Trial decision

Invalidation No. 2014-800023

Tokyo, Japan Demandant	SONIC CORP
Tokyo, Japan Patent Attorney	MIYAZAKI, Teruo
Tokyo, Japan Patent Attorney	OGATA, Masaaki
Kanagawa, Japan Demandee	IWASA, Masamichi
Tokyo, Japan Patent Attorney	KOTAKE, Akihito
Tokyo, Japan Patent Attorney	ONUKI, Kazuyasu
Tokyo, Japan Patent Attorney	FUJITA, Yasufumi
Tokyo, Japan Patent Attorney	KATSUMATA, Hiroyoshi

The case of trial regarding the invalidation of Japanese Patent No. 5371066 "Ultrasonic sensor and ultrasonic flow meter using the same" between the parties above has resulted in the following trial decision:

Conclusion

Corrections shall be permitted as request.

The appeal of the case was groundless.

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

Reason

No. 1 History of the procedures

Japanese Patent No. 5371066 of the case (hereinafter referred to as "patent of the case") was filed on November 4, 2011 (Japanese patent Application No. 2011-241803), and patent rights for inventions according to Claims 1 to 9 thereof were established and registered on September 27, 2013.

In response, SONIC CORPORATION demanded a trial for invalidation on the patent for the inventions according to Claims 1 to 9 on the date of February 5, 2014.

Procedures made after the demand for trial are briefly as follows:

February 24, 2014	Transmittal notice of copy of written demand
April 25, 2014	Written reply (demandee)
April 25, 2014	Written demand for correction (demandee)
May 15, 2014	Inquiry
May 15, 2014	Transmittal notice of copy of written reply
May 15, 2014	Transmittal notice of copy of written demand for correction
June 16, 2014	Written reply (demandee)
July 22, 2014	Transmittal notice of copy of written reply
August 25, 2014	Written refutation (demandant)
September 16, 2014	Transmittal notice of copy of written refutation
September 16, 2014	Decision on permission or non-permission of amendment
September 16, 2014	Written notice <<Notice of confirmation of agreement>>
October 3, 2014	Written reply of agreement (demandee)
October 20, 2014	Written motion of appeal formality (demandee)
November 4, 2014	Decision on permission or non-permission of amendment
November 4, 2014	Notice of appealed matter
December 1, 2014	Oral proceeding statement brief (demandant)
December 1, 2014	Oral proceeding statement brief (demandee)
December 15, 2014	First oral proceeding
December 17, 2014	Written statement (demandant)
January 9, 2015	Written statement (demandee)

No. 2 Regarding demand for correction

1. Relief sought in demand and detail of correction of the case

A relief sought in the demand in the written demand for correction submitted by the demandee on the date of April 25, 2014 is to "demand correction of the description and the scope of claims of Japanese Patent No. 5371066 with respect to each unit of claims as in the corrected description and the scope of claims attached to the written demand of the case". A detail of correction of the case consists of Corrections 1 to 13 below as to the unit of claims consisting of Claims 1 to 9.

It should be noted that the description before correction, namely, the description attached to the application may be referred to as a "patent description", and the description after correction may be referred to as a "corrected description". Further, a corrected place has been underlined. Correction 13 is based on amendment of the demand for correction in the first oral proceeding on December 15, 2014.

(1) Correction 1

The statement "a minute flow rate flows" in Claim 1 of the scope of claims is corrected to "a substance with a minute flow rate flows".

(2) Correction 2

The statement "oscillates by receiving high frequency" in Claim 1 of the scope of claims is corrected to "oscillates by receiving high frequency signals".

(3) Correction 3

The statement "a width being larger than a width of the ultrasonic oscillator" in Claim 1 of the scope of claims is corrected to "a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator".

(4) Correction 4

The statement "a sound propagation speed ..... a sound propagation speed of a substance flowing through the conduit" in Claim 1 of the scope of claims is corrected to "a sound propagation speed ..... a sound propagation speed of the substance flowing through the conduit".

(5) Correction 5

The statement "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" in Claim 5 of the scope of claims is corrected to "a non-adhesive substance is intervened between the ultrasonic oscillator and the oscillation damper".

(6) Correction 6

The statement "the contact surfaces of the ultrasonic oscillator and the oscillation damper" in Claim 6 of the scope of claims is corrected to "mutually opposed surfaces of the ultrasonic oscillator and the oscillation damper".

(7) Correction 7

The statement "a minute flow rate flows" in [0011] of the description attached to the application is corrected to "a substance with a minute flow rate flows".

(8) Correction 8

The statement "oscillates by receiving high frequency" in [0011] of the description attached to the application is corrected to "oscillates by receiving high frequency signals".

(9) Correction 9

The statement "a width of the ultrasonic oscillator" in [0011] of the description attached to the application is corrected to "a width in an axial direction of the conduit of the ultrasonic oscillator".

(10) Correction 10

The statement "a sound propagation speed ..... a sound propagation speed of a substance flowing through the conduit" in [0011] of the description attached to the application is corrected to "a sound propagation speed ..... a sound propagation speed of the substance flowing through the conduit".

(11) Correction 11

The statement "that the alignment member has a density substantially the same as a density of a fluid to be measured" in [0011] of the description attached to the application is corrected to "to select an alignment member having a density substantially the same as a density of a fluid to be measured".

