiation device (line light irradiation device) for emitting the line light. Even if first court Plaintiff is ranked first in the share in a category of image processing LED lighting in general, which is wider than that of the line light irradiation device and its share exceeds 20%, if there were no sales of each of Defendant's Products, it cannot be considered that such probability is high that the 20%-demand corresponding to this is directed to each of Plaintiff's Products, and each of Plaintiff's Products is purchased.

Furthermore, with regard to [iii], even if the number of types of each of Plaintiff's Products is large, if there were no sales of each of Defendant's Products, the rate of the demand corresponding to this toward each of Plaintiff's Products cannot be considered to be extremely high.

Therefore, the aforementioned assertion by first court Plaintiff cannot be employed.

(B) Presence of joint owner for the portion sold during the present periods 1 and 2

Other than the correction made as follows, it is as described from page 61, line 13 to page 63, line 23 in the judgment in prior instance, which is cited.

a. The phrase that "which is its starting time" on page 61, line 14 in the judgment in prior instance shall be altered to "belonging to the present periods 1 and 2", and "joint ownership" on the same page, line 15 to "jointly owned (each share being one half).

b. The part from page 61, line 16 to page 62, line 12 in the judgment in prior instance shall be altered as follows.

"b(a) Article 73, paragraph (2) of the Patent Act prescribes that if a patent right is jointly owned, unless otherwise agreed upon in a contract, each of the joint owners of the patent right may work the patented invention without the consent of any other joint owner and thus, each of the joint owners may work the patented invention

without limit, regardless of the jointly-owned portion of himself/herself, except in the aforementioned case.

Then, it is interpreted that the joint owner of the patent right may claim compensation for damage of the amount of damages from the infringer on the ground of Article 102, paragraph (2) of the Patent Act in accordance with the degree of working of the patented invention in case of damage suffered by the infringement on the jointly owned right of himself/herself. Moreover, in view of the fact that the same Article, paragraph (3) is interpreted to be a provision legally determining the lowest level of the amount of damages that can be claimed by the patent right holder in case of the patent right infringement, since there is no such circumstance that, if there was no infringement by the infringer on the joint owner of the patent right, profits would be obtained, it is interpreted that, even if the application of the same Article, paragraph (2) is not approved, the compensation for damage of the amount of damages corresponding to the working fee on the ground of the same Article, paragraph (3) can be claimed in accordance with the rate of jointly owned portion of himself/herself.

However, if one of two joint owners is to singularly make a claim for compensation for damage of the amount of damages on the ground of the same Article, paragraph (2), for example, the profits that the infringer received by the infringement are caused not only by the infringement on the jointly owned right of the one joint owner but are considered to be caused by the infringement on the jointly owned right of the other joint owners and thus, the portion corresponding to the amount of damages related to the infringement on the jointly owned rights of the other joint owners is found to have no reasonable causal relations with the amount of damages suffered by the one joint owner, and it is reasonable to interpret that the presumption pursuant to the same Article, paragraph (2) shall be ruined to this limit.

By comprehensively considering the above, the facts that the patent rights are jointly owned with the other joint owner and that the other joint owner receives the profits from working of the patented invention can be grounds for ruination of presumption pursuant to the same paragraph, and when the infringer asserts/proves that the patent right is jointly owned by another joint owner, it is reasonable to interpret that the presumption pursuant to the same paragraph is ruined to the limit of the amount of damages corresponding to the amount of the working fee on the ground of the same Article, paragraph (3) by the ratio of joint ownership interests of the other joint owner, and moreover, when the infringer asserts/proves that the another joint owner is working the patented invention, the presumption pursuant to the same Article,

paragraph (2) is ruined to the limit of the amount of damages prorated in accordance with the degree of working of the other joint owner (ratio of the amounts of profits by working between the joint owners).

By applying this to this case, first court Plaintiff and Mitsubishi Chemical jointly owned the Present Patent Right at the ratio of shares of 2:1 during the present periods 1 and 2 as described in the aforementioned a, while there is no verification that Mitsubishi Chemical worked the present re-corrected invention in those periods.

Then, the present presumption on the portions sold during the present periods 1 and 2 should be considered to be ruined to the limit of the amount of damages corresponding to the working fee on the ground of the same Article, paragraph (3) by the ratio of jointly owned interests of Mitsubishi Chemical.

