Appeal Decision

Appeal No. 2020-15170

Appellant	Schott AG
Patent Attorney	Felix-Reinhard, Einsel
Patent Attorney	MAEKAWA, Junichi
Patent Attorney	NAGASHIMA, Hideo
Patent Attorney	NINOMIYA, Hiroyasu
Patent Attorney	UESHIMA, Rui

The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2017-123344, entitled "HERMETICALLY SEALED LED LIGHT AND METHOD FOR MANUFACTURING HERMETICALLY SEALED LED LIGHT" (the application published on September 14, 2017, Japanese Unexamined Patent Application Publication No. 2017-162843) has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

No. 1 History of the procedures

The present application is a divisional application filed on June 23, 2017 from Japanese Patent Application No. 2016-42331 (hereinafter, referred to as "the original application") filed on March 4, 2016 (priority claim under the Paris Convention: March 6, 2015, and March 10, 2015, (DE)). A notice of reasons for refusal was issued on December 20, 2019, a written opinion and a written amendment were submitted on April 7, 2020, and a decision for refusal (hereinafter, referred to as "the examiner's decision") was issued on June 24, 2020. Against that, an appeal against the examiner's decision of refusal was requested and a written amendment was submitted at the same

time, on October 30, 2020.

No. 2 Decision to dismiss amendment on the written amendment dated October 30, 2020

[Conclusion of Decision to Dismiss Amendment]

The written amendment dated October 30, 2020 shall be dismissed.

[Reason]

1 Details of Amendment

The written amendment dated October 30, 2020 (hereinafter, referred to as "the Amendment") amends the scope of claims, and the recitation of Claim 4 before/after the amendment is shown as follows by giving underlines to the amended parts.

(1) Claim 4 before the Amendment

"[Claim 4]

A hermetically sealed LED light, comprising:

a base made of ceramic; at least one LED on the base; and a metal cap having at least one window and soldered to the base by a metal solder;

wherein the metal solder is a gold-tin solder".

(2) Claim 4 after the Amendment

"[Claim 4]

A hermetically sealed autoclavable LED light, comprising:

a base made of ceramic; at least one LED on the base; and at least one metal cap having at least one window and soldered to the base by a metal solder;

wherein the metal solder is a gold-tin solder, and

wherein the metal cap is formed of stainless steel".

2 Propriety of amendment

2-1 Purpose of amendment

The amendment of Claim 4 according to the Amendment adds the limitation of an "autoclavable" configuration to "an LED light" recited in Claim 4 before the amendment, and further adds the limitation of "is formed of stainless steel" to "the metal cap". Since the invention recited in Claim 4 before the Amendment and the invention recited in Claim 4 after the Amendment are identical regarding the field of industrial application and the problems to be solved, the Amendment falls under the restriction of

the scope of claims in accordance with Article 17-2(5)(ii) of the Patent Act.

Then, it will be examined below whether or not the invention specified by the matter recited d in Claim 4 after the Amendment (hereinafter, referred to as "the Amended Invention") falls under the provisions of Article 126(7) of the Patent Act which is applied mutatis mutandis pursuant to the provisions of Article 17-2(6) of the Patent Act (whether or not the Appellant can be granted a patent independently at the time of filing of the patent application).

2-2 Independent requirements for patentability
(1) Described matters in Cited Documents, etc.
(1-1) Described matters in Cited Document 1, etc.
(1-1-1) Described matters in Cited Document 1

National Publication of International Patent Application No. 2014-520640 (hereinafter, referred to as "Cited Document 1"), which has been cited as Cited Document 1 in the reasons for refusal stated in the examiner's decision, and which was published before the priority date of the original application, describes the following matters. (Underlines are added by the body. The same shall apply hereinafter.)
(1a)
"[0001]

The present invention is a lighting means for medical applications, especially dental instruments, especially for instrument heads of these instruments, and has at least one semiconductor element for emitting electromagnetic rays, especially light rays in the visible wavelength region.
[Background Art]
[0002]

Lighting means for medical applications, especially dental instruments, is known, for example, from utility model DE 20 2005 020 763 U1. The lighting means includes a metallic cap having a window for irradiating light, and a metallic socket welded to the metallic cap, and constitutes an internal space encapsulated from the cap and the socket. In this internal space, an optical semiconductor element (LED) fixed on the socket for generating light is provided. Two metallic electrical contacts penetrate the socket and are connected to the optical semiconductor element as energy supply means. Both contacts are glass-sealed at the socket. The structure of such lighting means has a proven track record, and the optical semiconductor elements incorporated into the encapsulated internal space are protected from highly corrosive environmental conditions and dirt, for example, by cleaning instruments in sterilizers. However,

encapsulation increases the size of the lighting means and increases the space required for the instrument or the lighting means within the instrument.

...

[0060]

Preferably, at least one semiconductor element is disposed within the body of the lighting means, particularly preferably in a sealed chamber. The chamber is preferably sealed so that particles and/or water vapor and/or fluid do not seep into the chamber. In particular, the chamber is preferably sealed to withstand the cleaning process or sterilization process over and over; that is, to prevent media such as detergents and water vapor used in the above-mentioned process from seeping into the chamber. Further, at least a part of the chamber or the chamber wall surrounding the internal space of the chamber is preferably made of a material that is transparent to the electromagnetic rays emitted from the semiconductor element and/or guides the electromagnetic rays.