(12) Correction 12

The statement "a ring-like alignment member, which is made of a material having a sound propagation speed similar to that of a substance flowing in the conduit, ... between the ultrasonic oscillator and the conduit" in [0018] of the description attached to the application is corrected to "an alignment member, which is made of a material having a sound propagation speed similar to that of a substance flowing in the conduit and is ring-like, flexible and uniform, ... between the ultrasonic oscillator and the conduit".

(13) Correction 13

The statement "an alignment member that is annular, flexible and substantially uniform is provided ....., and" in [0011] of the description attached to the application

is corrected to "an alignment member that is annular, flexible and uniform is provided ....., and".

2. Determination on appropriateness of corrections

(1) Regarding Correction 1

Correction 1 is to correct the statement "a minute flow rate flows" in Claim 1 before correction to "a substance with a minute flow rate flows" for the purpose of clarifying what flows with "a minute flow rate" and matching with the statement "a substance flowing through the conduit" in Claim 1 before correction. Therefore, this Correction 1 falls under the purpose of clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 1 was made within the range of the matters stated in the description, the scope of claims and the drawings attached to the application (hereinafter may be simply referred to as patent description, etc. of the case), and does not substantially expand or change the scope of claims.

(2) Regarding Correction 2

Correction 2 is to correct the statement "oscillates by receiving high frequency" in Claim 1 before correction to "oscillates by receiving high frequency signals" for the purpose of unifying the term with respect to the subsequent statement "generates high frequency signals by receiving the oscillation". Therefore, this Correction 2 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

As stated in [0021] of the description attached to the application: "These ultrasonic sensors 1A and 1B are electrically connected to a control unit (C/U) 30. The upstream-side ultrasonic sensor 1A is applied with a high frequency and oscillated", the ultrasonic oscillator is oscillated by application of a high-frequency electric signal. Accordingly, Correction 2 was made within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(3) Regarding Correction 3

Correction 3 is to correct the statement "a width being larger than a width of the ultrasonic oscillator" in Claim 1 before correction to "a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator" for the purpose of clarifying that "a width of the ultrasonic

oscillator" is a width "in the axial direction of the conduit". Therefore, this Correction 3 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

FIG. 2 of the drawings attached to the application is an explanatory view showing a structure of the ultrasonic sensor. FIG. 2 shows that the width in the axial direction of the conduit 20 in the alignment member 7 is a width larger than the width in the axial direction of the conduit 20 in the ultrasonic oscillator. Hence it is obvious that "a width being larger than a width of the ultrasonic oscillator" in the alignment member, stated in Claim 1 before correction, indicates "a width in the axial direction of the conduit".

Therefore, it is obvious, even without reference to the statement in [0026] of the description attached to the application, that Correction 3 was made within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(4) Regarding Correction 4

Correction 4 is to correct the statement "a sound propagation speed ..... a sound propagation speed of a substance flowing through the conduit" in Claim 1 before correction to "a sound propagation speed ..... a sound propagation speed of the substance flowing through the conduit" for the purpose of clarifying that "the substance flowing through the conduit" is the same one as "a substance with a minute flow rate" corrected by Correction 1. Therefore, this Correction 4 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 4 was made within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(5) Regarding Correction 5

Correction 5 is to correct the statement "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" in Claim 5 before correction to "a non-adhesive substance is intervened between the ultrasonic oscillator and the oscillation damper" for the purpose of eliminating a doubt in interpretation of the configuration of "a non-adhesive substance is sandwiched between the contact surfaces" (with the non-adhesive substance sandwiched, the surfaces of the ultrasonic oscillator and the

oscillation damper can be interpreted as being in contact with each other due to the statement "contact surfaces" in Claim 5 before correction, despite those surfaces not being in contact with each other). Therefore, this Correction 5 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, since it is stated in [0012] of the description attached to the application: "a non-adhesive substance may be sandwiched between the ultrasonic oscillator and the oscillation damper", Correction 5 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(6) Regarding Correction 6

Correction 6 is to correct the statement "the contact surfaces of the ultrasonic oscillator and the oscillation damper" in Claim 6 before correction to " mutually opposed surfaces of the ultrasonic oscillator and the oscillation damper" for the purpose of eliminating a doubt in interpretation of the configuration (with the intervening member subjected to non-adhesiveness treatment, the surfaces of the ultrasonic oscillator and the oscillation damper can be interpreted as being in contact with each other due to the statement "contact surfaces" in Claim 6 before correction, despite those surfaces not being in contact). Therefore, this Correction 6 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, since it is stated in [0012] of the description attached to the application: "an intervening member with one surface or both surfaces thereof subjected to non-adhesiveness treatment may be provided", Correction 6 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(7) Regarding Correction 7

Correction 7 is to correct the statement "a minute flow rate flows" in [0011] of the description attached to the application to "a substance with a minute flow rate flows" in order to match the statement in the scope of claims with the statement in the detailed explanation of the invention, in association with the correction according to Correction 1 above.

Therefore, Correction 7 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 7 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(8) Regarding Correction 8

Correction 8 is to correct the statement "oscillates by receiving high frequency" in [0011] of the description attached to the application to "oscillates by receiving high frequency signals" in order to match the statement in the scope of claims with the statement in the detailed explanation of the invention, in association with the correction according to Correction 2 above.

Therefore, Correction 8 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 8 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(9) Regarding Correction 9

Correction 9 is to correct the statement "a width being larger than a width of the ultrasonic oscillator" in [0011] of the description attached to the application to "a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator" in order to match the statement in the scope of claims with the statement in the detailed explanation of the invention, in association with the correction according to Correction 3 above.