(b) On the other hand, first court Plaintiff asserts that [i] when the jointly-owned interests of the present patent right were transferred from Mitsubishi Chemical, the right to claim for compensation for damage from first court Defendant on the ground of the Present Patent Right infringement held by Mitsubishi Chemical was succeeded from Mitsubishi Chemical; [ii] if there are a plurality of infringers, the respective obligations for compensation for damage become untrue joint and several obligations and thus, it should be considered that the respective right to claim for compensation for damage when there are a plurality of right holders also become untrue joint and several claims. Moreover, by considering that the provisions for joint and several claims (Article 432) are provided in the current Civil Code, the fact that the Present Patent Right was jointly owned by first court Plaintiff and Mitsubishi Chemical does not fall under the grounds for ruination of the Present Presumption.

However, with regard to [i], there is insufficient evidence to admit that first court Plaintiff succeeded the right to claim for compensation for damage from first court Defendant on the ground of the Present Patent Right infringement held by Mitsubishi Chemical.

Subsequently, with regard to [ii], there is no reason that presence of the plurality of right holders should be interpreted that the respective rights to claim for compensation for damage readily become untrue joint and several claims.

Moreover, the Present Patent Right was jointly owned by first court Plaintiff and Mitsubishi Chemical, but since first court Plaintiff received registration of assignment of the jointly-owned interests, which is a half of the Present Patent Right, from Mitsubishi Chemical (date of reception: November 21, 2014), the joint ownership of the Present Patent Right was dissolved, and the Present Patent Right became severalty of first court Plaintiff. In that view, first court Plaintiff and Mitsubishi Chemical are

not closely related on the basis of the joint ownership at the present, and there are no rational reasons to interpret that the right to make a claim for compensation for damage from first court Defendant on the ground of the Present Patent Right infringement is untrue joint and several claims.

Furthermore, Article 432 of the Civil Code prescribes that, when several persons jointly have claims, the claims of the respective obligees become joint and several claims by the provisions of laws and ordinances or declaration of intention by the parties, but in this case, since there is no assertion/verification on the provisions of the laws and ordinances or declaration of intension by the parties, the same Article or the purport thereof does not fall under this case.

Therefore, the aforementioned assertion by first court Plaintiff cannot be employed.

(c) Moreover, first court Defendant asserts that the right to make a claim for compensation for damage related to the joint ownership is a divisible claim, and each of the joint owners shall claim the amount according to the equity interest of himself/herself in principle, and if there is a special fact situation different from that, the joint owner who would claim the damages amount exceeding it should prove the fact. However, since first court Plaintiff has not verified that Mitsubishi Chemical did not work the present re-corrected invention during the present periods 1 and 2, the amount of damages related to the present periods 1 and 2 should be prorated in accordance with the ratio of interests of the joint owners.

However, the aforementioned assertion by first court Defendant cannot be employed due to the grounds taught in the aforementioned (a)."

c. The part from page 63, lines 22 to 23 in the judgment in prior instance shall be altered as follows.

"e. According to the above, the amount of damages of Mitsubishi Chemical for the portion sold during the present periods 1 and 2 is reasonably found to be 266,379 yen described in the ④ column in the attached table for calculating the allowed amounts."

D. Summary

According to the above, first court Plaintiff's amount of damages on the ground of Article 102, paragraph (2) of the Patent Act is found to be 5,355,891 yen in total (amount obtained by deducting 266,379 yen described in column ④ from 5,622,270 yen described in column ③ in the table for calculation) as described in column ⑤ in the attached table for calculating the allowed amounts.

(2) Attorney's fee and patent attorney's fee

By considering the contents of this case, histories of trials in the court of prior instance and this court, and the circumstances such as approved amounts and the like, the amount of damages of first court Plaintiff corresponding to the attorney's fee and patent attorney's fee having reasonable causal relations with the infringement by first court Defendant on the Present Patent Right is reasonably found to be 800,000 yen (amount described in column ⑥ in the attached table for calculating the approved amounts).

(3) Summary

According to the above, first court Plaintiff is found to have the right to make a claim for compensation for damage from first court Defendant on the ground of the tort of the Present Patent Right infringement of 6,155,891 yen (the amount described in column ⑦ in the attached table for calculating the approved amounts) and of delay damages at the rate of 5% per annum prescribed in the Civil Code for 4,659,192 yen among that from August 11, 2017 (the day following the date of service of the legal complaint) and for 1,496,699 yen among that (the amount of damages of first court Plaintiff during the present period 4 described in ③ column in the attached table for calculating) from October 1, 2018 (after the day of the last sales) until completion of payments.

8. Issue 7 (establishment of extinctive prescription)

It is as described on page 64, the last line to page 65, line 24 in the judgment in prior instance, which is cited.

9. Issue 8 (profit amount of first court Defendant) (preliminary claims)

Other than deletion of the phrase "as above (No. 2, 1(3)B)," on page 66, line 3 in the judgment in prior instance, it is as described on the same page, lines 1 to 6, which is cited.