...

[0073]

The medical instrument, especially dental instrument 1, shown in FIGS. 1 and 9 has one end configured as an elongated, pipe-shaped appliance 1 or a handpiece having, for example, a control means, a drive unit, an energy source, and/or a fluid source, particularly preferably a water source and/or a connecting portion 24 that is detachably connected to a compressed air source. The instrument 1 includes a grip portion 25 that includes two portions that are curved or angled to each other, and an instrument head 2 following that. The instrument head 2 is provided with a tool opening 26 through which the tool 4 for acting on the treatment site can be detachably connected to the instrument head 2. In the instrument head 2, for example, a detachable tool holding means 28 such as a clamp through which the tool 4 is detachably fixed to the instrument head 2 is arranged. The tool opening 26 is arranged on the side of the instrument head 2 so that the tool 4 has an angle to the grip portion 25 or so that its vertical axis protrudes from the instrument head 2. At the terminal end of the instrument head 2 on the opposite side of the tool opening 26, a push button 27 is provided, which acts on the tool removing means 29 in the instrument head 2 to unlock the tool 4 from the instrument head 2 or the tool holding means 28. Of course, the instrument 1 may have other known shapes, such as a pistol type or a straight type.

...

[0075]

Lighting means 3, 3A are provided on the instrument head 2, or particularly

preferably, at a terminal end on the tool opening 26 side of the instrument head 2. The lighting means 3, 3A are particularly preferably located around the tool opening 26 or surround the ring, and the lighting means 3, 3A are configured as a ring light.

...

[0077]

The body 6 of the lighting means 3 particularly preferably has a perforation, a mounting portion, or an opening 5 in the center. The opening 5 is connected to the tool opening 26 in a state where the surface/height is aligned, or surrounds the tool opening 26. Then, the tool 4 can be mounted in the mounting portion or the opening 5, or the tool 4 can be inserted in or removed from the instrument head 2 through the mounting portion or the opening 5. As is clear from FIG. 2, the perforation or opening 5 can be formed in a cylindrical shape.

[0078]

The body 6 is provided with a semiconductor element 7 configured to radiate electromagnetic rays, particularly preferably electromagnetic rays (visible light) in the visible region, thereon or therein. The semiconductor element 7 is implemented as, for example, a light emitting diode (LED) or a die. At least a part of the electromagnetic rays generated by the semiconductor element 7 is irradiated through one or a plurality of photo-conducting, especially preferably transparent ray output surfaces or electromagnetic ray output surfaces 8, on the light ray output terminal end 9 side of the lighting means of the lighting means 3 or on the surface of the lighting means 3.

...

[0084]

In particular, as is apparent from FIG. 4, at least one semiconductor element 7 is housed in the chamber 22, particularly preferably in a sealed state. When a plurality of semiconductor elements 7 are present, preferably, respectively independent chambers 22 are provided, and particularly preferably, each chamber 22 contains one semiconductor element 7 (see FIG. 5). The chamber 22 protects the semiconductor element 7 from dirt, especially impurities present as particles, fluids, gases, and vapors.

...

[0085]

The chamber 22 is arranged in the mantle surface 12 of the body 6. The chamber 22 or the inner wall of the chamber 22 is preferably composed of a plurality of layers 18 and 19 in which the body 6 of the lighting means 3 is formed.

...

[0087]

The lighting means 3 further has at least one optical electromagnetic ray conductor 21 which is disposed so that an electromagnetic ray emitted from the semiconductor element 7 is directed toward directions of the electromagnetic ray output terminal 9 of the lighting means 3 and/or a light ray or the light ray output surface 8. When a plurality of semiconductor elements 7 are provided, the plurality of electromagnetic ray conductors 21 may also be provided, and preferably one electromagnetic ray conductor 21 is assigned to each semiconductor element 7. Although the electromagnetic ray conductor 21 has two terminal ends 21A and 21B, the first terminal end 21A faces the direction of the semiconductor element 7. The first terminal end 21A is connected to the chamber 22 or forms a part of the boundary of the chamber 22, particularly preferably forms a part of the boundary wall of the chamber 22. The second terminal end 21B of the electromagnetic ray conductor 21 faces the direction of the electromagnetic ray output terminal 9, or forms at least a part of the light beam of the lighting means 3 or the electromagnetic ray output surface. The electromagnetic ray conductor 21 is formed, for example, as a cylinder, a rod (see FIG. 4), or a thin disk (see FIG. 6). It is particularly preferable that the electromagnetic ray conductor 21 is housed in the perforation of the lighting means 3 or in the layers 18 and 19 of the lighting means 3, for example, by melting and pouring. The electromagnetic ray conductor 21 is formed as, for example, a glass element, a glass fiber bundle element, a synthetic resin element, or a plastic element.

[0088]

In particular, FIGS. 3, 4, 6, and 7 show that the lighting means 3, 3A, and 3B, or the body 6 is composed of the plurality of layers 18 and 19. The layers 18 and 19 are preferably tightly coupled to each other, for example by welding, soldering, melting, or gluing.