Therefore, Correction 9 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, as stated in (3) above, it is obvious that "a width of the ultrasonic oscillator" indicates a width in the axial direction of the conduit. Accordingly, Correction 9 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(10) Regarding Correction 10

Correction 10 is to correct the statement "a sound propagation speed ..... a sound propagation speed of a substance flowing through the conduit" in [0011] of the description attached to the application to "a sound propagation speed ..... a sound propagation speed of the substance flowing through the conduit" in order to match the

statement in the scope of claims with the statement in the detailed explanation of the invention, in association with the correction according to Correction 4 above.

Therefore, Correction 10 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 10 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(11) Regarding Correction 11

Correction 11 is to correct the statement "being 'made of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit' has the same concept as that the alignment member has a density substantially the same as a density of a fluid to be measured'" in [0011] of the description attached to the application to "being 'made of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit' has the same concept as selecting an alignment member having a density substantially the same as a density of a fluid to be measured'", for the purpose of changing the expression so as to prevent occurrence of a misunderstanding that a "sound propagation speed" and a "density" have the same meaning.

Therefore, Correction 11 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Since it changes the expression so as to prevent occurrence of the misunderstanding as stated above, Correction 11 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(12) Regarding Correction 12

Correction 12 is to correct the statement "a ring-like alignment member, which is made of a material having a sound propagation speed similar to that of a substance flowing in the conduit, ... between the ultrasonic oscillator and the conduit" in [0018] of the description attached to the application to "an alignment member, which is made of a material having a sound propagation speed similar to that of a substance flowing in the conduit and is ring-like, flexible and uniform, ... between the ultrasonic oscillator and the conduit", thereby clarifying that in order to exert the effect stated in [0018] of the description attached to the application, the alignment

member intervened between the ultrasonic oscillator and the conduit is required not only to be made of a material having a sound propagation speed similar to that of a substance flowing through the conduit, but also to be a material that is "flexible and uniform".

Therefore, Correction 12 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Since the statement in [0018] of the description attached to the application is a statement regarding [Effect of the Invention], it is obviously a statement of the effect of the invention specified by the matter stated in Claim 1 before correction, including that the alignment member is a material that is "flexible and uniform".

Therefore, Correction 12 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

(13) Regarding Correction 13

Correction 13 is to correct the statement "an alignment member that is annular, flexible and substantially uniform is provided ....., and" in [0011] of the description attached to the application to "an alignment member that is annular, flexible and uniform is provided ....., and", for the purpose of matching the statement in the detailed explanation of the invention with the statement in the scope of claims.

Therefore, Correction 13 is intended on clarification of an ambiguous statement, stipulated in proviso (iii), Article 134-2(1) of the Patent Act.

Further, Correction 13 is a correction within the range of the matters stated in the patent description, etc. of the case, and does not substantially expand or change the scope of claims.

3. Regarding unit of claims

(1) Since Claim 5 after correction according to Correction 5 and Claim 6 after correction according to Correction 6 quote Claim 1 after correction according to Corrections 1 to 4, Claims 1 to 9 after correction constitute a unit of claims, and the demand for correction of the case falls under the provisions of Article 134-2(3) of the Patent Act.

(2) Since Correction 7 to 13 are concerned with Claim 1 after correction, the demand for correction of the case also falls under the provisions of Article 126(4) of the Patent Act which is applied mutatis mutandis pursuant to the provisions of Article

134-2(9) of the Patent Act.

4. Regarding argument of demandant

Regarding Correction 12, the demandant argues that, without a statement that an "alignment member" is uniform in [0018] of the description attached to the application, Correction 12 in which the effect stated in [0018]: "it is possible to uniformly and reliably transmit oscillation of the ultrasonic oscillator to the fluid in the conduit with small variations, and to uniformly and reliably detect the oscillation, transmitted through the fluid in the conduit, with small variations by means of the ultrasonic oscillator, so as to detect a flow quantity and a flow rate of the fluid passing through the conduit accurately", is taken as the effect of the alignment member being a flexible and uniform material is not a correction within the range of the matters stated in the patent description, etc. of the case (Written refutation p.3, l.12 to p.4, l.8, p.12, l.26 to p.13, l.1).

However, in [0026] of the description attached to the application stated is "Further, since a material which is inherently made in a substantially uniform manner is selected, variations therein need not be a concern, thus enabling uniform transmission and reception with small variations". Also in [0030] of the description attached to the application stated is "Hence smooth oscillation to the conduit 20 with respect to a flowing direction of the fluid is possible by the oscillation dampers 3, 4 and the flexible and substantially uniform alignment member 7, namely by free oscillation without firmly fixing those members instead of hardening those members by use of an adhesive and generating fixed-end oscillation, to allow control of the oscillation in the flowing direction by means of the oscillation dampers 3, 4 and uniform removal of reverberations of the ultrasonic oscillator 2 without variations, and also in a direction to the conduit 20, smooth oscillation of the oscillator is possible by the oscillation dampers 3, 4 and the flexible and substantially uniform alignment member 7, namely by free oscillation without firmly fixing those members instead of hardening those members by use of an adhesive and generating fixed-end oscillation, to allow uniform transmission of the oscillation to the fluid flowing in the conduit 20 with small variations". Hence [Effect of the Invention] (an advantageous effect of the invention for which a patent is sought in relation with the prior art) stated in [0018] of the description attached to the application is obviously a statement of the effect of the invention specified by the matter stated in Claim 1 before correction, including that the alignment member is a material that is flexible and uniform.