No. 5 Conclusion

According to the above, first court Plaintiff's claims have grounds to the limit of claims for injunction of manufacture, sales, and the like of each of Defendant's Products and for payment of 6,155,891 yen and interest at the rate of 5% per annum for 4,659,192 yen from August 11, 2017 among that and for 1,496,699 yen from October 1, 2018 until completion of the payment, while the remaining claims have no grounds and should be dismissed.

Therefore, the judgment in prior instance different from that is unreasonable, and first court Defendant's appeal has a partial ground and thus, the judgment in prior instance shall be changed as above, first court Plaintiff's appeal shall be dismissed, and the judgment shall be rendered as in the main text.

Intellectual Property High Court, Fourth Division
Presiding judge: OTAKA Ichiro
Judge: MOTOYOSHI Hiroyuki
Judge: OKAYAMA Tadahiro

(Attachment)

List of Defendant's Products

The following light irradiation devices:

Product Name: Line lighting 600,000 lx Brimax line lighting II

(model)
1. IDBB-LSR ●●●●W
2. IDBB-LSR ●●●●R
3. IDBB-LSR ●●●●B
4. IDBB-LSR ●●●●W-S
5. IDBB-LSR ●●●●R-S
6. IDBB-LSR ●●●●B-S
7. IDBB-LSR ●●●●IR-860-S

(Each of ● above stands for numerals in increments of 100 from 200 to 3000)

(Attachment)

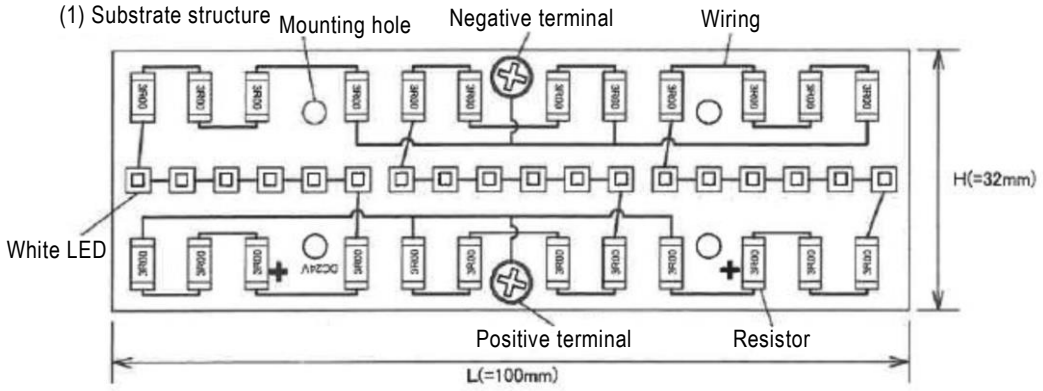
Article Description

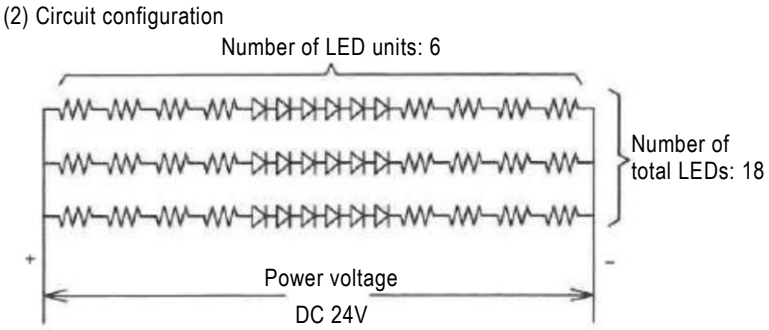
A structure of each of Defendant's Products (light irradiation device IDBB-LSR series) is as follows.

No. 1 Constitutional diagram of each of Defendant's Products

1. Defendant's Product 1 (white light emission: model number: IDBB-LSR ●●●●W) and Defendant's Product 4 (white light emission: model number: IDBB-LSR ●●●●W-S)

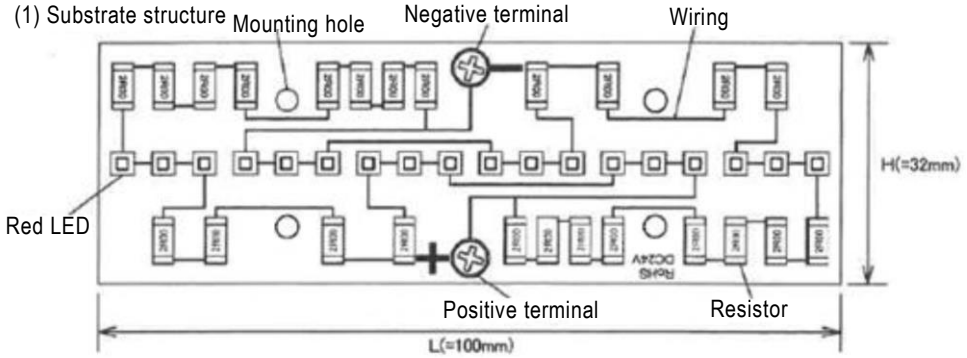
※ Each of ● above stands for numerals in increments of 100 from 200 to 3000 (size in the unit of mm) (the same applies to the following)



