Trial decision

Invalidation No. 2016-800035

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The case of trial regarding the patent invalidation of the invention of Japanese Patent No. 5865560, entitled "Gas dissolving device and gas dissolving method," between the parties above has resulted in the following trial decision:

Conclusion

The demand for trial of the case was groundless.

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

Reason

No. 1 The objects of the demand and the reply

According to the entire import of allegations of the both parties, Demandant

demands the decision, "The patent regarding the inventions according to claims 1 to 10 of the scope of claims of Japanese Patent No. 5865560 shall be invalidated. The costs in connection with the trial shall be borne by the Demandee," and Demandee demands the decision, "The demand for trial of the case was groundless. The costs in connection with the trial shall be borne by the Demandant."

No. 2 Main history of the procedures

May 26, 2015 Patent application of the case (Japanese Patent Application No. 2015-529952, priority date of May 27, 2014)
Jan. 8, 2016 Establishment of the patent right (Japanese Patent No. 5865560)
Mar. 24, 2016 Written demand for trial
Jun. 14, 2016 Written reply
Aug. 1, 2016 Written refutation
Aug. 18, 2016 Notification of matters to be examined
Oct. 11, 2016 Oral proceedings statement brief by Demandant
Oct. 11, 2016 Oral proceedings statement brief by Demandee
Oct. 21, 2016 Written statement by Demandee
Oct. 25, 2016 Oral proceeding
Nov. 8, 2016 Written statement by Demandee
Nov. 22, 2016 Written statement by Demandant

No. 3 The Invention

As viewed from the patent specification, and the statements of the drawings, the inventions related to the Patent are as shown in claims 1 to 10 of the scope of claims of Japanese Patent No. 5865560, and, when they are separately described adding reference characters indicated by Demandant in the written demand, they are as follows (hereinafter, the inventions related to the patent are collectively called "the Invention." and, among them, an invention according to each claim is referred to as "patent invention 1" and the like).

[Claim 1]

A A gas dissolving device that generates hydrogen water by dissolving hydrogen in water and discharges the hydrogen water from an outlet, the gas dissolving device comprising:

B a hydrogen producing means that generates hydrogen by electrolysis sandwiching a proton exchange membrane (PEM),

C a pressurized gas dissolving means that imparts water with hydrogen from the hydrogen producing means as hydrogen bubbles, and supplies the water under pressure,
D a dissolving chamber that receives hydrogen water generated by the pressurized gas dissolving means, and stores the hydrogen water, and
E a tube-shaped passage that connects the dissolving chamber and the outlet, wherein
F the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles, and a part of the hydrogen water is led to the hydrogen producing means for use in electrolysis.

[Claim 2]
The gas dissolving device according to claim 1, wherein,
the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber.

[Claim 3]
The gas dissolving device according to claim 2, wherein
the dissolving chamber stores the hydrogen water from the pressurized gas dissolving means under pressure.

[Claim 4]
The gas dissolving device according to claim 3, wherein
the dissolving chamber maintains the hydrogen bubbles by applying a filter to at least a portion thereof.

[Claim 5]
The gas dissolving device according to any one of claims 1 to 4, wherein
the pressurized gas dissolving means includes a diaphragm pump.

[Claim 6]
The gas dissolving device according to any one of claims 1 to 5, wherein
the tube-shaped passage includes a pressure reduction and transfer means that prevents pressure variation in the tube-shaped passage by an action of discharging the

hydrogen water from the outlet, and forms a laminar flow.

[Claim 7]
The gas dissolving device according to claim 6, wherein

the pressure reduction and transfer means comprises a pressure adjusting unit that is tapered so as to increase or decrease a tube diameter near the outlet of the tube-shaped passage.

[Claim 8]
A gas dissolving method of generating hydrogen water by dissolving hydrogen in water and discharging the hydrogen water from an outlet, wherein,

in:

a hydrogen producing means that generates hydrogen by electrolysis sandwiching a proton exchange membrane (PEM)

a pressurized gas dissolving means that imparts water with hydrogen from the hydrogen producing means as hydrogen bubbles, and supplies the water under pressure;

a dissolving chamber that receives hydrogen water generated by the pressurized gas dissolving means, and stores the hydrogen water under pressure, and

a tube-shaped passage that connects the dissolving chamber and the outlet,

the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles, and a part of the hydrogen water is led to the hydrogen producing means for use in electrolysis.

[Claim 9]
The gas dissolving method according to claim 8, wherein,

the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber.

[Claim 10]
The gas dissolving method according to claim 9, wherein

hydrogen bubbles having an average diameter of 200 nm or less are imparted in the dissolving chamber.

No. 4 Allegations of the parties and means of proof

Hereinafter, Evidence A No. 2 and the like is referred to as A2 and the like, devices described in the scope of claims of Japanese Utility Model Registration of A2 are referred to as A2 devices, and a device described in claim 1 and the like of that scope of claims is referred to as A2 device 1 and the like ....

1. Demandant's allegation and means of proof

(1) Gist of the allegation

A Reasons for invalidation 1

Demandant alleges that patent invention 1, patent invention 3, patent invention 5, patent invention 6, and patent invention 8 are substantially identical with devices described in the scope of claims of Japanese Utility Model Registration of Evidence A No. 1 and Evidence A No. 2 that are related to earlier applications, and Demandee should not be granted a patent for those patent inventions under the provisions of Article 39(3) of the Patent Act, and, therefore, these should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act.

B Reasons for invalidation 2

Demandant alleges that, since the Patent does not meet the requirements prescribed in Article 36(6)(i) and 36(6)(ii) of the Patent Act, the Patent should be invalidated under the provisions of Article 123(1)(iv) of the Patent Act.

C Reasons for invalidation 3

Demandant alleges that the statement of the detailed explanation of the invention of the Patent does not satisfy the requirement prescribed in Article 36(4)(i) of the Patent Act, and, therefore, the Patent should be invalidated under the provisions of Article 123(1)(iv) of the Patent Act.

(2) Evidence

Evidence submitted by Demandant is as follows.

A1: Japanese Utility Model Registration No. 3190824

A2: A written correction related to the correction pursuant to Article 14bis (1) of the Utility Model Act regarding Japanese Utility Model Registration No. 3190824

(3) Summary of the allegation

Summary of the demandant's allegation is as follows.

Hereinafter, the number of lines does not include a blank line.

A Reasons for invalidation 1

(A) Patent invention 1

a It is described in relation to A2 device 1 that "the gas is hydrogen, and the gas generating mechanism is a hydrogen generating mechanism," and thus "gas" of A2 device shall be replaced with "hydrogen" or "hydrogen gas."

Although, in relation to A2 device 1, it is described that "gas is pressurized and dissolved in liquid," it is described in [0038] of A2 that "although, in the present device, no particular limitation is imposed on a liquid," "water is especially preferred," and thus "liquid" of A2 device 1 shall be replaced with "water." (The written demand for trial page 7, lines 7-19)

b Requirement A

It is obvious that a gas dissolving device of A2 device 1 is one that generates hydrogen water by dissolving hydrogen in water, because it is described in relation to A2 device 1 as "a pressurized gas dissolving mechanism to pressurize the gas (hydrogen) to dissolve the gas in liquid (water)."

In addition, in relation to A2 device 1, there are described "a dissolving mechanism to dissolve and store liquid (water) dissolving the gas (hydrogen)," and a pressure-lowering mechanism to reduce pressure by liquid (water), in which gas (hydrogen) is dissolved, by flowing through a narrow tube with an inside diameter of from larger than 1.0 mm to 5.0 mm or less.

Therefore, in A2 device 1, hydrogen water within "the dissolving mechanism" is taken out through a narrow tube, and, therefore, a gas dissolving device of A2 device 1 is constituted so as to generate hydrogen water by dissolving hydrogen in water, and discharge the hydrogen water from an outlet through a narrow tube.

Accordingly, A2 device 1 includes the requirement A of the patent invention 1. (The written demand for trial, page 7, lines 24-39)

c Requirement B

Although there is no limitation in A2 device 1 that "a gas (hydrogen) generating mechanism" is a mechanism that generates hydrogen by electrolysis, electrolysis for water is well known as means for generating hydrogen, and, therefore, it is understood,

as there is substantially described in relation to A2 device 1 "a hydrogen generating mechanism that generates hydrogen by electrolysis."

Even if it cannot be understood so, it is described in relation to A2 device 2 that "the hydrogen generating mechanism is a mechanism to generate hydrogen by electrolysis."

In addition, although there is no statement in relation to the A2 device that a hydrogen producing means generates hydrogen by electrolysis sandwiching a proton exchange membrane (PEM), as described in [0032] of the description of the Patent (although Demandant of the trial uses the term "patent publication," it is obvious that it means "patent description," and thus, hereinafter, it is called "patent description" or "the description of the patent") that "the hydrogen producing means 21 may be one that generates hydrogen by electrolysis such as a publicly known apparatus known as a proton exchange membrane (PEM) system," an electrolysis device of a proton exchange membrane (PEM) system is publicly known as an electrolysis device, and, therefore, it is just a design matter for a person skilled in the art to select an electrolysis device of a proton exchange membrane (PEM) system.

Therefore, A2 device 2 includes the requirement B of the patent invention 1. (The written demand for trial, page 8, lines 6-26)

d Requirement C

In relation to A2 device 1, it is described that a gas dissolving device includes "a pressurized gas dissolving mechanism to pressurize the gas (hydrogen) to dissolve the gas in liquid (water)."

Here, when hydrogen is pressurized to be dissolved in water, hydrogen inevitably assumes a bubble shape, and, therefore, A2 device 1 includes the requirement C of the patent invention 1. (The written demand for trial, page 8, lines 31-36)

e Requirement D

It is described in relation to A2 device 1 that a gas dissolving device includes "a dissolving mechanism to dissolve and store liquid (water) dissolving the gas (hydrogen)."

Therefore, A2 device 1 includes the requirement D of the patent invention 1. (The written demand for trial page 9, lines 1-5)

f Requirement E

In relation to A2 device 1, it is described that a gas dissolving device includes "a

pressure-lowering mechanism to reduce pressure by liquid (water), in which the gas (hydrogen) is dissolved, by flowing through a narrow tube with an inside diameter of from 1.0 mm or larger to 5.0 mm or less."

Here, there is no doubt that a narrow tube constituting the pressure-lowering mechanism of A2 device 1 falls under a dissolving mechanism (dissolving chamber) and a "tube-shaped passage" to connect an outlet for taking out hydrogen water.

Therefore, A2 device 1 includes the requirement E of the patent invention 1. (The written demand for trial, page 9, lines 9-17)

g Requirement F

In A2 device 1, there is no statement that a gas dissolving device is constituted so as to deliver hydrogen water that has been stored in a dissolving chamber and that includes hydrogen in a saturated state to a pressurized gas dissolving means, supply the hydrogen water under pressure, and circulate it.