Accordingly, Correction 12 does not introduce a new technical matter in

relation to the technical manner derived by summing up all the statements in the description, etc. attached to the application, and hence the argument of the demandant cannot be adopted.

5. Summary

As stated above, the correction of the case falls under the purpose of the matter stipulated in proviso (iii), Article 134-2(1) of the Patent Act, and fall under the provisions of Article 126(4), (5) and (6) of the Patent Act which are applied mutatis mutandis pursuant to Article 134-2(3), Article 134-2(9) of the Patent Act. Accordingly, Correction of the case are permitted.

No. 3 The Invention

Since the correction of the case has been permitted as stated in No. 2 above, the inventions according to Claims 1 to 9 in the scope of claims after correction of the case (hereinafter may be simply referred to as Inventions 1 to 9 of the case) are specified by the matters stated in Claims 1 to 9 of the scope of claims after correction of the case, as follows:

1. An ultrasonic sensor, comprising:

a ring-like ultrasonic oscillator that is arranged on an outer circumference of a conduit in which a substance with a minute flow rate flows, oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation; and

a pair of oscillation dampers that are arranged so as to sandwich and fix the ultrasonic oscillator,

wherein

an annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit, and

the alignment member is formed of a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit.

2. The ultrasonic sensor according to claim 1, wherein contact surfaces of the ultrasonic oscillator and the oscillation damper are processed so as to minimize

adhesiveness of the contact surfaces.

3. The ultrasonic sensor according to claim 2, wherein the processing for minimizing the adhesiveness of the contact surfaces of the ultrasonic oscillator and the oscillation damper is surface coating.

4. The ultrasonic sensor according to claim 2, wherein the processing for minimizing the adhesiveness of the contact surfaces of the ultrasonic oscillator and the oscillation damper is plasma surface treatment.

5. The ultrasonic sensor according to any one of claims 1 to 4, wherein a non-adhesive substance is intervened between the ultrasonic oscillator and the oscillation damper.

6. The ultrasonic sensor according to any one of claims 1 to 4, wherein an intervening member is provided on at least one surface of mutually opposed surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment.

7. The ultrasonic sensor according to any one of claims 1 to 6, wherein grease, having a density substantially the same as a density of a substance flowing through the conduit, is applied between the ultrasonic oscillator and the alignment member and between the alignment member and the conduit.

8. An ultrasonic flow meter, wherein the ultrasonic sensors according to any one of claims 1 to 7 are arranged at predetermined intervals on a conduit in which a minute flow rate flows.

9. The ultrasonic flow meter according to claim 8, comprising

a case made up of a control unit housing section in which a control unit is mounted, the control unit executing measurement of a flow rate that flows through the conduit and outputting the measured value, and a sensor protecting section in which a pair of the ultrasonic sensors is arranged at predetermined intervals,

wherein the sensor protecting section of the case sandwiches and fixes the oscillation damper in a separate state from the conduit.

No. 4 Relief sought in request and reasons of request by demandant

1. Outline of relief sought in request and reason for invalidation alleged by demandant

In the written request for trial, the demandant requested the decision that the patent for the inventions according to Claims 1 to 9 of the scope of claims of Japanese Patent No. 5371066 are invalid and the costs in connection with the trial shall be borne by the demandee. The demandant submitted the written request for trial, written refutation, oral proceeding statement brief and written statement. Reasons for invalidation alleged by the demandant may be summarized as follows.

(1) Reasons for invalidation 1

Since the statements in Claims 1 to 9 of the scope of claims do not meet the requirement stipulated in Article 36(6)(ii) of the Patent Act, the patent for the inventions according to Claims 1 to 9 of the scope of claims (Inventions 1 to 9 of the case) was granted for a patent application that does not meet the requirement stipulated in Article 36(6)(ii) of the Patent Act. Hence it falls under the provisions of Article 123(1)(iv) of the Patent Act, and should be invalidated.

(2) Reasons for invalidation 2

Since the statement in the detailed explanation of the invention in the description of the case does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act, the patent for Inventions 1 to 9 of the case was granted for a patent application that does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act. Hence it falls under the provisions of Article 123(1)(iv) of the Patent Act, and should be invalidated.

(3) Reasons for invalidation 3

The patent for Inventions 1 to 9 of the case was granted in violation of the provisions of Article 29(2) of the Patent Act. Hence it falls under the provisions of Article 123(1)(ii) of the Patent Act, and should be invalidated.

2. Means of proof

Means of proof submitted by the demandant are as follows.