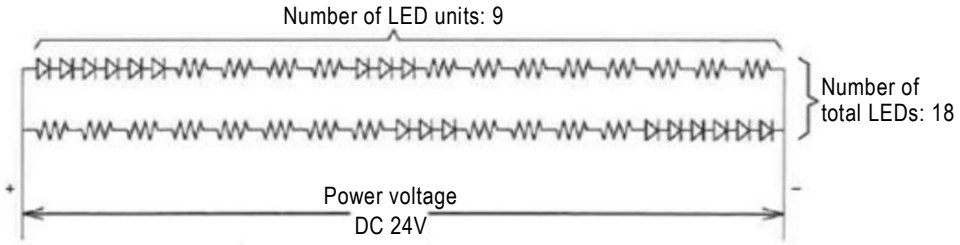


2. Defendant's Product 2 (red light emission: model number: IDBB-LSR ●●●●R), Defendant's Product 5 (red light emission: model number: IDBB-LSR ●●●●R-S), and Defendant's Product 7 (infrared light emission: model number: IDBB-LSR ●●●●IR-860-S)

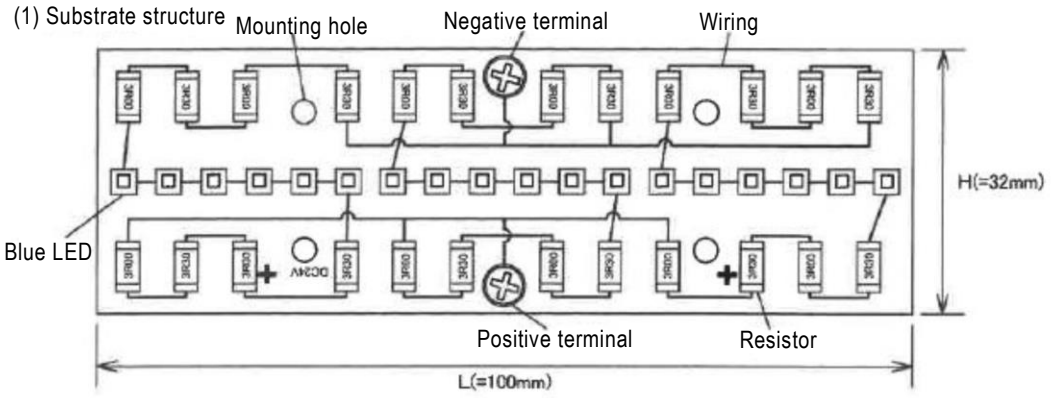
(1) Substrate structure

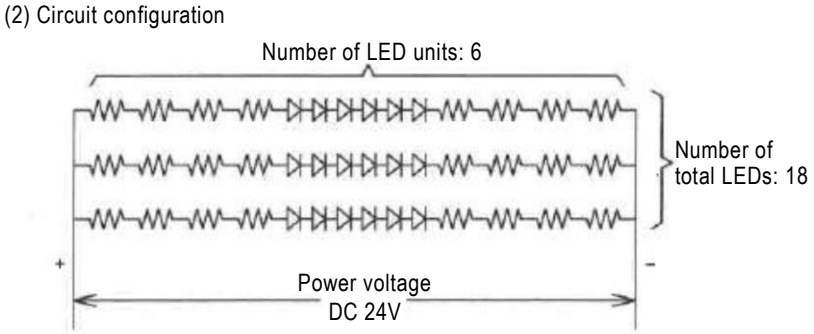


(2) Circuit configuration



3. Defendant's Product 3 (blue light emission: model number: IDBB-LSR ●●●●B) and Defendant's Product 6 (blue light emission: model number: IDBB-LSR ●●●●B-S)





No. 2 Explanation of structures

1. Structure of each of Defendant's Products

(1) Common structure

Each of Defendant's Products is a light irradiation device for emitting line light, including an LED substrate on which a plurality of LEDs of the same type are mounted and a housing having a substrate accommodating space for accommodating this LED substrate, respectively, and is operated when a power voltage of 24V is applied.

The LED substrate has a rectangular shape of the same size (width: 100 mm, height: 32 mm), and mounting holes are provided at four spots thereof.