[0089]

The lighting means 3 of FIGS. 3 and 4 has a first ceramic layer 18 in which an electrical conductor 17 (see FIG. 5) for supply to at least one semiconductor element 7 is preferably arranged. The electrical contacts 17A and 17B that connect the electrical conductor 17 to the electrical energy source are also preferably provided in the ceramic layer 18. The ceramic layer 18 is formed, for example, in a circular shape, an annular shape, or a ring shape.

[0090]

The ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed. That is, the perforated wall forms a part of the inner wall of the chamber 22. And a third metal

layer 19 is connected to this. The metal layer 19 preferably has at least one element 34, such as a stopper, a projection, a notch, a protrusion, a screw, or an element similar to these for supporting and/or fixing the lighting means 3 to the instrument head 2. The metal layer 19 also forms the surface of the electromagnetic ray output terminal 9 or the lighting means 3 provided with a light ray or an electromagnetic ray output surface 8 there".

(1b) Cited Document 1 shows the following figures.

【図１】

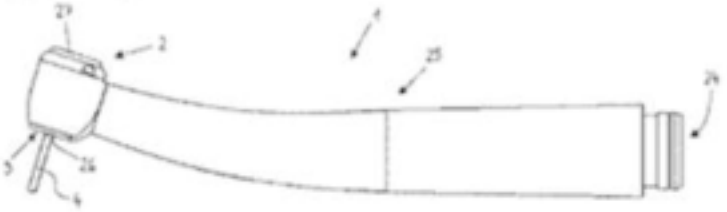

FIG. 1

【図２】

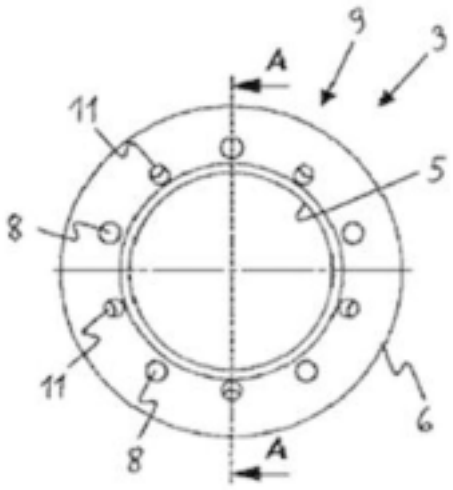

FIG. 2

【図３】

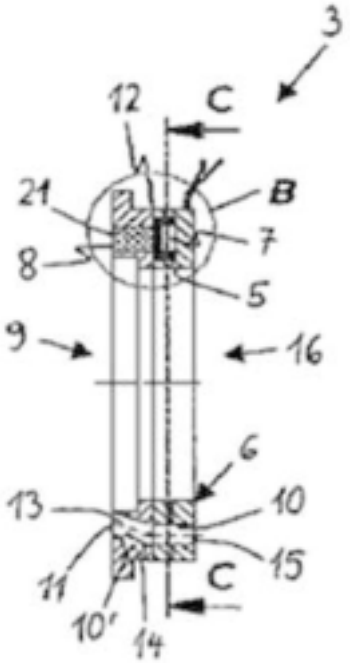

FIG. 3

【図４】

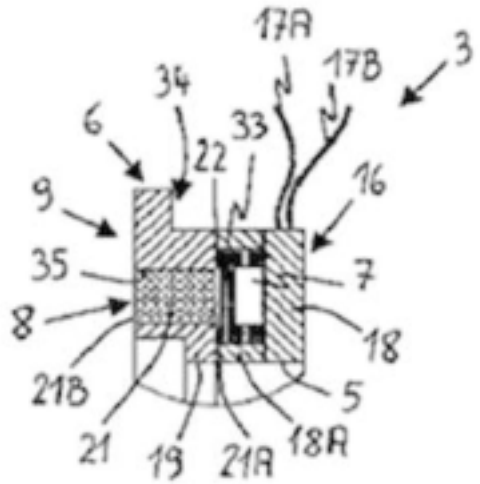

FIG. 4

(1-1-2) Recognized matter

According to Indications (1a) (1b) of Cited Document 1, the following matters can be recognized.

A A lighting means 3 in a dental instrument 1, wherein

the instrument 1 includes a grip portion 25 and an instrument head 2 following that, and

the lighting means 3 is provided at a terminal end on the tool opening 26 side of the instrument head 2 (Paragraphs [0001], [0073] and [0075])

B The body 6 of the lighting means 3 is provided with a semiconductor element 7, and the semiconductor element 7 is configured as a light emitting diode (LED) (Paragraphs [0077] and [0078])

C The semiconductor element 7 is housed in the chamber 22 in a sealed state, and the chamber 22 protects the semiconductor element 7 from impurities present as particles, fluids, gases, and vapors (Paragraph [0084])

D The chamber 22 is arranged in the mantle surface 12 of the body 6, and the chamber 22 or the inner wall of the chamber 22 is composed of a plurality of layers 18 and 19 in which the body 6 of the lighting means 3 is formed (Paragraph [0085])