(1) Proof submitted with written request for trial

Evidence A No. 1: "Kojien (Japanese Dictionary)" Izuru SHINMURA, 6th edition, Iwanami Press, January 11, 2008

Evidence A No. 2: "Introduction to Ultrasonic Wave Technique - from transmission to reception" Yoshio UTAKAWA, 1st edition, NIKKAN KOGYO SHIMBUN, LTD., January 30, 2010

Evidence A No. 3: "Material sound speed list" (URL: http://www.olympus-ims.com/ja/ndt-tutorials/thickness-gage/appendices-velocities/)

Evidence A No. 4: "Examination result of influence of temperature on variations in phase difference", Toru AKIYAMA, October 23, 2013

Evidence A No. 5: Printed copy of e-mail and document attached to e-mail (March 10, 2010, 16:20)

Evidence A No. 6: "Notice of loss of status as insured person for employment insurance (for notice to employer)"

Evidence A No. 7: "Industrial Property Law (Industrial Property Law) clause by clause commentary" 19th edition, Japan Institute for promoting invention and innovation, December 25, 2012

Evidence A No. 8: Printed copy of e-mail (April 12, 2010, 12:07)

Evidence A No. 9-1: Japanese Unexamined Patent Application Publication 2001-166660

Evidence A No. 9-2: Japanese Unexamined Patent Application Publication 2003-170230

Evidence A No. 9-3: international publication No. WO2005/050069

Evidence A No. 10-1: National Publication of International Patent Application No. H8-509195

Evidence A No. 10-2: Japanese Unexamined Patent Application Publication 2003-286357

Evidence A No. 10-3: Japanese Unexamined Patent Application Publication 2008-130861

Evidence A No. 11-1: Japanese Unexamined Patent Application Publication 2009-248520

Evidence A No. 11-2: Japanese Unexamined Patent Application Publication H5-228991

Evidence A No. 11-3: Japanese Unexamined Patent Application Publication 2009-220695

Evidence A No. 12: "Catalog for greases and oil compounds" published by Shin-Etsu Chemical Co., Ltd.

Evidence A No. 13-1: Japanese Unexamined Patent Application Publication 2008-107234

Evidence A No. 13-2: Japanese Unexamined Patent Application Publication 2006-279128
Evidence A No. 13-3: Japanese Unexamined Patent Application Publication H10-38649
Evidence A No. 13-4: Japanese Unexamined Patent Application Publication 2008-14841
Evidence A No. 13-5: Japanese Unexamined Patent Application Publication 2008-164330

(2) Proof submitted with written refutation
Evidence A No. 14: "Kojien (Japanese Dictionary)" SHINMURA, Izuru, 6th edition, Iwanami Press, January 11, 2008
Evidence A No. 15: Decision (Gyo-Ke) No. 67 issued by Tokyo High Court in 1968
Evidence A No. 16: Printed copy of e-mail (sent date/time: October 29, 2010, 19:28)
Evidence A No. 17: Printed copy of e-mail (sent date/time: November 1, 2010, 18:24)
Evidence A No. 18: the Office Regulations of Tachyonish Holdings Co., Ltd.

(Evidence A No. 19-1 (Japanese Unexamined Patent Application Publication 2005-106594), Evidence A No. 19-2 (Japanese Unexamined Patent Application Publication 2002-303541), Evidence A No. 19-3 (Japanese Unexamined Patent Application Publication 2002-365106), and Evidence A No. 19-4 (Japanese Unexamined Patent Application Publication 2005-351828) will not be accepted as a proof as described below.)

(3) Proof submitted with oral proceeding statement brief (demandant)
Evidence A No. 20: "Individual written contact for transfer" dated on September 16, 2010
Evidence A No. 21: Decision in 2013 (ne) No. 1003 case of appeal on request for confirmation of status as employee, etc.
Evidence A No. 22: the Office Regulations of SONIC CORPORATION

(4) Proof submitted with written statement
Evidence A No. 23: Material used by demandant for explanation in oral

proceeding held on December 15, 2014

It should be noted that the amendment of the reason for the request based on the matter stated in p.27, l.5 to p.28, l.14 of the written refutation ("(4-7) Preliminary opinion on Reasons for invalidation 3") has been decided not to be permitted by the decision on permission of amendment dated on September 16, 2014. Therefore, Evidences A No. 19-1, A No. 19-2, A No. 19-3 and No. 19-4 which were submitted in association with the amendment of the reason for the request will not be accepted as a proof.

Further, the amendment of the reason for the request based on the matter stated in p.24, l.11-27 of the written refutation ("if ... easy for a person skilled in the art, from Evidence A No. 5 and 8") and in p.25, l.7-19 of the written refutation ("if ... easy for a person skilled in the art, from Evidence A No. 5 and 8") was not agreed by the demandee as in the written response of agreement submitted on October 3, 2014. Therefore, the amendment has been decided not to be permitted by the decision on permission of amendment dated on November 4, 2014. Accordingly, a newly stated portion of Evidence A No. 8, specified by p.24, l.14-23 of the written refutation, will not be accepted as a proof for proving the reason for the demand, the amendment of which has been decided not to be permitted as a proof for proving the reason for the request.

No. 5 Relief sought in reply and allegation by demandee

1. Summary of relief sought in reply and allegation by demandee

In the written reply, the demandee requests the decision that there is no reason for the allegation of the demandant and the costs in connection with the trial shall be borne by the demandant. In the written reply, written response, oral proceeding statement brief (after correction in first oral proceeding on December 15, 2014) and written statement, the demandee alleges that there is no reason for which the patent according to Claims 1 to 9 of the scope of claims should be invalidated.

2. Means of proof submitted by demandee

Means of proof submitted by the demandee is as follows.