However, to circulate (recycle) gas-dissolved water to increase gas density included in the water is a usual practice when making gas included in liquid come to be at high concentration, and it is a design matter that can be done as a matter of course for a person skilled in the art to use such means in order to increase hydrogen density in hydrogen water. Therefore, it cannot be said that patent invention 1 is not identical with A2 device 1 just based on such difference.

Moreover, it is also described in [0034] of A1 that "it is possible to supply supersaturated hydrogen water at all times, because supersaturated hydrogen water can be preserved in the water server 100 and can be circulated."

Then, in FIG. 2 of A1, there is disclosed a device including: a gas generating mechanism 2 provided with a hydrogen generating mechanism 21 to generate hydrogen by electrolysis and an ion exchange mechanism 22; a pressurized gas dissolving mechanism 3 to pressurize hydrogen generated by the hydrogen generating mechanism 21 and supplied by a hydrogen supply tube 24, and dissolve the hydrogen in water supplied from a water server 100 under pressure to generate hydrogen water; a dissolving chamber 4 to store the hydrogen water generated by the pressurized gas dissolving mechanism 3 in a supersaturated state; and the water server 100 to receive the hydrogen water of the supersaturated state from the dissolving chamber 4, and supply water in which hydrogen water is dissolved to the gas generating mechanism 2. In addition, in [0034] of A1 and A2, it is described that by mounting a gas dissolving device 1 on the water server 100, hydrogen gas is generated using water in the water server 100, and, further, it is possible to supply supersaturated hydrogen water using

that." From the above, it is recognized that water is supplied to the hydrogen generating mechanism 21 from the water server 100, to which hydrogen water of the supersaturation state is supplied from the dissolving chamber 4, and is used in electrolysis.

In this way, in A1 there is described a technology to, in a device including the gas dissolving device 1 mounted on the water server 100, supply water, which is contained in the water server 100 and into which supersaturated hydrogen water is dissolved, to the hydrogen generating mechanism 21, use it for electrolysis, and recycle it. Therefore, such statement of A1 is evidence that it is just a design matter for a person skilled in the art to constitute such that "hydrogen water that includes hydrogen in a saturated state and that has been stored in the dissolving chamber 4 is delivered to the pressurized gas dissolving means 3, supplied under pressure, and circulated."

There is no statement in relation to the A2 device that hydrogen bubbles are made to be nano bubbles.

However, in [the detailed explanation of the invention] of the description of the Patent, only [0045] refers to "nano bubbles," and it relates to a device including the gas dissolving device 1' mounted on the water server 100. Therefore, in the description of the Patent, there is no other portion mentioning nano bubbles of hydrogen gas.

In [0045] of the description of the Patent, it is described that "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically," and "such device" is, as shown in FIG. 3, a device including the gas dissolving device 1' mounted on the water server 100 ([0043]). As a result, FIG. 3 of the description of the Patent is identical with FIG. 2 of A2.

Furthermore, since the statement of [0034] of A1 is substantially identical with the statement of the description of the Patent, if it is such that, regarding a device shown in FIG. 3 of the description of the Patent, "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically," if a device of FIG. 2 of Evidence A No. 1 " is made to operate about 30 min.," it should be such that "nano bubbles of 500 nm or less are observed optically," and "when it is made to operate for 3 days in succession to this," it should be such that "nano bubbles of a size of 200 nm are observed optically."

Therefore, although there is no mention in A2 about "hydrogen bubbles" and

"nano bubbles," it is obvious that a phenomenon that "hydrogen bubbles are made to be nano bubbles" occurs also in a gas dissolving device of A2, from a law of nature.

That is, the phenomenon that "hydrogen bubbles are made to be nano bubbles" is caused by adopting a particular constitution, and, in the requirement F of the patent invention 1, there is only a statement that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated" as a constitution needed for "making hydrogen bubbles be nano bubbles."

If it is so, since it is just a design matter for a person skilled in the art to constitute such that "hydrogen water that includes hydrogen in a saturated state and that has been stored in the dissolving chamber 4 is delivered to a pressurized gas dissolving means 3, supplied under pressure, and circulated" as mentioned above, it falls under awarding double patents to two or more identical inventions or devices to understand that patent invention 1 is not substantially identical with A2 device 2 on the grounds that the requirement F is included. Consequently, in consideration of the owner of the utility model right of A2 device being identical with the patentee of the Patent, to understand that patent invention 1 is not substantially identical with A2 device 2 by reason of the requirement F being included is nothing but extending the protection period groundlessly, and is obviously incorrect.

Therefore, A2 device 1 includes the requirement F of the patent invention 1. (The written demand for trial, page 9, line 24 to page 11, line 25; and the written refutation, page 6, line 3 to page 8, line 3)

h When understanding that "a cold water tank" is connected naturally to "the liquid inlet 7" and "the hydrogen water outlet 10" of a gas dissolving device shown in FIG. 1 of A2, the A2 device claims, in a completely similar fashion to the Invention, a gas dissolving device of FIG. 1, and, therefore, the A2 device is identical with the Invention. (Written statement dated Nov. 22, 2016)

i As above, the patent invention 1 is identical with A2 device 1 or is identical with at least A2 device 2, and the application concerning A1 falls under an earlier application of the application concerning the Patent. Therefore, Demandee should not be granted a patent for patent invention 1 under the provisions of Article 39(3) of the Patent Act, and it should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act. (The written demand for trial, page 11, lines 26-31)

(B) Patent invention 3

A gas dissolving device described in A2 device 1 includes: a pressurized gas dissolving mechanism to pressurize hydrogen to dissolve the hydrogen in liquid; and "a dissolving mechanism to dissolve and store the liquid in which the hydrogen is dissolved," and the liquid derived by pressurizing hydrogen to dissolve the hydrogen in water by the pressurized gas dissolving mechanism is nothing but hydrogen water. Therefore, an invention depending from patent invention 1 within patent invention 3 is identical with A2 device 1, and thus Demandee should not be granted a patent under the provisions of Article 39(3) of the Patent Act. Accordingly, it should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act. (The written demand for trial, page 11, line 36 to page 12, line 5)

(C) Patent invention 5

It is described in A2 device 6 that "The gas dissolving device according to claim 5, wherein the pressurized gas dissolving mechanism is a diaphragm pump."

Accordingly, an invention depending from patent invention 1 within patent invention 5 is identical with A2 device 6, and thus Demandee should not be granted a patent under the provisions of Article 39(3) of the Patent Act, and, therefore, it should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act. (The written demand for trial, page 12, lines 10-17)

(D) Patent invention 6

In the A2 device, there is no statement that is similar to the statement of patent invention 6.

However, in [0035] of the description of the Patent, it is described that "in the gas dissolving device 1 of the present invention, inside diameter X of the narrow tube 5a that is the pressure reduction and transfer means 5 is preferably from 1.0 mm or more to 5.0 mm or less, and, more preferably, from 1.0 mm or more to 3.0 mm or less, and, still more preferably, 2.0 mm or more to 3.0 mm or less. By making it fall within such a range, there is no need to install no fewer than 10 narrow tubes for pressure-lowering, unlike the technology described in Japanese Unexamined Patent Application Publication No. H8-89771, and, by having one piece of the narrow tube 5a, pressure can be reduced, and, in conjunction with this, a laminar flow can be formed within the tube."

Accordingly, from this statement, it is recognized that if the inside diameter of a narrow tube that is the pressure-lowering mechanism 5 of A1 is made to be 1.0 mm or more to 5.0 mm or less, a laminar flow can be formed within the narrow tube, and, in

A2 device 1, it is described that "inside diameter of the narrow tube is 1.0 mm or more and 5.0 mm or less."

Therefore, A2 device 1 is substantially identical with "pressure reduction and transfer means" of patent invention 6, and thus Demandee should not be granted a patent under the provisions of Article 39(3) of the Patent Act. Therefore, it should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act. (The written demand for trial, page 12, line 23 to page 13, line 4)

(E) Patent invention 8

A difference between patent invention 8 and patent invention 1 is simply that patent invention 1 claims a "gas dissolving device," whereas patent invention 8 claims a "gas dissolving method," and thus they differ in only categories.

Therefore, patent invention 8 is identical with at least A2 device 2 as with patent invention 1, and Demandee should not be granted a patent under the provisions of Article 39(3) of the Patent Act. Therefore, it should be invalidated under the provisions of Article 123(1)(ii) of the Patent Act. (The written demand for trial, page 13, lines 6-15)

B Reasons for invalidation 2

(A) Patent inventions 1 and 8

a In [0034] of the description of the Patent, it is only described that "the water containing hydrogen dissolved in it under pressure is discharged from the outlet 9 of the pressurized gas dissolving means 3, and dissolved and stored in the dissolving chamber 4 in a supersaturated state (S5)." There is only described that "the liquid having been dissolved and stored in the dissolving chamber 4 is lowered in pressure by flowing in a narrow tube 5a that is the pressure reduction and transfer means 5 in a manner maintaining a laminar flow state (S6), and discharged to the outside from the hydrogen water outlet 10 (S7)", and, therefore, there is no statement of the embodiment to deliver hydrogen water that has been stored in a dissolving chamber 4 and that includes hydrogen in a saturated state to a pressurized gas dissolving means, supply the hydrogen water under pressure, and circulate it.

Although, in [0037] of the description of the Patent, it is described that "In the gas dissolving device 1 of the present invention, it is preferred that liquid in which gas is dissolved by being pressurized by the pressurized gas dissolving means 3 be circulated without being discharged, transmitted to the pressurized gas dissolving means 3, and, after circulation, sent to the pressure reduction and transfer means 5. By this, it

is possible to increase the dissolution density of gas," this statement just describes that liquid in which gas is dissolved by being pressurized by the pressurized gas dissolving means 3 is circulated, and transmitted to the pressurized gas dissolving means 3, and thus there is no mention at all about hydrogen water stored in the dissolving chamber 4.

In addition, in the gas dissolving device 1 shown in FIG. 1, even if an attempt is made to circulate liquid in which gas is dissolved according to the statement of [0037] of the description of the Patent, hydrogen water in which hydrogen is dissolved by being pressurized by the pressurized gas dissolving means 3 is sent to the dissolving chamber 4, flows in the narrow tube 5a of the pressure reduction and transfer means 5, and is taken out from the outlet 10. Therefore, in the gas dissolving device 1 shown in FIG. 1, liquid in which gas is dissolved by being pressurized by the pressurized gas dissolving means 3 cannot be circulated to the pressurized gas dissolving means 3.