E The layers 18 and 19 are tightly coupled to each other by soldering,

the layer 18 is configured as a first ceramic layer 18,

the layer 19 is configured as a third metal layer 19,

the ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed, the perforated wall forms a part of the inner wall of the chamber 22, and the third metal layer 19 is connected to the second ceramic layer 18A (Paragraphs [0088] to [0090])

F The lighting means 3 further has an optical electromagnetic ray conductor 21, the electromagnetic ray conductor 21 having two terminal ends 21A and 21B, the first terminal end 21A forming a part of the boundary of the chamber 22, the second terminal end 21B of the electromagnetic ray conductor 21 forming at least a part of the electromagnetic ray output surface 8, and the electromagnetic ray conductor 21 is formed as a glass element. (Paragraph [0087])

(1-1-3) The invention described in Cited Document 1

According to the above, it is recognized that Cited Document 1 describes the invention of

"A lighting means 3 in a dental instrument 1, wherein

the instrument 1 includes a grip portion 25 and an instrument head 2 following

that;

the lighting means 3 is provided at a terminal end on a tool opening 26 side of an instrument head 2;

a body 6 of the lighting means 3 is provided with a semiconductor element 7, and the semiconductor element 7 is configured as a light emitting diode (LED);

the semiconductor element 7 is housed in a chamber 22 in a sealed state, and the chamber 22 protects the semiconductor element 7 from impurities present as particles, fluids, gases, and vapors;

the chamber 22 is arranged in the mantle surface 12 of the body 6, and the chamber 22 or the inner wall of the chamber 22 is composed of a plurality of layers 18 and 19 in which the body 6 of the lighting means 3 is formed;

the layers 18 and 19 are tightly coupled to each other by soldering;

the layer 18 is configured as a first ceramic layer 18;

the layer 19 is configured as a third metal layer 19;

the ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed, the perforated wall forms a part of the inner wall of the chamber 22, and the third metal layer 19 is connected to the second ceramic layer 18A; and

the lighting means 3 further has an optical electromagnetic ray conductor 21, the electromagnetic ray conductor 21 having two terminal ends 21A and 21B, the first terminal end 21A forming a part of the boundary of the chamber 22, the second terminal end 21B of the electromagnetic ray conductor 21 forming at least a part of the electromagnetic ray output surface 8, and the electromagnetic ray conductor 21 is formed as a glass element" (hereinafter, referred to as "the Cited Invention").

(1-2) Described matter of Cited Document 2

Japanese Unexamined Patent Application Publication No. 2015-3025 (hereinafter, referred to as "Cited Document 2"), which is newly cited by the body and was published before the priority date of the original application, describes the following matters.

(2a) "[0002]

This invention relates to illumination or light devices, and more specifically to an illumination device that is used for oral and dental applications and provides light to illuminate and to cure light-curable compounds in dental applications.

...

[0005]

Another issue associated with such dental lights is their sterilization. As may be appreciated, the tip of the dental light is generally brought into proximity or into actual contact with the mouth of the patient or some portion of the mouth. Thus, the tip of the light device is exposed to various germs and bacteria. Accordingly, in order to prevent the propagation of germs or infection between patients, dental instruments are often sterilized, such as by being autoclaved at a very high temperature. While suggestions and some attempts have been made in the art to move the light engine of a dental light closer to the operating tip, such attempts have not thoroughly addressed the issue of sterilization. For example, the temperature at which autoclaving is achieved is potentially damaging to a light engine, such as the light-emitting elements in an LED array. Accordingly, the issue of sterilization has not been adequately addressed by existing dental lights, such as dental curing lights.

...

[0011]

FIG. 1 illustrates one embodiment of a light device 10 of the present invention. While one embodiment of the light device 10 might be used for curing, other uses are also anticipated, such as illumination, tooth whitening, or other treatment applications. Thus, the present invention is not limited to the particular use described herein for an exemplary embodiment. The curing device 10 includes the housing 12, and a tip structure 14 that is removably coupled to the housing 12. In accordance with one aspect of the invention, as discussed further hereinbelow, the tip structure 14 may be removed so that it may be separately autoclaved from the overall device. The device 10 also includes suitable control electronics 16 (see FIG. 2) with external controls 18 that may include buttons, switches, or other suitable manual controls for controlling the device 10. A display device 20 might also be utilized and may include a screen, individual light elements, or other graphical elements for providing a visual display of the operation of device 10. For example, the operational mode or setting of the device, the selectable curing times, the remaining curing time, the charging or power status, and diagnostic graphics might also be illustrated utilizing a visual display 20. The tip structure 14 includes a proximal end 22 that is removably coupled with housing 12, and a distal end 24, which is placed within the mouth of a patient for curing a light-curable compound, in accordance with the invention. The base 26 of the housing 12 might be coupled to a suitable external power supply, such as an AC or DC source in the form of a charging base or block 27, as shown in FIG. 1A, for charging rechargeable internal elements of a power supply circuit 28 of the device 10 (see FIG. 2). The base 26 might also be configured to fit within a suitable structure, such as a standalone table-

mounted base, and a mounting structure for mounting it on a wall, pole, or chair, or might be incorporated in a portion of a dental chair for holding and charging the curing device 10.