18 pieces of the LEDs are aligned/provided in one row at the center part in a width direction on this LED substrate.

Moreover, a plurality of the LED substrates are aligned in series along the line direction.

(2) Structures of Defendant's Products 1 and 4

In each of Defendant's Products 1 and 4, three LED rows made of six white LEDs connected in series are connected in parallel. Therefore, the LED unit numbers in Defendant's Products 1 and 4 are six.

Moreover, since the forward voltage of the single white LED is 3.1V, the total of the forward voltages of the six white LEDs connected in series is 18.6V. The total of 18.6V of the forward voltages has an allowance of 5.4V to the power voltage 24V, and the allowance; that is, a difference from the power voltage, is set as an allowable range which enables a reliable operation of the white LED.

(3) Structures of Defendant's Products 2 and 5

In each of Defendant's Products 2 and 5, two LED rows made of nine red LEDs connected in series are connected in parallel. Therefore, the LED unit numbers in Defendant's Products 2 and 5 are nine.

Moreover, since the forward voltage of the single red LED is 2V, the total of the forward voltages of the nine red LEDs connected in series is 18V. The total of 18V of the forward voltages has an allowance of 6V to the power voltage 24V, and the allowance; that is, a difference from the power voltage, is set as an allowable range which enables a reliable operation of the red LED.

(4) Structure of Defendant's Product 7

In Defendant's Product 7, two LED rows made of nine infrared LEDs connected in series are connected in parallel. Therefore, the LED unit number in Defendant's Product 7 is nine.

Moreover, since the forward voltage of the single infrared LED is 2V, the total of the forward voltages of the nine infrared LEDs connected in series is 18V. The total of 18V of the forward voltages has an allowance of 6V to the power voltage 24V, and the allowance; that is, a difference from the power voltage, is set as an allowable range which enables a reliable operation of the infrared LED.

(5) Structures of Defendant's Products 3 and 6

In each of Defendant's Products 3 and 6, three LED rows made of six blue LEDs connected in series are connected in parallel. Therefore, the LED unit numbers in Defendant's Products 3 and 6 are six.

Moreover, since the forward voltage of the single blue LED is 3V, the total of the forward voltages of the six blue LEDs connected in series is 18V. The total of 18V of the forward voltages has an allowance of 6V to the power voltage 24V, and the allowance; that is, a difference from the power voltage, is set as an allowable range which enables a reliable operation of the blue LED.

2. Relations between the number of LEDs mounted on the LED substrate of each of

Defendant's Products and the LED unit number

(1) Defendant's Products 1 and 4

The number (18) of the white LEDs mounted on the LED substrate in Defendant's Products 1 and 4 is the least common multiple of the LED unit numbers (6) of Defendant's Products 1 and 4 and the LED unit numbers (9) of Defendant's Products 2 and 5 or Defendant's Product 7 on which the LEDs with different forward voltages are mounted.

(2) Defendant's Products 2 and 5

The number (18) of the red LEDs mounted on the LED substrate in Defendant's Products 2 and 5 is the least common multiple of the LED unit numbers (9) of Defendant's Products 2 and 5 and the LED unit numbers (6) of Defendant's Products 1 and 4 or Defendant's Products 3 and 6 on which the LEDs with different forward voltages are mounted.

(3) Defendant's Product 7

The number (18) of the infrared LEDs mounted on the LED substrate in Defendant's Product 7 is the least common multiple of the LED unit numbers (9) of Defendant's Product 7 and the LED unit numbers (6) of Defendant's Products 1 and 4 or Defendant's Products 3 and 6 on which the LEDs with different forward voltages are mounted.

(4) Defendant's Products 3 and 6

The number (18) of the blue LEDs mounted on the LED substrate in Defendant's Products 3 and 6 is the least common multiple of the LED unit numbers (6) of Defendant's Products 3 and 6 and the LED unit numbers (9) of Defendant's Products 2 and 5 or Defendant's Product 7 on which the LEDs with different forward voltages are mounted.