(1) Proof submitted with written reply

Evidence B No. 1: "A Survey on the present circumstances of small liquid flow rate measurement and its future landscape" Cheong Kar-Hooi, AIST Measurement

Standard Report Vol. 8, No. 1, August, 2010

Evidence B No. 2: "Kojien (Japanese Dictionary)" Izuru SHINMURA, 4th edition, Iwanami Press, September 10, 1993

Evidence B No. 3: "Chronological Scientific Table 2012" edited by Akihiko YOSHIDA, National Astronomical Observatory of Japan, desk version vol. 85, 2012, Maruzen Co., Ltd. November 30, 2011

Evidence B No. 4: Japanese Unexamined Patent Application Publication No. 2011-7539

Evidence B No. 5: Japanese Unexamined Patent Application Publication No. 2003-14513

Evidence B No. 6: Japanese Unexamined Patent Application Publication No. 2004-198340

Evidence B No. 7: Decision 1999 (Gyo-Ke) 368

(2) Proof submitted with written reply

Evidence B No. 8: Notice of employment offers from TechnoSuruga Laboratory Co., Ltd.

Evidence B No. 9-1: "Individual written contact for transfer" dated on December 21, 2009

Evidence B No. 9-2: "Individual written contact for transfer" dated on March 31, 2010

Evidence B No. 10: Confidential material (material for recruitment of engineers dated on September 12, 2007)

Evidence B No. 11: All matter certificate of closure of TechnoSuruga Laboratory Co., Ltd.

Evidence B No. 12: Company information of Tachyonish Holdings Co., Ltd. (URL:http://www.tachyonish.com/company/index.html)

Evidence B No. 13: All matter certificate of history of SONIC CORPORATION

Evidence B No. 14: Schedule table for demandee

Evidence B No. 15: Decision issued by Tokyo High Court in February 18, 1980

Evidence B No. 16: Notice of Petition for Acceptance of Final Appeal

(3) Proof submitted with oral proceeding statement brief (demandee)

Evidence B No. 17: Japanese Unexamined Patent Application Publication No. 2012-242091

Evidence B No. 18: Study material on ultrasonic flow meter sensor usable at high

temperature

No. 6 Regarding Reasons for invalidation 1 (Article 36(2))

1. Gist of Reasons for invalidation 1

As for Reasons for invalidation 1, a gist of a reason alleged by the demandant is as follows: since the statement in Claim 1 is not clear in terms of A and H below, the inventions according to Claim 1 and Claims 2 to 9 with reference to the statement in Claim 1 are not clear; since the statement in Claim 2 is not clear in terms of I below, the inventions according to Claim 2 and Claims 3 to 9 with reference to the statement in Claim 2 are not clear; since the statement in Claim 5 is not clear in terms of J below, the inventions according to Claim 5 and Claims 7 to 9 with reference to the statement in Claim 5 are not clear; since the statement in Claim 6 is not clear in terms of K below, the inventions according to Claim 6 and Claims 7 to 9 with reference to the statement in Claim 6 are not clear; and since the statement in Claim 7 is not clear in terms of L below, the inventions according to Claim 7 and Claims 8 and 9 with reference to the statement in Claim 7 are not clear.

A. Regarding "a conduit in which a minute flow rate flows" (before correction), a range of a "minute flow rate" is vague.

B. Regarding "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency oscillation and generates high frequency signals by receiving the oscillation" (before correction), a range of "high frequency" is vague.

C. Regarding "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction), it is unclear a size of which part of each of the ultrasonic oscillator and the alignment member a "width" means.

D. Regarding "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction), it is unclear what of the alignment member is uniform.

E. Regarding "a conduit in which a minute flow rate flows" (before correction) and "a substance flowing through the conduit" (before correction), the relation between a "minute flow" and a "substance" is unclear.

F. Regarding "a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction), a range of "substantially the same" is vague.

G. Regarding "the alignment member is formed of a material having a sound

propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction), a configuration of "the alignment member" is not clear.

H. Regarding "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction), a meaning of a "sound propagation speed" is not clear.

I. Regarding "contact surfaces ..... are processed so as to minimize adhesiveness of the contact surfaces", a configuration of the contact surface which the surface with "minimized" adhesiveness specifically means is unclear.

J. Regarding "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" (before correction), what sort of configuration "a non-adhesive substance is sandwiched between the contact surfaces" specifically means is unclear.

K. Regarding "an intervening member is provided on at least one surface of the contact surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment" (before correction), what sort of configuration "an intervening member is provided on at least one surface of the contact surfaces" specifically means is unclear.

L. Regarding "grease having a density substantially the same as a density of a substance flowing in the conduit", a range of "substantially the same" is vague.

2. Judgment on the body regarding Reasons for invalidation 1

A. Regarding the statement "a conduit in which a minute flow rate flows" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.6-7, p.17, l.7-10, Written refutation p.4, l.10 - p.5, l.3)

Regarding the statement "a conduit in which a minute flow rate flows" (before correction) in Claim 1, a range of a "minute" is vague, and what degree of flow rate a "minute flow rate" means is vague. Further, also in the description of the case, the range of a "minute flow rate" is not made clear.

Moreover, the statement in [0006] of the description of the case, "in the foregoing ultrasonic flow meter, especially in the case of measuring a minute flow, as disclosed in Patent Document 3, providing the ultrasonic oscillator inside a conduit where a fluid with a minute flow rate passes is difficult and might impede a flow itself, and hence it is preferable to provide the ultrasonic oscillator outside the conduit in the

case of measuring a minute flow." is just to state that it is preferable to provide the ultrasonic oscillator outside the conduit in the case of measuring a minute flow. Hence it is difficult to derive the definition of a "minute flow" from this specification.