Furthermore, although, in Example 2 of the description of the Patent, it is described that "the gas decomposing device 1 shown in FIG. 1 was connected to water works, four times of circulation was made to generate hydrogen water," even if the liquid inlet 7 of the gas decomposing device 1 shown in FIG. 1 is connected to water works, hydrogen water cannot be circulated.

Therefore, the requirement of the patent invention 1 that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated" is not described clearly in the detailed explanation of the invention of the description of the Patent. (The written demand for trial, page 13, lines 18-40; the written refutation, page 8, line 13 to page 9, line 8; and Demandant's oral proceedings statement brief, page 2, line 20 to page 13, line 16)

b In the description of the Patent, only [0045] mentions "nano bubbles," and it is just described that "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically."

Here, since "such device" is the device shown in FIG. 3, the statement of [0045] is a statement that nano bubbles of 500 nm or less were observed optically when, using the device shown in FIG. 3, operations described in [0044] were continued for 30 minutes, and, then, nano bubbles of a size of 200 nm were observed optically when the operations were conducted for three days in succession to this, the operations including: leading water from the water server 100 and hydrogen from the gas generating means 2 to the diaphragm pump 3a of the pressurized gas dissolving means 3 at the same time;

obtaining hydrogen water by bubbling while pressurizing by this; leading such hydrogen water, through the micro filter (dissolving tank) 41 composed of a porous body and the like, the activated carbon filter (dissolving tank) 42, and then the narrow tube 5a of the pressure reduction and transfer means 5, to the water server 100 again while maintaining the pressurizing state in the diaphragm pump 3a; and, along with this, sending a part of hydrogen water discharged from the diaphragm pump 3a to the hydrogen producing means 21 via the ion exchange means 22 to perform electrolysis and hydrogen generation, and sending the generated hydrogen to the diaphragm pump 3a of the gas dissolving device 3.

However, in patent invention 1, there is no mention about "water server," and the constitution of patent invention 1 does not conform to the constitution of the device shown in FIG. 3. (The written demand for trial, page 14, lines 1-25; the written refutation, page 9, line 9 to page 12, line 34; and Demandant's oral proceedings statement brief, page 5, line 27 to page 6, line 5)

c It is obvious that "such device" of [0045] of the description of the Patent indicates the device shown in FIG. 3, and, therefore, the statements of all of [0043], [0045], and [0053] of the originally attached description of the present application are related to a device including the gas dissolving device 1' mounted on the water server 100.

On the occasion of conducting amendment to add the requirement "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles," it was stated in the written opinion that such amendment is based on the statement of [0053] of the originally attached description of the present application. However, described in [0053] is "Example 1," not "Example 2."

Accordingly, it is obvious that Applicant had thought that "water server" was a mandatory requirement when making the amendment.

Therefore, it is obvious that patent inventions 1 and 8 take "water server" as an essential requirement. (Demandant's oral proceedings statement brief, page 5, line 27 to page 6, line 5)

d As above, since the constitution of the patent invention 1 is not identical with the constitution of the device shown in FIG. 3, there is no statement corresponding to the invention according to claim 1 in the detailed explanation of the invention of the description of the Patent, and, therefore, patent invention 1 is not described in the

detailed explanation of the invention. Accordingly, the statement of claim 1 does not meet the requirement prescribed in Article 36(6)(i) of the Patent Act, and patent invention 1 is unclear. From the above, the statement of claim 1 does not satisfy the requirement prescribed in Article 36(6)(ii) of the Patent Act. (The written demand for trial, page 14, lines 31-39, and page 18, lines 28-37); and the written refutation, page 8, line 13 to page 13, line 6)

e A device supporting the invention according to claim 1 is only the device including the gas dissolving device 1' mounted on the water server 100 shown in FIG. 3, and, therefore, a water server is an essential requirement. However, the current claim 1 does not include "water server" as a requirement, and thus the statement of current claim 1 does not meet the requirement prescribed in Article 36(6)(i) of the Patent Act. (Demandant's Written statement, page 2, lines 6-10)

f Paragraph [0034] of the description of the Patent calls a portion to take in water "the liquid inlet 7" and a portion to discharge hydrogen water "the hydrogen water outlet 10," and "water" and "hydrogen water" are clearly distinguished as it is "water" that is taken into from "the inlet 7," and it is "hydrogen water" that is discharged from "the outlet 10." Therefore, "the liquid inlet 7" and "the hydrogen water outlet 10" are connected to the "cooling tank" as a matter of course, and it cannot be understood that hydrogen water is discharged from "the hydrogen water outlet 10" to the "cooling tank," and hydrogen water within the "cooling tank" is taken in from "the liquid inlet 7" to be recycled. (Demandant's Written statement, page 2, lines 14-20)

(B) Patent inventions 2 and 9

In patent inventions 2 and 9, there is prescribed that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber."

However, in the detailed explanation of the invention of the description of the Patent, there are no statements corresponding to patent inventions 2 and 9 at all, and, therefore, patent inventions 2 and 9 are not described in the detailed explanation of the invention, the statements of claims 2 and 9 do not meet the requirement prescribed in Article 36(6)(i) of the Patent Act, and, in addition, patent inventions 2 and 9 are unclear, resulting in the statements of claims 2 and 9 not meeting the requirement prescribed in

Article 36(6)(ii) of the Patent Act. (The written demand for trial, page 15, lines 4-13, page 19, lines 1-7)

(C) Patent invention 4

Patent invention 4 claims "The gas dissolving device according to claim 3, wherein the dissolving chamber maintains the hydrogen bubbles by applying a filter to at least a portion thereof."

However, since there is no statement at all about "hydrogen bubbles" in the detailed explanation of the invention of the description of the Patent, the statement of claim 4 does not meet the requirement prescribed in Article 36(6)(i) of the Patent Act, and, in addition, patent invention 4 is unclear, resulting in the statement of claim 4 not meeting the requirement prescribed in Article 36(6)(ii) of the Patent Act. (The written demand for trial, page 15, line 33 to page 16, line 6)

(D) Patent invention 6

In patent invention 6, it is described that "The gas dissolving device according to any one of claims 1 to 5, wherein the tube-shaped passage includes a pressure reduction and transfer means that prevents pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and forms a laminar flow."

As mentioned above, in paragraph [0035] of the description of the Patent, it is described that "in the gas dissolving device 1 of the present invention, inside diameter X of the narrow tube 5a that is the pressure reduction and transfer means 5 is preferably from 1.0 mm or more to 5.0 mm or less, and, more preferably, from 1.0 mm or more to 3.0 mm or less, and, still more preferably, 2.0 mm or more to 3.0 mm or less. By making it fall within such range, there is no need to install no fewer than 10 narrow tubes for pressure-lowering, unlike the technology described in Japanese Unexamined Patent Application Publication No. H8-89771, and, by having one piece of the narrow tube 5a, pressure can be reduced, and, in conjunction with this, a laminar flow can be formed within the tube," and it is described that, in order to "be able to form a laminar flow within the tube," the inside diameter of the narrow tube 5a that is the pressure reduction and transfer means 5 must be a specific value.

Therefore, in claim 6, there is no statement about in what way it is possible to "prevent pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and form a laminar flow."

Therefore, patent invention 6 is unclear, and the statement of claim 6 does not satisfy the requirement prescribed in Article 36(6)(ii) of the Patent Act. (The written

demand for trial, page 17, lines 1-19)

(E) Patent invention 7

In claim 7, an alternative description of "tapered so as to increase or decrease a tube diameter" is included, and thus patent invention 7 is unclear, resulting in not meeting the requirement prescribed in Article 36(6)(ii) of the Patent Act. (The written demand for trial, page 18, lines 5-8)

(F) Patent invention 10

Patent invention 10 claims "The gas dissolving method according to claim 9, wherein hydrogen bubbles having an average diameter of 200 nm or less are imparted in the dissolving chamber."

In the detailed explanation of the invention of the description of the Patent, it is described that "in the above-mentioned invention, it may be such that hydrogen water stored under pressure in the dissolving chamber is led into a water tank, and water in the water tank is transmitted to the pressurized gas dissolving means and supplied under pressure at the same time as hydrogen bubbles" (paragraph [0026]), and that "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically" (paragraph [0045]).

However, in the detailed explanation of the invention of the description of the Patent, there is no statement of hydrogen bubbles of an average diameter of 200 nm or less being preferable, and, thus, patent invention 10 is not described in the detailed explanation of the invention. From this, the statement of claim 10 does not meet the requirement prescribed in Article 36(6)(i) of the Patent Act, and, therefore, the patent invention 10 is unclear as a matter of course, resulting in the statement of claim 10 not meeting the requirement prescribed in Article 36(6)(ii) of the Patent Act. (The written demand for trial, page 19, lines 13-29)

(G) The same applies to the other patent inventions that refer to each of the above-mentioned patent inventions. (The written demand for trial, page 15, lines 19-25, page 16, lines 7-10 and lines 21-32, page 17, lines 20-24, page 18, lines 18-21, page 19, lines 1-7 and lines 37-40)

(H) Therefore, the Patent should be invalidated under the provisions of Article 123(1)(iv) of the Patent Act.

C Reasons for invalidation 3

(A) Patent inventions 1 and 8

In paragraphs [0044] and [0045] of the description of the Patent, experimentation conditions or implementation conditions such as a hydrogen generation amount, a flow volume of water, and temperature are not specified at all, and thus the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that a person skilled in the art can carry out that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles." (The written demand for trial, page 14, lines 26-31, page 18, lines 23-27)

(B) Patent inventions 2 and 9

In patent invention 2, there is prescribed that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber."

However, in the detailed explanation of the invention of the description of the Patent, there is no statement that corresponds to patent invention 2 at all. (The written demand for trial, page 15, lines 4-9, page 19, lines 1-5)

(C) Patent invention 4

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about "hydrogen bubbles." (The written demand for trial, page 15, lines 36-37)

(D) Patent invention 7

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about in what case it is made "to increase a tube diameter near the outlet of the tube-shaped passage," and in what case it is made "to decrease a tube diameter near the outlet of the tube-shaped passage." (The written demand for trial, page 18, lines 9-12)

(E) Patent invention 10

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about how to generate hydrogen bubbles of an average diameter of 200 nm or less. (The written demand for trial, page 19, lines 30-32)

(F) The same applies to the other patent inventions that refer to the above patent inventions, and, therefore, the statements of the detailed explanation of the invention of the description of the Patent do not satisfy the requirement prescribed in Article 36(4)(i) of the Patent Act.