...

[0014]

The tip structure 14 includes a heat sink structure or element 32 that extends in the tip structure from the proximal end 22 to the distal end 24. In one embodiment of the invention, as illustrated in FIGS. 2 and 2A, the heat sink 32 extends past the proximal end 22 of the tip structure 14 to engage the housing 12 for appropriate thermal transfer of heat from a curing light device. The heat sink may be made from a suitable heat-transfer or heat-conducting material, such as a metal (e.g. copper) or aluminum. Alternatively, a high thermal conductivity material such as Pyrolytic Graphite sheets (PGS (Registered Trademark)) might be used for heat sink 32. In one embodiment, the heat sink 32 is an elongated copper tube formed in an appropriate shape for positioning inside the tip structure 14. A suitable thermal insulation material 34 surrounds the heat sink 32. The tip structure 14 includes a body 36 that houses the elements of the tip structure, and is appropriately sealed at its proximal and distal ends 22 and 24, as discussed further hereinbelow. The body 36 is made from an autoclavable material in accordance with one aspect of the invention. As noted above, it is desirable to sterilize certain reusable dental elements, such as those that are used in or inserted into or onto or proximate to the mouth of a patient. Past curing light devices have not been autoclavable to the degree desired by dental professionals. The present invention provides the tip structure enclosed within a sealed body 36 made from an autoclavable material that is able to withstand high temperature autoclaving, such as above 121°C., thus making the entire tip structure, including the light-emitting device or engine therein, autoclavable as well.

[0015]

In one embodiment of the invention, the autoclavable body 36 is formed of a suitable metal, such as stainless steel. Alternatively, the body 36 might be formed of a ceramic, glass, or porcelain material that is able to withstand the temperatures associated with autoclaving. Generally, the body 36 will be formed to a suitable shape in conjunction with the heat sink 32 and the insulation material 34. For example, the heat sink 32 and the insulation material 34 might be formed and the body 36 then formed by coating with the ceramic, glass porcelain, polymeric, or other autoclavable material. In the embodiment illustrated in the figures, the tip structure 14 is appropriately curved from manipulation at a curing site, such as the mouth of a patient,

and thus, the body 36 is formed in a curved fashion as well".

(1-3) Described matter of Cited Document 3

Japanese Unexamined Patent Application Publication No. 2007-266568 (hereinafter, referred to as "Cited Document 3"), which has been cited as Cited Document 2 in the reasons for refusal stated in the examiner's decision, and which was published before the priority date of the original application, describes the following matters.

(3a) "[0001]

The present invention relates to a support member mounting a semiconductor element such as a light emitting element and a photodetector, and a semiconductor device employing the support member, and particularly relates to a semiconductor device provided with a high-output and high-luminance semiconductor element mounted thereon and excellent in heat resistance, heat radiation, and reliability.

...

[0056]

As a bonding material between insulating substrates using made of such ceramics, or with a conductive plate member, brazing materials made of Au and Ag, or eutectic solders (Au-Sn, Ag-Sn, Bi-Sn, Zn-Sn, Cu-Sn, In-Sn, and Pb-Sn) can be used.

[0057]

The semiconductor element or the submount having a flip-chip-mounted semiconductor element is fixed to the support member with a bonding material. Examples of materials for such bonding material include thermosetting resins such as epoxy resins, silicone resins, acrylic resins, and imide resins, brazing materials made of Au and Ag, and eutectic solders (Au-Sn, Ag-Sn, Bi-Sn, Zn-Sn, Cu-Sn, In-Sn, and Pb-Sn). Also, a conductive paste containing metal particles, for example, Ag paste, carbon paste, ITO paste, and Au bump or the like can be suitably selected as the bonding material. When such a conductive paste is used as the bonding material, the semiconductor element can be fixed and electrically connected with the electrodes of the support member. In addition, when a eutectic solder or a conductive paste is used as the bonding material, heat dissipation from the semiconductor element and the submount can be improved."

(1-4) Described matter of Cited Document 4

Japanese Unexamined Patent Application Publication No. 2006-223763(hereinafter, referred to as "Cited Document 4"), which is newly cited by the

body and was published before the priority date of the original application, describes the following matters.

(4a) "[0001]

The present invention relates to an endoscope having an optical system at the tip end portion of an insertion portion.

...

[0024]

As shown in FIG. 1, the endoscope 1 is equipped with an elongated insertion portion 2 inserted into a body cavity, an operation portion 3 provided on the proximal end side of the insertion portion 2, and a connector cord (or universal cord) 4 extended from the operation portion 3.

...

[0031]

As shown in FIG. 2, on the tip surface 21 of the tip end portion 5 of the insertion portion 2, there are exposed a first lens 22a in an observation optical system 22 for forming an optical image of the portion to be tested on the CCD 35, which will be described later, a cover lens 25 that covers the tip part of an illumination optical system 24 that illuminates the portion to be tested, and the forceps port 27 that is an opening on the exit side of a forceps channel 26 that communicates with the forceps insertion port 9.