Further, although in Evidence B No. 1 stated is "a flow rate lower than 1 L/min is generally recognized as a minute flow rate", this is not a definition set as a technical common sense.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "a conduit in which a minute flow rate flows" stated in Claim 1 was corrected to "a conduit in which a substance with a minute flow rate flows" (Correction 1).

The statement "An ultrasonic sensor, comprising: a ring-like ultrasonic oscillator that is arranged on an outer circumference of a conduit in which a substance with a minute flow rate flows, oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation; and ....." in Claim 1 after correction is a statement to specify that an ultrasonic oscillator in the form of "providing the ultrasonic oscillator outside the conduit since providing the ultrasonic oscillator inside a conduit where a fluid with a minute flow rate passes is difficult and might impede a flow itself" stated in [0006] of the corrected description is an object of the invention for which a patent is sought. Defining a specific range of a "minute flow rate" of a substance flowing in a "conduit" in the ultrasonic sensor in the above form is not an essential requirement for a technical significance of the invention for which a patent is sought.

Therefore, it cannot be said that the invention for which a patent is sought is unclear because the range of a "minute" regarding "a substance with a minute flow" is not specified in Claim 1 after correction.

Further, also in the corrected description, it is not stated that specifying a specific range of a "minute flow rate" is a required matter for specifying the invention.

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

B. Regarding the statement "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency and generates high frequency signals by receiving the oscillation" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.8-9, p.17, l.11-15)

Regarding the statement "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency and generates high frequency signals by receiving the oscillation" (before correction) in Claim 1, a meaning of "high frequency" is vague, and what degree of frequency "high frequency" means is vague. Further, also in the description of the case, the range of "high frequency" is not made clear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency and generates high frequency signals by receiving the oscillation" was corrected to "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation" (Correction 2).

As stated in [0021] of the corrected description, "These ultrasonic sensors 1A and 1B are electrically connected to a control unit (C/U) 30. The upstream-side ultrasonic sensor 1A is applied with a high frequency and oscillated. The oscillation ..... oscillates an oscillator in the downstream-side ultrasonic sensor 1B and is electrically detected by the control unit 30.", the above statement "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation" is a general statement regarding generation and detection of oscillation by an ultrasonic oscillator, and the degree of frequency of "high frequency signals" is not an essential requirement for a technical significance of the invention for which a patent is sought.

Therefore, it cannot be said that the invention for which a patent is sought is unclear because the degree of "high frequency" is made clear in Claim 1 after correction.

Further, also in the corrected description, it is not stated that specifying a specific range of "high frequency" is a required matter for specifying the invention.

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

C. Regarding the statement "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.9-11, p.17, l.16-25)

Regarding the statement "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction) in

Claim 1, it is unclear a size of which part of each of the ultrasonic oscillator and the alignment member "a width" means. That is, while a term "width" has a meaning, "A distance from one end to the other of something in a lateral direction. A lateral broadness. A length from, and at right angles to, each end of something long and continuous." (Evidence A No. 1), any "lateral direction" of each of the ultrasonic oscillator and the alignment member is not specified at all, and hence it is unclear a size of which part of each of the ultrasonic oscillator and the alignment member "a width" means. Further, also in the description of the case, a size of which part of each of the ultrasonic oscillator and the alignment member "a width" means is not made clear, and "a lateral direction" of each of the ultrasonic oscillator and the alignment member is not made clear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "a width of the ultrasonic oscillator" was corrected to "a width in an axial direction of the conduit of the ultrasonic oscillator", and "a width being larger than ....." as to "an annular flexible uniform alignment member" was corrected to "a width being in the same direction as and being larger than ....." (Correction 3).

Hence it is obvious that "a width" in Claim 1 after correction means "a width in an axial direction of the conduit."

Accordingly, it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

D. Regarding the statement "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.11-13, p.17, l.26 - p.18, l.4)

Regarding the statement "an annular flexible uniform alignment member having a width larger than a width of the ultrasonic oscillator" (before correction) in Claim 1, it is unclear what of the alignment member is uniform. Further, in [0026] of the description of the case stated is "a material which is ..... made in a substantially uniform manner", what of the material is uniform is unclear, and after all, what of the alignment member is uniform is not made clear.

(B) Judgment on the body

In order to solve problems in the case of bonding a joined portion of the

ultrasonic oscillator and the conduit by use of an adhesive, which are stated in the corrected description ("there are variations in state of the joined portion of the ultrasonic oscillator and the conduit, especially in amount, bonding state such as eccentricity, and the like of an adhesive for bonding the joined portion of the ultrasonic oscillator and the conduit" as stated in [0007], "the bonded portion"" has a width larger than a width of the oscillator, and unpredictable variations" as stated in [0026], etc.), the invention for which a patent is sought is technically characterized in that the ultrasonic oscillator and the conduit are joined not by bonding by use of the adhesive but by the alignment member, to reduce variations in state of a joined portion "between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit" and reduce variations in "a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator", "thus enabling uniform transmission and reception with small variations" ([0026]).

Accordingly, the invention for which a patent is sought is technically characterized in that the variations in "state of the bonded portion of the ultrasonic oscillator and the conduit" is reduced by the "alignment member" being uniformly made as compared to the prior art which uses an adhesive, and hence "what" of the alignment member is uniform is not an essential matter for the technical characteristic of the invention for which a patent is sought.

Further, also in the corrected description, it is not stated that specifically specifying "a material which is ..... made in a substantially uniform manner" in selecting the "alignment member" is a required matter for specifying the invention.