Therefore, the Patent should be invalidated under the provisions of Article 123(1)(iv) of the Patent Act. (The written demand for trial, page 14, line 40 to page 15, line 2, lines 14-17 and lines 28-31, page 16, lines 3-10 and lines 33-39, page 17, lines 25-32, page 18, lines 13-17 and lines 34-37, page 19, lines 7-11 and lines 32-36)

2. Demandee's allegation and means of proof

(1) Gist of the allegation

Demandee alleges that the demand for trial regarding the invalidation is groundless.

(2) Evidence

Evidence submitted by Demandee is as follows.

References 1 and 2 attached to the written reply were decided not to be adopted, because their publication was made after the application date of the Patent. (The trial record: Demandee's field 1)

Reference 3: Japanese Unexamined Patent Application Publication No. 2013-199320

Reference 4: Japanese Unexamined Patent Application Publication No. 2008-180453

(3) Summary of the allegation

Summary of the demandee's allegation is as follows.

A Reasons for invalidation 1

When the history of the decision to grant the patent of the case is reviewed, it is found a written amendment to amend claims 1 and 8 was submitted on Oct. 20 as a reply against the notice of reasons for refusal on Oct. 5, 2015, resulting in the decision to grant a patent on Dec. 11 of the same year. In other words, by conducting amendment of the underlined portions of "the hydrogen water that has been stored in the

dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles, and a part of the hydrogen water is led to the hydrogen producing means for use in electrolysis" (the requirement F), the decision to grant a patent was made. Therefore, the requirement F regarding circulation and the like of such hydrogen water is a portion recognized as a matter specifying the invention in the examination process.

On the other hand, in A2 device 1, corresponding to the statement that "by lowering pressure of liquid, into which gas has been dissolved by pressurizing the gas, and making the liquid flow in a narrow tube, the above object can be achieved" (the description of A1 device, column [0016]), it is stated in claim 1 such that, regarding this narrow tube, "the inside diameter of the narrow tube is larger than 1.0 mm and smaller than 5.0 mm." In other words, such point is a matter specifying the invention. Meanwhile, this is also a matter added to an independent claim by the correction on Sep. 3, 2015.

In both the Invention and A2 device, problems to be solved are described in column [0015] of the descriptions of them, and their problems to be solved are (1) to dissolve gas in liquid in a supersaturated state, and maintain such supersaturated state stably, and (2) to enable mounting on a water server and the like with ease, and, thus, their problems to be solved are common.

On the one hand, as mentioned above, the matters specifying the invention of A2 device 1 is to make the inside diameter of the narrow tube fall within a specific range, and it is absolutely different from the matters specifying the Invention such as circulation of hydrogen water in patent inventions 1 and 8. At least, in Inventions 1 and 8, even if a tube-shaped passage (requirement E) corresponds to this narrow tube, to make the inside diameter of such tube-shaped passage fall within a specific range is not included at all.

Furthermore, although the Invention and the A2 device have the common problems to be solved, a reification means for solving these problems to be solved is a circulation and the like of hydrogen water in the former, and is to make the inside diameter of the tube-shaped passage (narrow tube) fall within a specific range in the latter. Therefore, since portions that a reification means tries to specify are also different, it is inconceivable that they have a very minor difference from each other and so on. (The written reply, page 4, from line 10 to the last line)

Patent invention 1 includes "the constituent component F" that "the hydrogen

water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles, and a part of the hydrogen water is led to the hydrogen producing means for use in electrolysis," whereas, A2 device 1 does not include a constituent component that corresponds to the constituent component F.

In addition, also regarding A2 devices 2-8 that depend from A2 device 1, the above-mentioned constituent component F that is the constituent component for making hydrogen water including hydrogen be circulated is neither described nor suggested.

When this point is examined, the specifying matter of the patent invention 1 that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles" is the point of the Invention for solving the problems to be solved of the Invention of "to dissolve gas in liquid in a supersaturated state, and maintain such supersaturated state stably, and be able to provide the liquid" (refer to paragraph 0015 of the description of the Patent), and, by this, an effect that a supersaturated state can be maintained stably, which has not achieved in the past, is exerted.

Therefore, the above-mentioned point does not fall under "a very minor difference in the means for solving the problem" stated in the examination guidelines.

Furthermore, although a point that hydrogen water flows a narrow tube is described in A2 devices 1-8, even if the narrow tube in question is assumed to be the constitution of "circulated," to make a simple narrow tube be a circulation system corresponds to making the concept more specific, adding a function to the narrow tube, and it does not fall under "a difference due to expressing the matter defining the earlier application invention as generic concept" stated in the examination guidelines.

Moreover, since both patent invention 1 and the A2 device are inventions belonging to an identical category in a "gas dissolving device," they also do not fall under "a difference in just category expression" stated in the examination guidelines.

In addition, also regarding relation between patent invention 8 and the A2 device, the patent invention 8 has a constituent component that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles, and a part of the hydrogen water is led to the hydrogen producing means for use in electrolysis," whereas the A2 device does not include a constituent component corresponding to the constituent

component in question.

Therefore, as with patent invention 1, patent invention 8 and the A2 device do not fall under the category of being substantially identical. (Demandee's Written statement dated Nov. 8, 2016, page 1, line 7 from the bottom to page 2, line 34)

B Reasons for invalidation 2

(A) Patent invention 1

a Related to the statement that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the bubbles into nano bubbles" of Patent claim 1, with reference to FIG. 3 and FIG. 4 of the drawings of the Patent at least, hydrogen water stored in the dissolving chambers 41 and 42 is delivered to the pressurized gas dissolving means 3, supplied under pressure, and circulated to the dissolving chambers 41 and 42. In relation to this FIG. 3, it is explained in the description of the Patent that supersaturated hydrogen water is circulated, as shown in the statement that "it is possible to supply supersaturated hydrogen water at all times, because supersaturated hydrogen water can be preserved in the water server 100 and can be circulated." (column [0043] of the description of the Patent), and, furthermore, in relation to FIG. 3 and FIG. 4, it is also explained that bubbles can be made to be nano bubbles as "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically." (column [0045] of the description of the Patent).

From the above, the requirement that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the bubbles into nano bubbles" is described in the detailed explanation of the invention of the description of the Patent and is clear. The same applies to the other requirements A-E; that is, the statement of claim 1 is clear because the invention in question is described in the detailed explanation of the invention of the description of the Patent.

b Demandant's allegation

Demandant insists that "the requirement that <<the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated>> described in claim 1 of the Patent is not described clearly in the detailed

explanation of the invention of the description of the Patent." (The written demand for trial, page 13, lines 37-40). However, as mentioned above, it is described in FIG. 3 and FIG. 4 of the drawings of the Patent, and column [0043] of the description of the Patent.

Furthermore, Demandant also insists that "The constitution of a device described in claim 1 of the Patent is not identical with the constitution of the device shown in FIG. 3, and thus there is no statement corresponding to the invention according to claim 1 in the detailed explanation of the invention of the description of the Patent," (the written demand for trial, page 14, lines 33-35). As a basis for this, it is cited, on page 14, lines 23-24 of the written demand for trial, that there is no mention about "water server" in claim 1. However, while "water server" is included in FIG. 3 and FIG. 4 of the drawings of the Patent, "water server" is not described in claim 1 as a result of extracting all of matters that the applicant of the patent recognizes as necessary to specify the invention for which a patent is sought in order to achieve the object "to dissolve gas in liquid in a supersaturated state, and maintain such supersaturated state stably, and provide the liquid" that is the problem to be solved of the Patent Invention (column [0015] of the description of the Patent). In other words, it is obvious that patent invention 1 described by extracting matters specifying the invention from the components of a device according to the invention described in the drawings and the description of the Patent is described in the drawings and the description of the Patent. Then, it is also obvious that, since it is a device described in the drawings and the description of the Patent even if "water server" is not included in claim 1, it will not be one exceeding the scope described so that a person skilled in the art can recognize that the problems to be solved of the Patent Invention can be solved.

As above, the invention for which a patent is sought by claim 1 is one that is described in the detailed explanation of the invention, and thus Demandant's explanation is false and not reasonable.

Meanwhile, regarding the statement of the scope of claims of the Patent, Demandant of the trial did not state specifically that the invention for which a patent is sought is not clear. That is, although Demandant insists that not meeting the requirement prescribed in Article 36(6)(i) of the Patent Act immediately leads to an unclear statement of the invention of Article 36(6)(i), this is a leap of logic, and a reason of not being clear should be shown specifically. (The written reply, page 6, line 3 to page 7, line 12)

FIGURE 3 of the case is a figure that assumes a state that the gas dissolving device 1 is connected to a water tank for temporary storage included in such general

water server. In other words, it is a state that a water tank for temporary storage included in a general water server is being used. In FIG. 3 of the case, it is nothing but expressing a water tank for temporary storage included in a general water server as "the water server 100."

As a matter of fact, on theoretical grounds, there is no need to connect a water tank. For example, even when the outlet 10 and the inlet 7 are directly connected, if hydrogen water stored in a dissolving chamber is made to circulate and delivered eventually to a pressurized gas dissolving means, hydrogen water of nano bubbles can still be obtained. For this reason, in FIG. 1 of the case, the gas dissolving device 1 to which nothing is connected is cited.

From the above, in the Invention, the water server 100 is not essential.

For your information, Examples 1 and 3-13 take a state that the gas dissolving device 1 is connected to a water tank for temporary storage included in a general water server in this way as an example, whereas, in the example described in Example 2, tap water is given to this water tank.

Then, the hydrogen density and the like of the Examples were obtained by measuring drinking water within "the water server 100" of FIG. 3 of the case that corresponds to a temporary storage tank of a general water server. (The oral proceedings statement brief of Demandee, page 3, line 5 from the bottom to page 4, line 12)

(B) Patent invention 2

a In relation to the statement that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber," with reference to FIG. 3 and FIG. 4 of the drawings of the Patent at least, in the circulation route from the dissolving chambers 41 and 42, through the water server 100 and the pressurized gas dissolving means 3, to the dissolving chambers 41 and 42, the pressurized gas dissolving means 3 supplies water under pressure as shown by an arrow. Then, in relation to these FIG. 3 and FIG. 4, as "when such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically." (column [0045] of the description of the Patent), it is also described that, when a device is operated; that is, when a pressurized gas dissolving means is operated, bubbles after three days' operation are made smaller than those of about 30 minutes

operation at least, and, thus, the pressurized gas dissolving means supplies water under pressure so that the average diameter of generated hydrogen bubbles may be made smaller over time. In addition, as stated in A-1, the pressurized gas dissolving means and the dissolving chamber are described specifically to the extent to enable a person skilled in the art to carry out. From the above, the requirement that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber"; that is, regarding the statement of claim 2, the invention in question is described in the detailed explanation of the invention of the description of the Patent, and it is clear.

b Demandant's allegation

Although Demandant insists that there is no statement at all corresponding to patent invention 2, it is in error as described above, and patent invention 2 is described in the detailed explanation of the invention of the description of the Patent. Therefore, the explanation of Demandant is wrong, and not reasonable.