[0032]

As shown in FIGS. 3 and 4, the tip end portion 5 includes a tip end portion body 31 formed of a hard material, for example, a metal, into a substantially cylindrical shape, and in the tip end portion body, there are formed a through hole 31a along the insertion direction for arranging the observation optical system 22, a through hole 31b along the same insertion direction for arranging the forceps channel 26, and a through hole 31c along the same insertion direction for arranging the illumination optical system 24.

...

[0039]

A tip end portion cover 32 is attached to the tip end side of the tip end portion body 31 as described above, for example, by adhesion or the like. The tip end portion cover 32 is formed of an insulating resin having excellent autoclave resistance as a material, and specific material names include, for example, polyphenyl sulfone and polysulfone.

...

[0042]

Next, with reference to FIG. 5, the connection structure of the cover lens 25 of

the illumination optical system 24, the tip end portion body 31 and the tip end portion cover 32 will be described.

[0043]

As described above, the cover lens 25 is attached to the tip end portion cover 32 via the frame member 51.

...

[0046]

The cover lens 25 and the frame member 51 are joined to each other by using a solder 52 so as to be watertight and airtight. Here, as the solder 52, a gold-tin solder (for example, Au80-Sn20, Au10-Sn90, etc.) is used. In this way, by using solder that does not use lead, the configuration is environmentally friendly. Then, the solder 52 flows substantially uniformly over the entire peripheral surface due to the action of the metal coating formed on the outer peripheral surface of the cover lens 25 and the inner peripheral surface of the frame member 51, and the entire surface of the outer peripheral surface of the cover lens 25 is joined to the inner peripheral surface of the frame member 51. Due to the uniformity of the solder 52 and the joining of the cover lens 25 on the entire outer peripheral surface, the cover lens 25 does not receive a non-uniform stress that may occur in the case of non-uniform joining or in the case of partial joining of the outer peripheral surface. As a result, compared to the conventional case where, as the glass material constituting the cover lens 25, a glass material that is less likely to be distorted or cracked due to stress has to be selected from the viewpoint of strength and light distribution, it is possible to select a wide range of glass materials. Therefore, it is possible to reduce the cost, improve the optical performance, and reduce the weight".

(2) Comparison

The Amended Invention and the Cited Invention will be compared.

A In the Cited Invention, "a body 6 of the lighting means 3 is provided with a semiconductor element 7, and the semiconductor element 7 is configured as a light emitting diode (LED)", so that "the lighting means 3" can be positioned as an LED light.

Further, in the Cited Invention, since "the semiconductor element 7 is housed in a chamber 22 in a sealed state, and the chamber 22 protects the semiconductor element 7 from impurities present as particles, fluids, gases and vapors," it can be said that "the lighting means 3" is a hermetically sealed structure.

Therefore, it can be said that "the lighting means 3" of the Cited Invention and "hermetically sealed autoclavable LED light" of the Amended Invention are common in

the point of a "hermetically sealed LED light".

B In the Cited Invention, since "the chamber 22 is arranged in the mantle surface 12 of the body 6, and the chamber 22 or the inner wall of the chamber 22 is composed of a plurality of layers 18 and 19 in which the body 6 of the lighting means 3 is formed," "the layer 18 is configured as a first ceramic layer 18," and "the first ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed, the perforated wall forms a part of the inner wall of the chamber 22," "the first ceramic layer 18" and "the second ceramic layer 18A" can be integrally positioned as a base made of ceramic on "the lighting means 3" configuration.

Therefore, the "first ceramic layer 18" and "the second ceramic layer 18A" of the Cited Invention correspond to "a base made of ceramic" of the Amended Invention.

C In the Cited Invention, "a body 6 of the lighting means 3 is provided with a semiconductor element 7, and the semiconductor element 7 is configured as a light emitting diode (LED)," and "the semiconductor element 7," as shown in FIG. 4 (Indication (1b)) of Cited Document 1, is disposed in an implementation state with respect to "the first ceramic layer 18" configuring "the chamber 22 or the inner wall of the chamber 22," and can be said that it is disposed on "the first ceramic layer 18, so that also considering B above, it can be said that it corresponds to "at least one LED on the base" of the Amended Invention.

D In the Cited Invention, "the ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed, the perforated wall forms a part of the inner wall of the chamber 22, and the third metal layer 19 is connected to the second ceramic layer 18A," and "the lighting means further has an optical electromagnetic ray conductor 21, the electromagnetic ray conductor 21 having two terminal ends 21A and 21B, the first terminal end 21A forming a part of the boundary of the chamber 22, the second terminal end 21B of the electromagnetic ray conductor 21 forming at least a part of the electromagnetic ray output surface 8, and the electromagnetic ray conductor 21 is formed as a glass element," so that it is clear that "an optical electromagnetic ray conductor 21" having "the first terminal end 21A" and "the second terminal end 21B" is provided on "the third metal layer 19".

Also, since "the electromagnetic ray conductor 21" "is formed as a glass element," and "the second terminal end 21B" "forms at least a part of the electromagnetic ray output surface 8," it is technically clear that "the electromagnetic ray conductor 21" provided on "the third metal layer 19" functions as a window.

Furthermore, in the Cited Invention, "the third metal layer 19 is connected to the second ceramic layer 18A," so that "the third metal layer 19" can be positioned as the metal cap in light of its arrangement structure and the like.