(Attachment)

Table for calculating the approved amounts

	①	②	③	④	⑤	⑥	⑦
	Sales amount	Sales profit amount (marginal profit)	[redacted] (Numbers beyond the decimal point truncated)	Mitsubishi Chemical's portion [redacted] (Numbers beyond the decimal point truncated)	Plaintiff's damages amount (③－④)	Amount corresponding to attorney's fee and the like	⑤＋⑥
Present period 1	[redacted]	[redacted]	983; 000	204, 483	778, 517		
Present period 2	[redacted]	[redacted]	296, 857	61, 896	234, 961		
Present period 3		[redacted]	2, 845, 714		2, 845, 714		
Present period 4		[redacted]	1, 496, 699		1, 496, 699		
Total	[redacted]	[redacted]	5, 622, 270	266, 379	5, 355, 891	800, 000	6, 155, 891

(Remarks)

Present period 1: July, 2012 to July, 2014

Present period 2: August, 2014 to November, 2014

Present period 3: December, 2014 to July, 2017

Present period 4: August, 2017 to September, 2018

(Attachment) Table for calculating the amount of damages asserted by Plaintiff

	①	②	③	④	⑤
	Sales amount	Sales profit amount (marginal profit)	Marginal profit after ruination [redacted] (Numbers beyond the decimal point truncated)	Amount corresponding to attorney's fee and the like	③+④
Present period 1	[redacted]	[redacted]			
Present period 2	[redacted]	[redacted]		3, 430, 000	37, 809, 768
Present period 3	[redacted]	[redacted]			
Present period 4	[redacted]	[redacted]		1, 240, 000	13, 712, 477
Total	[redacted]	[redacted]	46, 852, 265	4, 670, 000	51, 522, 245

(Remarks)

Present period 1: July, 2012 to July, 2014

Present period 2: August, 2014 to November, 2014

Present period 3: December, 2014 to July, 2017

Present period 4: August, 2017 to September, 2018

(Attachment) Table for calculating the amount of damages in judgment in prior instance

	①	②	③	④	⑤	⑥	⑦
	Sales amount	Sales profit amount (marginal profit)	Marginal profit after ruination [redacted] (Numbers beyond the decimal point truncated)	Mitsubishi Chemical's damage [redacted] (Numbers beyond the decimal point truncated)	Plaintiff's damages amount (③－④)	Amount corresponding to attorney's fee and the like	⑤＋⑥
Present period 1	[redacted]	[redacted]	1, 638, 333	204, 483	1, 433, 850	660, 000	7, 269, 573
Present period 2	[redacted]	[redacted]	494, 762	61, 896	432, 866		
Present period 3		[redacted]	4, 742, 857		4, 742, 857		
Present period 4		[redacted]	2, 494, 495		2, 494, 495	240, 000	2, 734, 495
Total	[redacted]	[redacted]	9, 370, 447	266, 379	9, 104, 068	900, 000	10, 004, 068

(Remarks)

Present period 1: July, 2012 to July, 2014

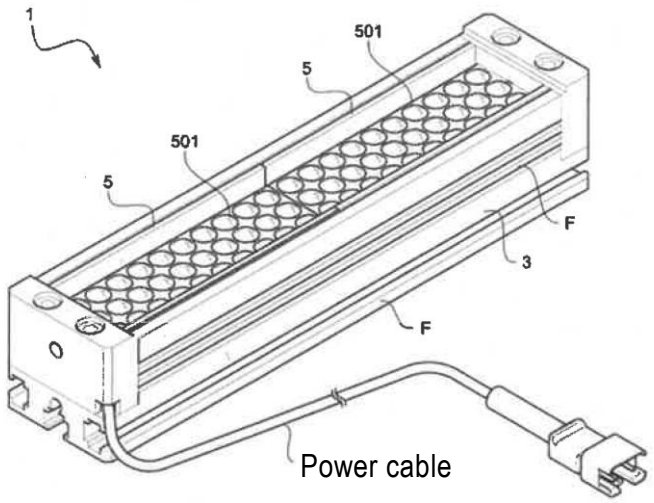
Present period 2: August, 2014 to November, 2014

Present period 3: December, 2014 to July, 2017

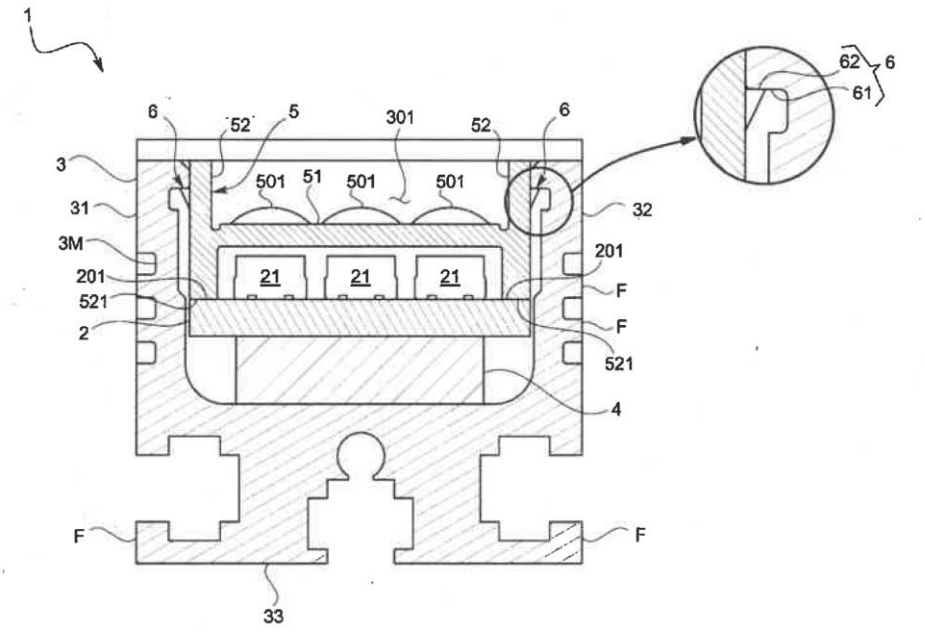
Present period 4: August, 2017 to September, 2018