Meanwhile, as also described above, Demandant of the trial does not state a reason specifically why the invention for which a patent is sought is not clear regarding the statement of the scope of claims of the Patent also here, there is a leap of logic for determining it as an unclear statement of the invention under Article 36(6)(ii) of the Patent Act, and a reason should be shown specifically. (The written reply, page 7, line 14 to page 8, line 2)

(C) Patent invention 3

Demandant explains that, on the ground that claim 3 refers to claim 2 violating Article 36(6)(i) and (ii) of the Patent Act, it is a violation of the same items. However, claim 2 does not violate the items as mentioned above, and thus the Demandant's explanation is groundless and not reasonable. (The written reply, page 8, lines 4-6)

(D) Patent invention 4

a In relation to the statement of "the dissolving chamber maintains the hydrogen bubbles by applying a filter to at least a portion thereof," it is explained that a filter is given to at least a part of the dissolving chamber to maintain a supersaturated state more stably, saying that "a dissolving tank 41 including a micro filter composed of a porous body and the like in its inside and a dissolving tank 42 including an activated carbon filter in its interior are included, and, by this, it is possible to maintain a supersaturated

state more stably" (column [0041] of the description of the Patent). Here, when hydrogen bubbles are lost from hydrogen water, the hydrogen density is decreased from the supersaturated state, and, for this reason, it is necessary to maintain hydrogen water including hydrogen bubbles as is so as to maintain the supersaturated state, and, thus, the dissolving chamber will store hydrogen water including hydrogen bubbles for which hydrogen bubbles are maintained under pressure (refer to column [0026] of the description of the Patent).

From the above, regarding the requirement that "the dissolving chamber maintains the hydrogen bubbles by applying a filter to at least a portion thereof"; that is, the statement of claim 4, the invention in question is described in the detailed explanation of the invention of the description of the Patent, and it is clear.

b Demandant's allegation

Although Demandant insists that there is no statement at all about "hydrogen bubbles" in the columns of the detailed explanation of the invention of the description of the Patent, this is incorrect as described above. In other words, the patent invention 4 is described in the detailed explanation of the invention, and, therefore, the explanation of Demandant is wrong and not reasonable.

In addition, since also here Demandant of the trial does not specifically state a reason why the invention for which a patent is sought is not clear regarding the statement of the scope of claims, there is a leap of logic in deciding that the statement of the invention is unclear under Article 36(6)(ii) of the Patent Act, and a reason should be shown specifically.

Furthermore, Demandant explains that, on the ground that claim 4 refers to claims 2 and 3 violating Article 36(6)(i) and (ii) of the Patent Act, it is violation of the same items. However, claims 2 and 3 do not violate the items as mentioned above, and thus the Demandant's explanation is groundless and not reasonable. (The written reply, page 8, lines 8-34)

(E) Patent invention 5

Although Demandant explains that, on the ground that claim 5 refers to claims 1-4 violating Article 36(6)(i) and (ii) of the Patent Act, it is a violation of the same items, claims 1-4 do not violate the items as mentioned above, and thus the Demandant's explanation is groundless and not reasonable. (The written reply, page 8, line 36 to page 9, line 2)

(F) Patent invention 6

a Related to the statement that "the tube-shaped passage includes a pressure reduction and transfer means that prevents pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and forms a laminar flow," it is explained that the tube-shaped passage 5a prevents pressure variation within the tube-shaped passage 5a due to a discharge operation of hydrogen water from the outlet 10 and forms a laminar flow, saying that "the pressure reduction and transfer means 5 prevents pressure variation within the tube-shaped passage 5a due to a discharge operation of hydrogen water from the outlet 10 in the tube-shaped passage 5a connecting the dissolving chamber 4 and the outlet 10, and forms a laminar flow in it." (column [0030] of the description of the Patent). Then, describing as "For example, it is preferred that the tube-shaped passage 5a of the pressure reduction and transfer means 5 be of an elongated form and have a relatively small diameter depending on the pressure of liquid flowing in its inside, and may be also one that includes, near the outlet of the tube-shaped passage 5a, a pressure adjusting part to which a taper to narrow or expand the tube diameter is given." (column [0030] of the description of the Patent), a specific example of the pressure reduction and transfer means 5 that prevents pressure variation within the tube-shaped passage 5a and forms laminar flow is mentioned, and, also regarding the components, it is described specifically to the extent that a person skilled in the art can carry it out.

From the above, regarding the requirement that "the tube-shaped passage includes a pressure reduction and transfer means that prevents pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and forms a laminar flow"; that is, the statement of claim 6, the invention in question is described in the detailed explanation of the invention of the description of the Patent, and it is clear.

b Demandant's allegation

Although Demandant alleges that "Therefore, in claim 6, there is no statement about in what way it is possible to <<prevent pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and form a laminar flow," to <<prevent pressure variation ... (omitted) ... form a laminar flow>> is a function of the pressure reduction and transfer means. Moreover, an example of the pressure reduction and transfer means having such function is described in column [0035] of the description of the Patent. In other words, the Demandant's allegation is incorrect. (The written reply, page 9, lines 4-27)

(G) Patent invention 7

a In relation to the statement that "the pressure reduction and transfer means comprises a pressure adjusting unit that is tapered so as to increase or decrease a tube diameter near the outlet of the tube-shaped passage," it is stated, in column [0030] of the description of the Patent, as "the pressure reduction and transfer means 5 prevents pressure variation within the tube-shaped passage 5a due to a discharge operation of hydrogen water from the outlet 10 in the tube-shaped passage 5a connecting the dissolving chamber 4 and the outlet 10, and forms a laminar flow in it," and, as a specific example of that, it is explained that "may be also one that includes, near the outlet of the tube-shaped passage 5a, a pressure adjusting part to which a taper to narrow or expand the tube diameter is given." In other words, by giving a taper adjacent to the outlet of a tube-shaped passage, it is possible to prevent pressure variation and form a laminar flow in it. Here, for example, in order to keep the same volume of liquid in its interior, if the tube diameter is narrowed, the length is enlarged, and, if the tube diameter is expanded, the length can be made small in contrast, and pressure within a tube-shaped passage (flow rate) can be adjusted by giving a taper. Then, it is possible to determine which is appropriate to prevent pressure variation within a tube-shaped passage and form a laminar flow from a design point of view.

From the above, regarding the requirement that "the pressure reduction and transfer means comprises a pressure adjusting unit that is tapered so as to increase or decrease a tube diameter near the outlet of the tube-shaped passage"; that is, the statement of claim 7, the invention in question is described in the detailed explanation of the invention of the description of the Patent, and the statement is clear.

b Demandant's allegation

Demandant states that "an alternative description as <<that is tapered so as to increase or decrease a tube diameter>> is included in claim 7, and thus the invention according to claim 7 (the patent invention 7) is unclear."

However, in the statement of claim 7, it is not a statement that selection itself to make the tube diameter larger or smaller is made to be an invention, and, in the first place, a taper is one in which a tube diameter is narrowed or expanded. Giving a tapered pressure adjusting unit "to prevent pressure variation within a tube-shaped passage and form a laminar flow" stated in claim 6 that is referred to does not lead to lack of clarity. In other words, Demandant's allegation is in error. (The written reply, page 9, line 29 to page 10, line 16)

(H) Patent invention 8

Demandant explains that the statement that "the hydrogen water that has been

stored in the dissolving chamber ... (omitted) ... for use in electrolysis" in claim 8 is identical with that of claim 1 violating Article 36(6)(i) and (ii) of the Patent Act, and, on the ground of including the identical statement with that of claim 1, claim 8 is also a violation of the same items. However, as mentioned above, claim 1 does not violate the items, and thus Demandant's explanation is groundless and not reasonable. (The written reply, page 10, lines 12-16)

(I) Patent invention 9

Demandant explains that the statement that "the pressurized gas dissolving means supplies water under pressure ... (omitted) ... to the dissolving chamber" in claim 9 is identical with that of claim 2 violating Article 36(6)(i) and (ii) of the Patent Act, and, on the ground of including identical description with claim 2, claim 9 violates the same items. However, as mentioned above, there is no violation of these items in claim 2, and Demandant's explanation is groundless and not reasonable. (The written reply, page 10, line 18-22)

(J) Patent invention 10

a In relation to the statement that "hydrogen bubbles having an average diameter of 200 nm or less are imparted in the dissolving chamber," saying that "nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically" (column [0045] of the description of the Patent), it is described that water supply under pressure can be carried out such that average diameter of hydrogen bubbles may become small over time, and the hydrogen bubbles can be made at least as small as 500 nm, and, then, at least as small as 200 nm. Here, since it is a matter of course for a person skilled in the art that a bubble diameter obtained in the water server 100 never becomes small after pressure reduction from the dissolving chamber 4, to obtain nano bubbles of a size of 200 nm in the water server 100, hydrogen bubbles of an average diameter of 200 nm or less need to be given in the dissolving chamber 4.

From the above, regarding the requirement that "hydrogen bubbles having an average diameter of 200 nm or less are imparted in the dissolving chamber"; that is, the statement of claim 10, the invention concerned is described in the detailed explanation of the invention of the description of the Patent, and it is clear.

b Demandant's allegation

On grounds that "there is no statement of hydrogen bubbles of an average diameter of 200 nm or less being preferable" (The written demand for trial, page 19,

lines 24, 25), and, thus there is no correspondence with claim 10, Demandant concludes that the invention described in claim 10 is not described in the detailed explanation of the invention, and that, therefore, as a matter of course, this is a violation of Article 36(6)(i) and (ii) of the Patent Act.

However, at least, there is no negative description that hydrogen bubbles of an average diameter of 200 nm or less are undesired, and thus the statement of claim 10 and the statement of the description of the Patent do not contradict each other. Therefore, the Demandant's explanation that the invention described in claim 10 is not described in the detailed explanation of the invention is groundless and not reasonable. In addition, Demandant concludes that, it is a violation of Article 36(6)(i) and (ii) of the Patent Act as a matter of course, if it is supposed that patent invention 10 is not described in the detailed explanation of the invention, and Demandant did not mention a specific reason. Failure to meet the requirement prescribed in Article 36(4)(i) of the Patent Act does not immediately lead to violation of Article 36(6)(i) and (ii), and there is a leap of logic, and a reason should be shown specifically.