Therefore, it can be said that "the third metal layer 19" of the Cited Invention and "at least one metal cap having at least one window and soldered to the base by a metal solder" of the Amended Invention are common in the point that they are "at least one metal cap" "having at least one window".

According to the above, the Amended Invention and the Cited Invention are identical in the point that

"A hermetically sealed LED light, comprising:

a base made of ceramic; at least one LED on the base; and at least one metal cap having at least one window", and are different in the following points.

<Different Feature 1>

Concerning "an LED light," in the Amended Invention, it is specified as "autoclavable", whereas in the Cited Invention, it is not specified in such a manner.

<Different Feature 2>

In the Amended Invention, the metal cap "is formed of stainless steel," and "soldered to the base by a metal solder," and "the metal solder is a gold-tin solder," whereas, in the Cited Invention, a metal material of the metal cap (third metal layer 19) is not clear, and "the layers 18 and 19 are tightly coupled to each other by soldering; the layer 28 is configured as a first ceramic layer 18; the layer 19 is configured as a third metal layer 19; the ceramic layer 18 is connected to a second ceramic layer 18A in which at least one perforation forming at least a part of the chamber 22 is formed, the perforated wall forms a part of the inner wall of the chamber 22, and the third metal layer 19 is connected to the second ceramic layer 18A".

(3) Judgment

A Regarding Different Feature 1

(A) In Cited Document 1 (Indication (1a)), as described as "The lighting means for medical applications, especially dental instruments, is known, ...The structure of such lighting means has a proven track record, and the optical semiconductor elements incorporated into the encapsulated internal space are protected from highly corrosive environmental conditions and dirt, for example, by cleaning instruments in sterilizers" (Paragraph [0002]) and "Preferably, at least one semiconductor element is disposed

within the body of the lighting means, particularly preferably in a sealed chamber. The chamber is preferably sealed so that particles and/or water vapor and/or fluid do not seep into the chamber. In particular, the chamber is preferably sealed to withstand the cleaning process or sterilization process over and over; that is, to prevent media such as detergents and water vapor used in the above-mentioned process from seeping into the chamber" (Paragraph [0060]), it is clear that "a lighting means 3 in a dental instrument 1" of the Cited Invention must be protected from highly corrosive environmental conditions and dirt, for example, by cleaning instruments in sterilizers, and should be configured to withstand the sterilization process.

(B) Further, in Cited Document 2 (Indication (2b)), a technology relating to an illumination device that is used for oral and dental applications is disclosed (Paragraph [0002]), and specifically, as described as "Another issue associated with such dental lights is their sterilization....the tip of the dental light is generally brought into proximity or into actual contact with the mouth of the patient or some portion of the mouth.... Accordingly, in order to prevent the propagation of germs or infection between patients, dental instruments are often sterilized, such as by being autoclaved at a very high temperature"(Paragraph [0005]), it can be said that autoclaving is common general technical knowledge in the technical field as a sterilization technique for illumination devices used in dental applications.

(C) Therefore, in "a lighting means 3 in a dental instrument 1" of the Cited Invention, which should be configured to withstand the sterilization process, autoclaving that can be said to be common general technical knowledge as a sterilization technique in the technical field is naturally conceived, so that it is not difficult for a person skilled in the art to configure "a lighting means 3" of the Cited Invention as an autoclavable one.

Therefore, it can be said that the configuration of the Amended Invention relating to Different Feature 1 could have been easily implemented by a person skilled in the art on the basis of the Cited Invention and the common general technical knowledge.

B Regarding Different Feature 2

(A) As described in A above, in "a lighting means 3 in a dental instrument 1" of the Cited Invention, which should be configured to withstand the sterilization process, it should be said that autoclaving is naturally conceived. In Cited Document 2, as a technology relating to autoclaving, it is described that the light device 10 includes the housing 12 and a tip structure 14 that is removably coupled to the housing 12, and the tip structure 14 is autoclaved (Paragraph [0011]), and that the tip structure 14 includes a

body 36, the body 36 is made from an autoclavable material (Paragraph [0014]), and the autoclavable body 36 is made from a suitable material such as stainless steel (Paragraph [0015]). Therefore, since it can be said that a person skilled in the art recognizes as a matter of common general technical knowledge that stainless steel is suitable for an autoclavable metal, there is sufficient motivation to adopt stainless steel as a metal material of "the third metal layer 19" in "a lighting means 3 in a dental instrument 1" of the Cited Invention.