(Attachment)

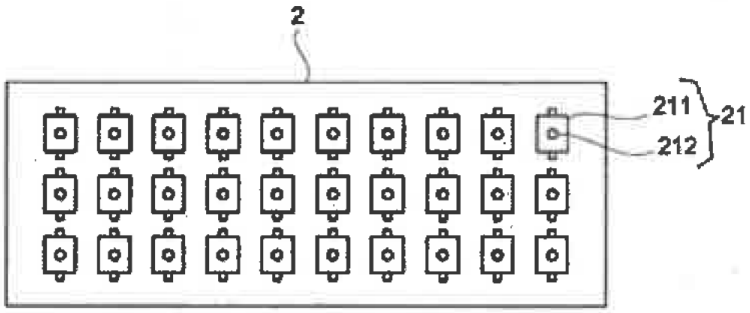
Drawings in description



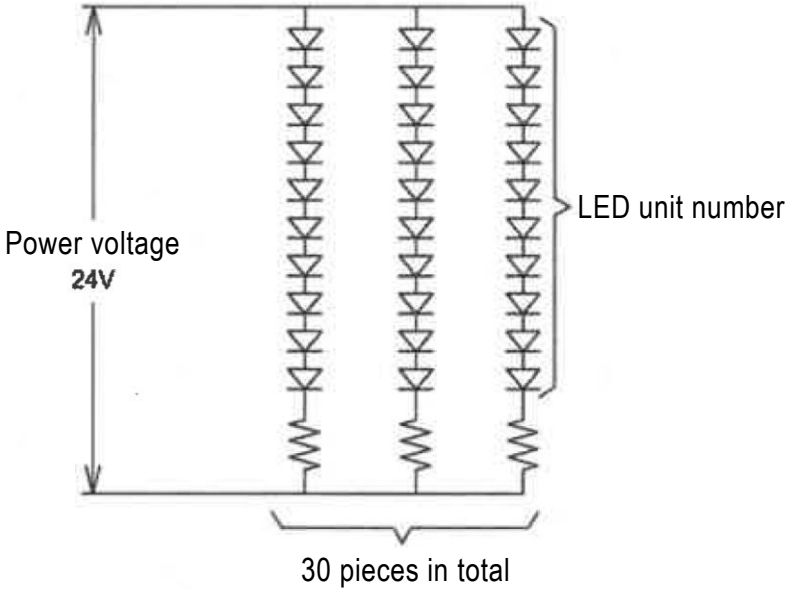
[Figure 1]



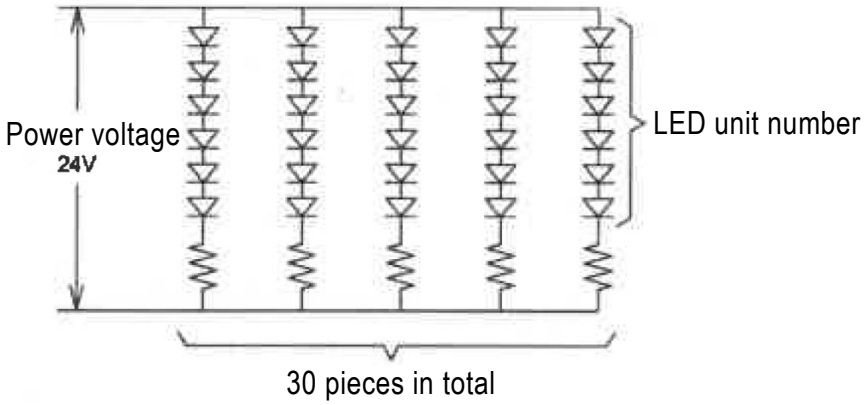
[Figure 2]