Furthermore, although Demandant describes that, on the ground that claim 10 refers to claim 9 alleged to be violating Article 36(6)(i) and (ii) of the Patent Act, claim 10 violates the same items, there is no violation of the same items in claim 9 as mentioned above, and the Demandant' explanation is groundless and not reasonable. (The written reply, page 10, line 24 to page 11, line 24)

C Reasons for invalidation 3

(A) Patent invention 1

Demandant alleges that, "In addition, in paragraphs [0044] and [0045] of the description of the Patent, experimentation conditions or implementation conditions such as a hydrogen generation amount, a flow volume of water, and temperature are not specified at all, and thus the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that a person skilled in the art can carry out that <<the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles>>" (The written demand for trial, page 14, lines 26-31).

However, as mentioned above, with respect to the requirement "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the bubbles into nano bubbles," there are statements in

FIG. 3 and FIG. 4 of the drawings of the Patent, and columns [0043] and [0045] of the description of the Patent. Furthermore, it is explained that: a diaphragm pump can be selected as the pressurized gas dissolving means, saying that "hydrogen is led at the same time to the diaphragm pump 3a of the pressurized gas dissolving means 3, and bubbled by this under pressure" (column [0044] of the description of the Patent); and "in the dissolving chamber 4, a shape and the like is not limited in particular if it can dissolve gas in a dissolved state under pressure, ... (omitted) ... liquid and gas can be separated by the gas accumulating in the upper portion of the dissolving tank 41, and only liquid in which gas is dissolved can be sent to the pressure reduction and transfer means 5" (column [0042] etc. of the description of the Patent), for example, and, in this way, components are described specifically to the extent that a person skilled in the art can carry out the invention.

Meanwhile, Demandant insists that, on grounds that experimentation conditions or implementation conditions such as a hydrogen generation amount, a flow volume of water, and temperature are not specified, a person skilled in the art cannot carry out that <<the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles>>. However, in column [0045] of the description of the Patent, it is stated that, by operating a device of FIG. 3 in succession, a bubble diameter is made small and a nano bubble can be made, and, at least, it is made clear that hydrogen bubbles can be made to be nano bubbles by operation time of circulation. In other words, it is not the case that, if experimentation conditions or implementation conditions such as a hydrogen generation amount are not specified, an invention cannot be carried out, as stated by Demandant.

That is, the Demandant's explanation that has led to the conclusion that the statement of the detailed explanation of the invention of the description of the Patent is not clearly and sufficiently described to the extent that the patent invention 1 can be conducted is groundless and unreasonable. (The written reply, page 11, line 27 to page 12, line 18)

(B) Patent invention 2

As mentioned above, patent invention 2 is described in column [0045] of the description of the Patent. In other words, it is in error that "in the detailed explanation of the invention of the description of the Patent, there is no statement at all corresponding to the invention according to claim 2" (The written demand for trial, page

15, lines 8 and 9), and, thus, the Demandant's explanation that has led, on the ground of this, to the conclusion that the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that the patent invention 2 can be carried out is on a faulty ground, and not reasonable. (The written reply, page 12, lines 20-26)

(C) Patent invention 3

Demandant explains that, on the ground that claim 3 refers to claim 2, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that patent invention 3 can be carried out. However, as mentioned above, patent invention 2 is described, with respect at least to the point explained by Demandant, clearly and sufficiently in the detailed explanation of the invention of the description of the Patent to the extent that it can be carried out, and, therefore, Demandant's explanation is groundless and not reasonable. (The written reply, page 12, lines 28-33)

(D) Patent invention 4

As mentioned above, hydrogen bubbles of patent invention 4 are described in at least column [0026] of the description of the Patent. In other words, that "in the detailed explanation of the invention of the description of the Patent, there is no statement at all about <<hydrogen bubbles>>" (The written demand for trial, page 15, lines 36, 37) is incorrect, and thus, Demandant's explanation leading to the conclusion that, on the ground of this, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that the patent invention 4 can be carried out is on a faulty ground, and not reasonable. (The written reply, page 12, line 35 to page 13, line 4)

(E) Patent invention 5

Demandant explains that, on the ground that claim 5 refers to claims 1-4, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that patent invention 5 can be carried out, (The written demand for trial, page 16, lines 33-39). However, as mentioned above, patent inventions 1-4 are described, at least with respect to the point explained by Demandant, in the detailed explanation of the invention of the description of the Patent clearly and sufficiently to the extent capable of being carried out, and, therefore, the Demandant's explanation is groundless and not reasonable. (The written reply, page 13,

lines 6-12)

(F) Patent invention 6

Demandant explains that, on the ground that claim 6 refers to claims 1-5, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that patent invention 6 can be carried out (The written demand for trial, page 17, lines 25-32). However, as mentioned above, patent inventions 1-5 are described, at least with respect to the point explained by Demandant, in the detailed explanation of the invention of the description of the Patent clearly and sufficiently to the extent that a person skilled in the art can carry it out, and, therefore, the Demandant's explanation is groundless and not reasonable. (The written reply, page 13, lines 14-20)

(G) Patent invention 7

Demandant insists that it is obvious that, since there is no statement at all in what case the tube diameter of patent invention 7 should be made larger or smaller in the detailed explanation of the invention of the description of the Patent, patent invention 7 is not described clearly and sufficiently in the detailed explanation of the invention of the description of the Patent to the extent capable of being carried out. However, as mentioned above, patent invention 7 is described in column [0030] of the description of the Patent clearly and sufficiently to the extent capable of being carried out by a person skilled in the art, and, thus, the Demandant's explanation is groundless and not reasonable. (The written reply, page 13, lines 22-28)

(H) Patent invention 8

Demandant explains that, on grounds of the statement of "the hydrogen water that has been stored in the dissolving chamber ...(omitted) ... for use in electrolysis" of claim 8 being identical with the statement of claim 1, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that patent invention 8 can be carried out (The written demand for trial, page 18, lines 36-39). However, as mentioned above, patent invention 1 is described, at least with respect to the point explained by Demandant, in the detailed explanation of the invention of the description of the Patent clearly and sufficiently to the extent capable of being carried out by a person skilled in the art, and, therefore, the Demandant's explanation is groundless and not reasonable. (The written reply, page 13, line 30 to page 14, line 1)

(I) Patent invention 9

Demandant explains that, on grounds of the statement of claim 9 of "the pressurized gas dissolving means supplies ...(omitted) ... to the dissolving chamber" is identical with the statement of claim 2, the statement of the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that patent invention 9 can be carried out (The written demand for trial, page 18, lines 34-37). However, as mentioned above, patent invention 2 is described, at least with respect to the point explained by Demandant, in the detailed explanation of the invention of the description of the Patent clearly and sufficiently to the extent capable of being carried out by a person skilled in the art, and, thus, the Demandant's explanation is groundless and not reasonable. (The written reply, page 14, lines 3-10)

(J) Patent invention 10

Although Demandant alleges that, "there is no statement about in what way hydrogen bubbles of an average diameter of 200 nm or less can be generated" (The written demand for trial, page 19, lines 30-32), it is described in column [0045] and the like of the description of the Patent that, in a device of patent invention 1, by making it operate in succession; that is, by making "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state be delivered to the pressurized gas dissolving means, supplied under pressure, and circulated" (claim 1), hydrogen bubbles of an average diameter of 200 nm or less can be generated. Therefore, the Demandant's explanation is groundless and not reasonable. (The written reply, page 14, lines 12-19)

No. 5. Judgment by the body

1. Regarding Reasons for invalidation 1

(1) Devices according to claims of A2

A2 devices 1 and 2 of A2 are as follows.

"[Claim 1]

A gas dissolving device comprising:

a gas generating mechanism to generate gas;

a pressurized gas dissolving mechanism to pressurize the gas and dissolve the gas in liquid;

a dissolving mechanism to dissolve and store the liquid dissolving the gas; and

a pressure-lowering mechanism to reduce pressure by the liquid flowing in a

narrow tube, wherein

an inside diameter of the narrow tube is larger than 1.0 mm and smaller than 5.0 mm, the gas is hydrogen, and the gas generating mechanism is a hydrogen generating mechanism.

[Claim 2]

The gas dissolving device according to claim 1, wherein the hydrogen generating mechanism is a mechanism to generate hydrogen by electrolysis."

When the order of description of this A2 device 2 is changed, after patent invention 1, A2 device 2 is as follows.

A gas dissolving device to generate liquid dissolving hydrogen by making the hydrogen be dissolved in the liquid, comprising:

a hydrogen generating mechanism to generate hydrogen by electrolysis;

a pressurized gas dissolving mechanism to impart liquid with hydrogen from the hydrogen generating mechanism, and supply the liquid under pressure;

a dissolving mechanism to lead the liquid dissolving the hydrogen generated by the pressurized gas dissolving mechanism and store the liquid; and

a pressure-lowering mechanism to reduce pressure by the liquid flowing in a narrow tube of an inside diameter from 1.0 mm or more to 5.0 mm or less.

(2) Comparison between patent invention 1 and A2 device 2

"Hydrogen generating mechanism," "pressurized gas dissolving mechanism," and "dissolving mechanism" of A2 device 2 respectively correspond to "hydrogen producing means," "pressurized gas dissolving means," and "dissolving chamber" of patent invention 1.

In addition, "narrow tube" of A2 device 2 is, from the literal viewpoint, a "tube-shaped passage."

In view of the above, corresponding features and different features between the patent invention 1 and A2 device 2 are as follows.

[The corresponding features]

A gas dissolving device to generate liquid dissolving hydrogen by dissolving hydrogen in the liquid, the gas dissolving device comprising:

a hydrogen producing means to generate hydrogen by electrolysis;

a pressurized gas dissolving means to impart liquid with hydrogen from the

hydrogen producing means, and supply the liquid under pressure;

a dissolving chamber that leads the liquid dissolving hydrogen generated by the pressurized gas dissolving means and stores the liquid, and

a tube-shaped passage.

[The different feature 1]

A point that, in A2 device 2, the target into which hydrogen is dissolved is "liquid," whereas, in patent invention 1, it is specified as "water."

[The different feature 2]

A point that, in A2 device 2, whether or not there is an "outlet" is not specified, whereas, in patent invention 1, "outlet" is specified.

[The different feature 3]

A point that, in A2 device 2, a specific constitution of "hydrogen producing means" is not specified, whereas, in patent invention 1, it is specified as a "sandwiching proton exchange membrane (PEM)."

[The different feature 4]

A point that, in A2 device 2, in what kind of form hydrogen is imparted to liquid in "pressurized gas dissolving means" is not specified, whereas, in patent invention 1, it is specified that it is a "hydrogen bubble."

[The different feature 5]

A point that, in A2 device 2, whether "circulated" or not is not specified, whereas, in patent invention 1, it is specified as "circulated."

[The different feature 6]

A point that, in A2 device 2, "making the hydrogen bubbles into nano bubbles" is not specified, whereas, in patent invention 1, it is specified to "make the hydrogen bubbles into nano bubbles."