(B) Further, in Cited Document 3 (Indication (3a)), regarding a support member mounting a semiconductor element such as a light emitting element and a photodetector, and a semiconductor device employing the support member and excellent in heat resistance, heat radiation, and reliability (Paragraph [0001]), it is described that as a bonding material between insulating substrates using made of ceramics, or with a conductive plate member, eutectic solders of Au-Sn are used (Paragraph [0056]), and that the semiconductor element or the submount having a flip-chip-mounted semiconductor element is bonded by eutectic solders of Au-Sn (Paragraph [0057]), and in Cited Document 4 (Indication (4a)), regarding an endoscope having an optical system at the tip end portion of an insertion portion (Paragraphs [0001], [0024], [0031], and [0032]), it is described that the tip end portion cover 32 is configured by adopting a material having excellent autoclave resistance (Paragraph [0039]), and that for the connection structure of the cover lens 25, the tip end portion body 31, and the tip end portion cover 32, the cover lens 25 is attached to the tip end portion cover 32 via the frame member 51, and the cover lens 25 and the frame member 51 are joined to each other by using a gold-tin solder so as to be watertight and airtight (Paragraphs [0042], [0043], and [0046]). Therefore, since it can be said that using a gold-tin solder as a joining technology for configuring a structure requiring heat resistance or autoclave resistance is a well-known art regardless of technical field, and furthermore, as described in Cited Document 4 (Paragraph [0046]), using solder that does not use lead, such as gold-tin solder is the environmentally friendly configuration, there is sufficient motivation to adopt such a solder.

Accordingly, it can be said that it could have been easily implemented by a person skilled in the art based on the Cited Invention, the common general technical knowledge, and the well-known art to adopt stainless steel as a metal material of "the third metal layer 19," and to configure "the first ceramic layer 18," "the second ceramic layer 18A," and "the third metal layer 19" as an article soldered by a gold-tin solder, when "the layers 18 and 19" are "tightly coupled to each other by soldering"; that is, to configure the Amended Invention relating to Different Feature 2 above, in "a lighting

means 3 in a dental instrument 1" of the Cited Invention, which is conceived to be autoclaved.

C Then, the operation/working-effect of the Amended Invention is within the range that could be predicted by a person skilled in the art from Cited Invention, the common general technical knowledge, and the well-known art, and cannot be remarkable.

D The Appellant's allegation

The Appellant, in the written request for appeal (the section of "4.") dated October 30, 2020, alleges that "Further, in the Invention, as it is clarified by this amendment, the LED light is autoclavable, and the metal cap is formed of stainless steel. Cited Examples 1 to 4 do not describe or suggest these features. According to the above,... Claim 4...is considered to have an inventive step with respect to each Cited Example".

However, as described in A above, in "a lighting means 3 in a dental instrument 1" of the Cited Invention, which should be configured to withstand the sterilization process, it should be said that autoclaving that can be said to be common general technical knowledge as a sterilization technique in the technical field is naturally conceived, and as described in B above, it can be said that a person skilled in the art recognizes as a matter of common general technical knowledge that stainless steel is suitable for an autoclavable metal, so that the Appellant's allegation cannot be accepted.

(4) Summary

As described above, the Amended Invention could have been easily implemented by a person skilled in the art based on the Cited Invention, the common general technical knowledge, and the well-known art, the Appellant should not be granted a patent for the Amended Invention independently at the time of patent application.

Therefore, the Amendment violates the provisions of Article 126(7) of the Patent Act which is applied mutatis mutandis pursuant to the provisions of Article 17-2(6) of the Patent Act, and thus should be dismissed under the provisions of Article 53(1) of the Patent Act which is applied mutatis mutandis by replacing certain terms pursuant to Article 159(1) of the same Act.

No. 3 Regarding the Invention

1 The Invention

The Amendment was dismissed as described above, and it is recognized that the

invention according to Claim 4 of the present application is as specified by the matters recited in Claim 4 of the scope of claims amended by the amendment dated April 7, 2020, and the invention according to Claim 4 of the present application (hereinafter, referred to as "the Invention") is as recited "No. 2 1 (1) Claim 4 before the amendment" above.

2 Reasons for refusal stated in the examiner's decision

The reasons for refusal stated in the examiner's decision include the following reason.

The invention according to Claim 4 of the present application could have been easily invented by a person having a usual knowledge in the technical field to which the invention belongs before the application was filed, based on the invention described in Cited Document A and the well-known art (Cited Document B), and thus the Appellant should not be granted a patent for it under the provisions of Article 29(2) of the Patent Act.

Also, Cited Document A is Cited Document 1 shown in "No. 2 2 2-2 (1)" above, and Cited Document B is Cited Document 3 shown in the same.

3 Judgment by the body

The Invention is as described in "No. 2 1 (1) Claim 4 before the amendment" above, and substantially deleted the matters of "autoclavable" and "the metal cap is formed of stainless steel" (hereinafter referred to as "Matter A") which are matters required for specifying the invention of the Amended Invention shown in "No. 2 1 (2) Claim 4 after the amendment" and are shown by the underlines.

Then, since the Amended Invention, which includes all matters specifying the Invention and corresponds to the invention added with other matters, as described in "No. 2 2 2-2 (3) (4)" above, could have been easily implemented by a person skilled in the art, it can be said that the Invention could have been easily invented by a person skilled in the art for a similar reason (however, excluding the judgment on Matter A).

No. 4 Closing

As described above, the Invention could have been easily implemented by a person skilled in the art based on the Cited Invention and the well-known art, and thus the Appellant should not be granted a patent for it under the provisions of Article 29(2) of the Patent Act.

Therefore, the present application should be rejected without examining the

remaining claims.

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

May 27, 2021

Chief administrative judge: ICHINOSE, Satoru
Administrative judge: UJIHARA, Yasuhiro
Administrative judge: FUJII, Noboru