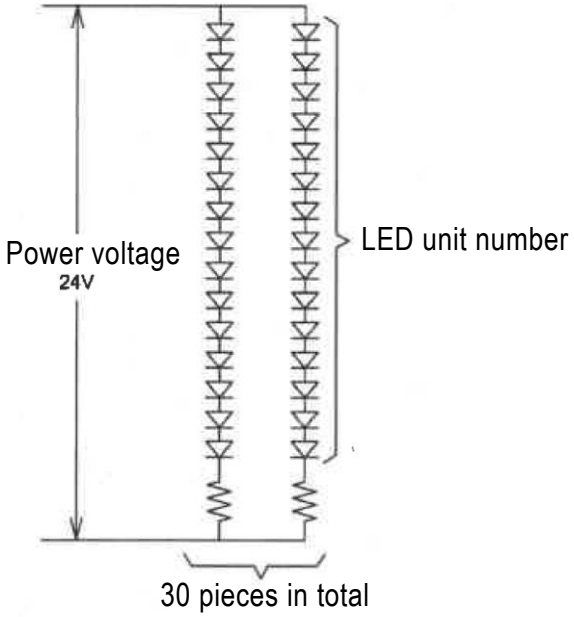
[Figure 3]



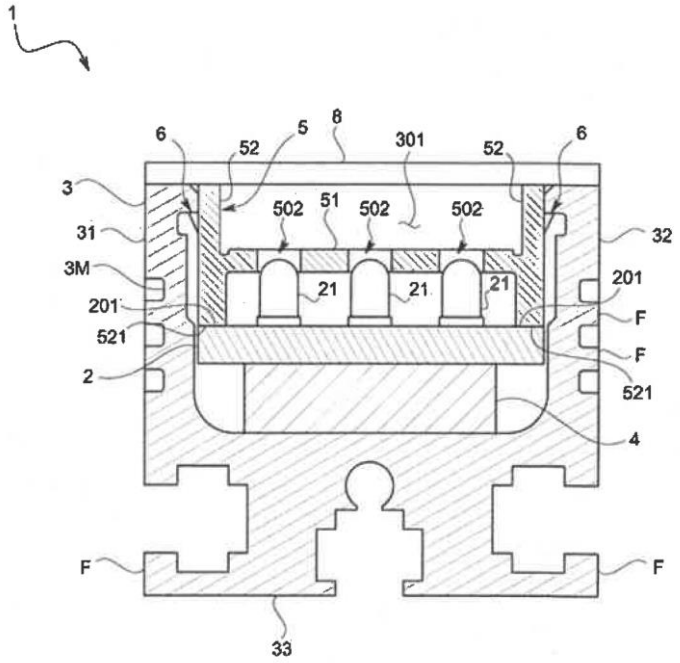
[Figure 4]



[Figure 5]



[Figure 6]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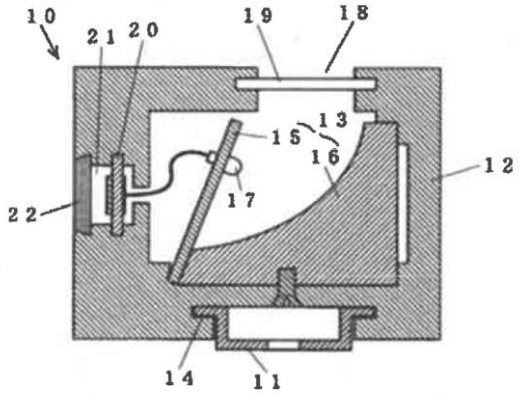
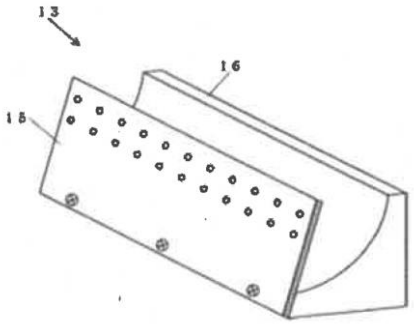
[Figure 7]

(Attachment)

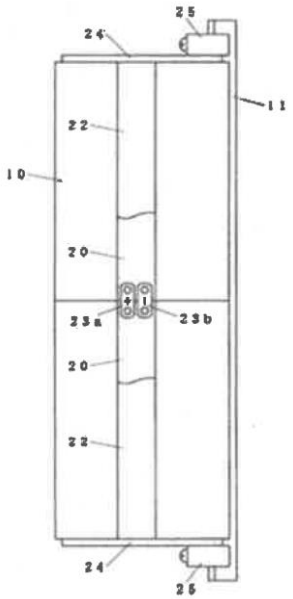
Exhibit Otsu 18 drawings



[Figure 11]



[Figure 12]



[Figure 13]