[The different feature 7]

A point that, in A2 device 2, no special provision is made about water to be led to "hydrogen producing means," whereas, in patent invention 1, it is specified that, regarding circulating water, "a part of it is led to the hydrogen producing means."

(3) Examination of the different features between patent invention 1 and A2 device 2

As the above-mentioned No. 4.2.(3) A, Demandee alleges regarding Different Feature 5 solely. Therefore, first, Different Feature 5 will be discussed below.

Even if there is a different feature between patent invention 1 and A2 device 2, when the two are substantially identical, patent invention 1 and A2 device 2 are identical.

Then, being substantially identical is a case where a different feature falls under any of the categories of the following A to C.

A A case of very minor differences in a reification means for solving problems to be solved (such as addition, deletion, or conversion of well-known art or commonly used art that does not exert a new effect)

B A case of a difference due to expressing a matter specifying the invention of an earlier application invention as a generic concept in the Invention

C A case of a difference in just category expression

Here, when the point regarding "being circulated" that has been made to be the Different Feature 5 is examined, it is recognized that the patent invention 1 is an invention that solves the problem to be solved of "to dissolve gas in liquid in a supersaturated state, and maintain such supersaturated state stably, and be able to provide the liquid" described in paragraph [0015] by "being circulated."

Accordingly, since the point of "being circulated" concerning the Different Feature 5 solves the problem to be solved of "to dissolve gas in liquid in a supersaturated state, and maintain such supersaturated state stably, and be able to provide the liquid" that is not required in A2 device 2 and has a new effect, it cannot be said that the Different Feature 5 is a very minor difference in a reification means for solving the problem to be solved.

In addition, it cannot be recognized either as expressing as generic concept because, in patent invention 1, the constitution of being "circulated" is added in relation to A2 device 2.

Furthermore, it cannot be said that patent invention 1 and A2 device 2 have a difference in just category expression.

Therefore, the Different Feature 5 cannot be treated as being substantially identical, and, as a result, it cannot be decided that patent invention 1 and A2 device 2

are substantially identical without having to examine the other different features.

(4) Demandant's allegation

Demandant alleges that, regarding the Different Feature 5, "to circulate (recycle) gas-dissolved water to increase gas density included in the water is a usual practice when making gas included in liquid come to be at high concentration, and it is a design matter that can be done as a matter of course for a person skilled in the art to use such means in order to increase hydrogen density in hydrogen water" in No. 4.1.(3) A (A) g.

However, as described above, since patent invention 1 is an invention that solves a new problem to be solved that is not required in A2 device 2, it cannot be said that it is a usual practice (commonly used means), and, thus, the appellant's allegation cannot be accepted.

Moreover, since it is not a usual practice (commonly used means), it cannot be said to be an instance of "double patenting."

(5) Patent inventions 2 to 10

Patent inventions 2-7, which refer to patent invention 1, patent invention 8 that has a different category from patent invention 1, and patent inventions 9 and 10 that refer to patent invention 8 also include the Different Feature 5 as with the above, and, therefore, it cannot be decided that, as with patent invention 1, they are identical with A2 device 2.

(6) Summary

As stated above, it cannot be decided that patent inventions 1 to 10 are identical with the A2 device.

Accordingly, the patents concerning patent inventions 1 to 10 are not in breach of the prescriptions of the Patent Act Article 39(3), and, therefore, the patents concerning patent inventions 1 to 10 cannot be invalidated by the reason for invalidation 1 alleged by Demandant.

2. Regarding Reasons for invalidation 2

(1) Patent inventions 1 and 8

A The demandant's allegation

Demandant alleges that the requirement that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and

circulated, making the hydrogen bubbles into nano bubbles" of patent inventions 1 and 8 is not described clearly in the detailed explanation of the invention, and, further, regardless of it being obvious that patent inventions 1 and 8 take "water server" as an essential requirement, there is no statement about "water server" in claim 1 and claim 8 of the Patent, and, therefore, neither of patent inventions 1 and 8 are described in the detailed explanation of the invention, and, in addition, the statements of claim 1 and claim 8 of the Patent are not clear.

B Judgment

The description of the Patent describes the following matters.

(A) "[0021]

In the above-mentioned invention, hydrogen water stored under pressure in the dissolving chamber may be once again delivered to the pressurized gas dissolving means, and supplied under pressure in concurrence with hydrogen bubbles.

[0022]

In the above-mentioned invention, hydrogen water stored under pressure in the dissolving chamber may be led into a water tank, the water in the water tank transmitted to the pressurized gas dissolving means, and supplied under pressure in concurrence with hydrogen bubbles."

(B) "[0033]

In FIG. 1, this time, water is used as liquid. Referring also to FIG. 2, water is sucked from the liquid inlet 7 (S1), and is sucked by the pump 3a through the inlet 8 of the pressurized gas dissolving means 3, and merged with hydrogen from the hydrogen producing means 21 which is discussed below in plumbing to be mixed (S2'), and, after being pressurized and dissolved (S2), the water is discharged from this outlet 9. A part of discharged water is separated (S2"), undergoes ion exchange by the ion exchange means 22 (S3), and is transmitted to the hydrogen producing means 21 through the inlet 23 for the hydrogen producing means. In the hydrogen producing means 21, hydrogen is generated using the ion-exchanged water by electrolysis (S4), and transmitted to the inlet 8 of the pressurized gas dissolving means 3 through the hydrogen supply tube 24. In addition, oxygen generated by electrolysis is discharged outside the gas dissolving device 1 through the oxygen exhaust port 25.

[0034]

Hydrogen generated by electrolysis is sent to the inlet 8 of the pressurized gas dissolving means 3, and, by being pressed by the pump 3a thereof, is dissolved in water

sucked from the liquid inlet 7. The water into which hydrogen is dissolved under pressure is discharged from the outlet 9 of the pressurized gas dissolving means 3, and stored in the dissolving chamber 4 in a supersaturated state (S5). The liquid stored in the dissolving chamber 4 is lowered in pressure by flowing in the narrow tube 5a that is the pressure reduction and transfer means 5 while maintaining a laminar flow state (S6), and discharged outside from the hydrogen water outlet 10 (S7)."

(C) "[0043]
FIGURE 3 is a diagram showing an example of use of a gas dissolving device of the present invention. In this Figure, reference numeral 100 indicates a water server. By mounting the gas dissolving device 1' on the water server 100, hydrogen gas is generated using water in the water server 100, and, further, using that, supersaturated hydrogen water can be supplied. Furthermore, it is possible to supply supersaturated hydrogen water at all times, because supersaturated hydrogen water can be preserved in the water server 100 and can be circulated."

(D) "[0045]
When such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically."

(E) "[0053]
(Example 1) The gas dissolving device 1 shown in FIG. 1 was connected to the water server 100 that was commercially available as shown in FIG. 3, and, by 4 times of circulation, hydrogen water was generated. As the narrow tube 5a of the pressure reduction and transfer means 5, a polypropylene tube of an inside diameter of 2 mm and a length of 1.6 m was used. The pressure was 0.41 MPa, a hydrogen generation amount was 21 cm^3/min, and a flow volume of water was 730 cm^3/min. Regarding the hydrogen concentration in the water after 30 min. of operation, the water became hydrogen water of 6.5 ppm at 7 degrees C, and it maintained the supersaturated state."

First, from the above-mentioned statement of (B), it is understood, as the gas dissolving device 1 shown in FIG. 1, there can be used a device that sucks water from the liquid inlet 7, and discharges hydrogen water to the outside from the hydrogen water outlet 10.

Then, from the statement that "The gas dissolving device 1 shown in FIG. 1 was

connected to the water server 100 that was commercially available as shown in FIG. 3" of the above-mentioned (E) relating to Example 1, the device of FIG. 3 is an Example, "the gas dissolving device 1'" of the device of FIG. 3 is identical with "the gas dissolving device 1" of FIG. 1, and a person skilled in the art understands as a matter of course that it is described while abbreviating a part of its configuration in the drawing.

In view of the above, that "the outlet 10" of the "gas dissolving device" is connected to "the water server 100" shown in FIG. 3 is indicated by the reference symbols, and, when compared with FIG. 1, it can be understood as a matter of course that "the liquid inlet 7" is also connected to "the water server 100."

Then, it can be also recognized naturally that hydrogen water discharged from "the outlet 10" of the "gas dissolving device" returns to the "gas dissolving device" from "the liquid inlet 7." That is, there is shown a constitution in which hydrogen water that includes hydrogen in a saturated state and is stored in the dissolving chamber 4 is delivered to the pressurized gas dissolving means 3 and supplied under pressure, and is circulated.

On the other hand, although "the water server 100" exists in the route of circulation as Example 1 of FIG. 3, it can be recognized by a person skilled in the art, from the statement of the above-mentioned (A), that circulation can be made using a simple "water tank" and the like without having to go through a device as complicated as "water server," and it is consistent with that, in claim 1, "circulation" is made to be that "hydrogen water that has been stored in a dissolving chamber and that includes hydrogen in a saturated state" goes through a route of some sort to reach "pressurized gas dissolving means." Therefore, it is not recognized as a requisite constitution to limit the route of "circulation" to "the water server 100."

Furthermore, as described in the above-mentioned (D), since "nano bubbles were observed optically" in the device of FIG. 3, "making the hydrogen bubbles into nano bubbles" is also described in the description.

In addition, for the reason that the requirement required by Article 36(6)(i) of the Patent Act and the requirement required by Article 36(6)(ii) of the same Act are different in their targets and viewpoints, the above-mentioned situation does not immediately lead to the statement of the scope of claims failing to be clear. Therefore, there is no reason to conclude that the statements of patent inventions 1 and 8 are not clear.

(2) Patent invention 2

A The demandant's allegation

Demandant alleges that there is prescribed, in patent invention 2, that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber."

And that, however, in the detailed explanation of the invention, there is no statement corresponding to the patent invention 2 at all, and, in addition, the statement of claim 2 of the Patent is not clear.

B Judgment

It can be understood that smaller hydrogen bubbles were observed when the time had elapsed because, as stated in the above (1)B(D), "When such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically," and, therefore, it can be said that "an average diameter of the generated hydrogen bubbles is decreased over time" is equivalent to being described in the description.

In addition, as with the above-mentioned (1), there is also no reason to decide that the statement of patent invention 2 is not clear.

(3) Patent invention 4

A The demandant's allegation

Demandant alleges that there is no mention at all about "hydrogen bubbles" in the detailed explanation of the invention, and, in addition, the statement of claim 4 of the Patent is not clear.

B Judgment

The description of the Patent describes the following matters.

(A) "[0026]

In the above-mentioned invention, hydrogen water including hydrogen bubbles of an average diameter of at least 200 nm or less may be stored under pressure in the dissolving chamber."

(B) "[0041]

In addition, it is preferable that the gas dissolving device 1 of the present invention have

one piece of or a plurality of pieces of the dissolving chamber 4 of two or more so as to make the capacity of the dissolving chamber 4 be one-third of the flow volume, and, more preferably, have two or more. By making it be of two pieces or more, gas can be dissolved efficiently in a short time to a high concentration. In FIG. 1, a dissolving tank 41 including a micro filter composed of a porous body and the like in its inside and a dissolving tank 42 including an activated carbon filter in its interior are included, and, by this, it is possible to maintain a supersaturated state more stably."

From the statement of the above-mentioned (A), it is mentioned regarding "hydrogen bubbles," and thus it cannot be said that there is no mention at all about "hydrogen bubbles" in the detailed explanation of the invention.

Furthermore, as with the above-mentioned (1), there is also no reason to decide that the statement of patent invention 4 is not clear.

(4) Patent invention 6

A The demandant's allegation

Demandant alleges that there is no statement about in what way it is possible to "prevent pressure variation in the tube-shaped passage by an action of discharging the hydrogen water from the outlet, and form a laminar flow," and the statement of claim 6 of the Patent is not clear.

B Judgment

The description of the Patent describes the following matters.

(A) "[0030]

Here, the pressure reduction and transfer means 5 prevents pressure variation within the tube-shaped passage 5a due to a discharge operation of hydrogen water from the outlet 10 in the tube-shaped passage 5a connecting the dissolving chamber 4 and the outlet 10, and forms a laminar flow in it. For example, it is preferred that the tube-shaped passage 5a of the pressure reduction and transfer means 5 be an elongated form and have a small diameter relatively depending on the pressure of liquid flowing its inside, and it may be also one that includes, near the outlet of the tube-shaped passage 5a, a pressure adjusting part to which a taper to narrow or expand the tube diameter is given."

(B) "[0035]

In addition, in the gas dissolving device 1 of the present invention, inside diameter X of the narrow tube 5a that is the pressure reduction and transfer means 5 is preferably from

1.0 mm or more to 5.0 mm or less, and, more preferably, from 1.0 mm or more to 3.0 mm or less, and, still more preferably, 2.0 mm or more to 3.0 mm or less. By making it fall within such range, there is no need to install no fewer than 10 narrow tubes for pressure-lowering, unlike the technology described in Japanese Unexamined Patent Application Publication No. H8-89771, and, by having one piece of the narrow tube 5a, pressure can be reduced, and, in conjunction with this, a laminar flow can be formed within the tube. In addition, it can be mounted on a water server and the like easily, and, further, manufacturing and repair at the time of a failure becomes easy, and mounting on a water server and the like becomes easier. Meanwhile, in the present invention, inside diameter X of a narrow tube includes not only an inside diameter in the case of a single pipe, but also inside diameter X and the like of a narrow tube in a double pipe, for example, and it does not matter what shape it has."

In view of these statements, since a specific constitution to "prevent pressure variation in the tube-shaped passage, and form a laminar flow" is described in the detailed explanation of the invention, and as a concept including that specific constitution, to "prevent pressure variation in the tube-shaped passage, and form a laminar flow" can be clearly recognized, it cannot be recognized that to "prevent pressure variation in the tube-shaped passage, and form a laminar flow" is not stated in the detailed explanation of the invention. In addition, as with the above-mentioned (1), it cannot be said that the statement of patent invention 6 is not clear.

(5) Patent invention 7

A The demandant's allegation

Demandant alleges that, in claim 7, there is included an alternative description, "that is tapered so as to increase or decrease a tube diameter," and thus patent invention 7 is not clear.

B Judgment

As described in the above-mentioned (4)B(A) that "may be also one that includes, near the outlet of the tube-shaped passage 5a, a pressure adjusting part to which a taper to narrow or expand the tube diameter is given," both constitutions of "a taper" to "narrow the tube diameter" and "a taper to expand" "the tube diameter" are described in the detailed explanation of the invention. Then, from the statement that "that is tapered so as to increase or decrease a tube diameter," it can be clearly understood to mean both of these constitutions. Therefore, it does not cause

discrepancy at all, and, thus, it cannot be said that the statement is not clear. Also, it cannot be said in the first place that being "alternative" immediately means that it is unclear.

(6) Patent invention 10

A The demandant's allegation

Demandant alleges that, in the detailed explanation of the invention of the description of the Patent, there is no statement that hydrogen bubbles of an average diameter of 200 nm or less are preferred, and, therefore, patent invention 10 is not described in the detailed explanation of the invention, and, patent invention 10 is not clear.

B Judgment

Since it is described, in the above-mentioned (3)B(A) ,that "hydrogen water including hydrogen bubbles of an average diameter of 200 nm or less may be stored under pressure in the dissolving chamber," and in the above-mentioned (1)B(D) that "When such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically," it is obvious from the common general technical knowledge that hydrogen bubbles are smaller bubbles in a pressurized state, and it can be recognized naturally from the corresponding statement of the detailed explanation of the invention that hydrogen water including hydrogen bubbles of an average diameter of 200 nm or less is stored under pressure in the dissolving chamber, and, thus, it can be said that patent invention 10 is stated in the detailed explanation of the invention. Furthermore, as with the above-mentioned (1), it cannot be said that the statement itself is not clear.

(7) Summary

As described above, it cannot be decided that patent inventions 1 to 10 are not described in the detailed explanation of the invention including claims citing other ones. In addition, it cannot be decided that they are not clear.

Therefore, the patents concerning patent inventions 1 to 10 are not in breach of the prescriptions of Article 36(6)(i) or (ii) of the Patent Act, and, consequently, the patents concerning patent inventions 1 to 10 cannot be invalidated by the reasons for invalidation 2 alleged by Demandant.

3. Regarding Reasons for invalidation 3

(1) Patent inventions 1 and 8

A The demandant's allegation

In paragraphs [0044] and [0045] of the description of the Patent, experimentation conditions or implementation conditions such as a hydrogen generation amount, a flow volume of water, and temperature are not specified at all, and thus the detailed explanation of the invention of the description of the Patent is not described clearly and sufficiently to the extent that a person skilled in the art can carry out that "the hydrogen water that has been stored in the dissolving chamber and that includes hydrogen in a saturated state is delivered to the pressurized gas dissolving means, supplied under pressure, and circulated, making the hydrogen bubbles into nano bubbles."

B Judgment

As has been described in the above-mentioned 2(1)B, the Example is the device shown in FIG. 3. Then, in [0053] or later, implementation conditions are shown as a plurality of Examples. Although an implementation condition is not specified in [0044] and [0045], it is obvious, from the statement of [0052] of the description of the Patent, that specific Examples of an invention that is made to be "the present invention" in [0044] and [0045] are stated in [0053] or later, and, thus, a person skilled in the art who reads the description of the Patent will refer to conditions of [0053] or later as a matter of course, and it cannot be said to the extent that a person skilled in the art cannot carry out patent inventions 1 and 8 just because implementation conditions are not described in [0044] and [0045].

(2) Patent inventions 2 and 9

A The demandant's allegation

There is prescribed, in patent invention 2, that "the pressurized gas dissolving means supplies water under pressure in a manner that an average diameter of the generated hydrogen bubbles is decreased over time in a circulation route from the dissolving chamber, through the pressurized gas dissolving means, to the dissolving chamber."

However, in the detailed explanation of the invention, there is no statement corresponding to patent invention 2 at all.

B Judgment

As the above-mentioned 2(2)B, the statements corresponding to patent inventions 2 and 9 are described in [0045].

(3) Patent invention 4

A The demandant's allegation

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about "hydrogen bubbles." (The written demand for trial, page 15, lines 36-37)

B Judgment

As stated in the above-mentioned 2(3)B(A), "hydrogen bubbles" are described in the detailed explanation of the invention.

(4) Patent invention 7

A The demandant's allegation

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about in what case it is made "to increase a tube diameter near the outlet of the tube-shaped passage," and in what case it is made "to decrease a tube diameter near the outlet of the tube-shaped passage." (The written demand for trial, page 18, lines 9-12))

B Judgment

There are described the following matters in the description of the Patent.

"[0030]

Here, the pressure reduction and transfer means 5 prevents pressure variation within the tube-shaped passage 5a due to a discharge operation of hydrogen water from the outlet 10 in the tube-shaped passage 5a connecting the dissolving chamber 4 and the outlet 10, and forms a laminar flow in it. For example, it is preferred that the tube-shaped passage 5a of the pressure reduction and transfer means 5 be an elongated form and have a small diameter relatively depending on the pressure of liquid flowing its inside, and may be also one that includes, near the outlet of the tube-shaped passage 5a, a pressure adjusting part to which a taper to narrow or expand the tube diameter is given."

From the statement that "a taper to narrow or expand the tube diameter," it can be understood as the taper may be either a case of "narrow" or a case of "expand," and, therefore, it is not recognized that patent invention 7 cannot be carried out just because

there is no statement about which should be chosen in what case.

(5) Patent invention 10

A The demandant's allegation

In the detailed explanation of the invention of the description of the Patent, there is no statement at all about in what way it is possible to generate hydrogen bubbles of an average diameter of 200 nm or less. (The written demand for trial, page 19, lines 30-32)

B Judgment

There are described the following matters in the description of the Patent.

"[0045]

When such device was made to operate about 30 min., nano bubbles of 500 nm or less were observed optically, and when it was made to operate for 3 days in succession to this, nano bubbles of a size of 200 nm were observed optically."

From this statement, it can be understood that a device of the Example should just be made to operate for three days, and, therefore, it cannot be said that the patent invention 10 cannot be carried out.

(6) Summary

As stated above, it is recognized that, if it is a person skilled in the art, patent inventions 1 to 10 can be carried out based on statements of such as the description, including claims citing other ones.

Therefore, the patents concerning patent inventions 1 to 10 are not in breach of the prescriptions of Article 36(4)(i) of the Patent Act, and, therefore, the patent concerning patent inventions 1 to 10 cannot be invalidated by the reasons for invalidation 3 alleged by Demandant.

No. 6 Closing

As described above, the patents concerning patent inventions 1 to 10 cannot be invalidated by the reasons for invalidation alleged by Demandant.

The costs in connection with the trial shall be borne by Demandant, under the provisions of Article 61 of the Code of Civil Procedure which is applied mutatis mutandis in the provisions of Article 169(2) of the Patent Act.

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

Feb. 28, 2017

Chief Administrative judge: NISHIMURA, Yasuhide
Administrative judge: HIRAIWA, Shoichi
Administrative judge: WATANABE, Makoto