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

E. Regarding the statement "a conduit in which a minute flow rate flows" (before correction) and "a substance flowing through the conduit" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.13-15, p.18, l.5-10)

Regarding the statement "a conduit in which a minute flow rate flows" (before correction) and "a substance flowing through the conduit" (before correction) in Claim 1, the relation between a "minute flow" and a "substance" is unclear. That is, while a "minute flow" and a "substance" are both to flow through the conduit, it is unclear whether a "minute flow" and a "substance" mean the same thing or different things. Further, also in the description of the case, the relation between a "minute

flow" and a "substance" is not made clear.

Hence the statement in Claim 1 is not clear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "a conduit in which a minute flow rate flows" was corrected to "a conduit in which a substance with a minute flow rate flows" (Correction 1), and "a substance flowing through the conduit" was corrected to "the substance flowing through the conduit" (Correction 4).

This has made clear that a "minute flow" and a "substance" stated in Claim 1 mean the same thing.

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

F. Regarding the statement "a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.15-16, p.18, l.11-16, Written refutation p.5, l.4 - p.7, l.24)

(i) Regarding the statement "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1, a range of "substantially the same" is vague. That is, what is a difference or a proportion between a sound propagation speed of the alignment member and a sound propagation speed of the substance flowing through the conduit is vague when it can be said that those are "substantially the same." Further, also in the description of the case, the range of "substantially the same" is not made clear.

(ii) In the description of the case stated is "the oscillation is not propagated instantly to the ultrasonic oscillator through the substantially uniform alignment member 7 at a speed twice as fast" ([0026]), and "a material in which the oscillation is not propagated instantly to the ultrasonic oscillator at a speed twice as fast" is interpreted as "a material having a sound speed not twice as fast as a sound speed of the liquid flowing in the conduit". However, extending the range of "substantially" to a double range is against a normal meaning of "substantially".

If the range of "substantially" is extended to a double range, when a substance flowing in the conduit is water (sound speed: 1500 m/s, Evidence B No. 3), "polyethylene" (soft) (sound speed: 1950 m/s, Evidence B No. 3), polystyrene (sound

speed: 2350 m/s, Evidence B No. 3) and nylon-6,6 (sound speed: 2620 m/s, Evidence B No. 3) and the like correspond to "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit". Meanwhile, when "a material in which the oscillation is not propagated instantly to the ultrasonic oscillator at a speed twice as fast" is interpreted to mean a material having a sound speed of the same level as a sound speed of "polyethylene", then, polystyrene, nylon-6,6 and the like do not correspond to "a material in which the oscillation is not propagated instantly to the ultrasonic oscillator at a speed twice as fast", and do not correspond to "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit" in Claim 1 of the case. After all, it is unclear a material with a sound speed of what degree corresponds to "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit."

Further, even if a certain effect (effect of reducing variations in phase difference) can be obtained by using an alignment member made of polyethylene, it is unclear whether or not a certain effect (effect of reducing variations in phase difference) can be obtained when polystyrene or nylon-6.6 described above is used as a material for the alignment member.

As a result, it is unclear whether or not polystyrene and nylon-6,6 correspond to "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit" in Claim 1 of the case, and the extension of Invention 1 of the case is not clear.

(iii) In [0013] stated is "when a substance flowing in the conduit is water, grease preferably has a density of substantially 1.00", and this is interpreted to be intended to limit the range of "substantially" to "not less than 0.995 and less than 1.005", namely, the range of "substantially" is limited to the range of ±0.5%. In contrast, despite a difference between the sound speed (approx. 1500 m/s) of water and the sound speed (1950 m/s) of polyethylene by as large as 30%, the same term "substantially" is used. Also from this point, "substantially the same" in Claim 1 is unclear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" was

corrected to "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit" (Correction 4).

In view of the case, determinations will be made in the order of the demandant's allegations (ii), (i), (iii).

(i) Regarding demandant's allegation (ii)

In [0025] and [0026] of the corrected description stated are as follows.

"[0025]

Normally, the conduit 20 is formed of polytetrafluoroethylene (PTFE) having a diameter of 3 mm, 4 mm or 6 mm, and when a fluid to be measured is water, the alignment member 7 is preferably made of a flexible vinyl material having a sound speed almost the same as a speed of sound that is propagated through water, such as polyethylene. Further, grease (e.g., grease with a density as close as possible to 1.00) having a sound speed equivalent to the speed of sound that is propagated through the fluid to be measured (e.g., water) is preferably applied to a surface 9 between the ultrasonic oscillator 2 and the alignment member 7, and a surface 10 between the alignment member 7 and the conduit 20

[0026]

Hence, when the state of the joined portion of the ultrasonic oscillator 2 and the conduit 20 is, for example, bonding by an epoxy adhesive, acoustic impedance ($z = \rho c$) obtained by multiplying a density (ρ) by a sound speed (c) is almost equivalent between PTFE and the epoxy adhesive, and sound speeds (c) in the respective substances are approx. 1300 m/s and approx. 2500 m/sec. Thus, oscillation propagated through the liquid is propagated instantly from the liquid to the ultrasonic oscillator at a speed twice as fast through PTFE and the bonded portion having a width larger than a width of the oscillator and having unpredictable variations. However, in the substantially uniform alignment member 7 having a width larger than a width of the ultrasonic oscillator 2, by making a density (ρ), a sound speed (c) in the substance, and the like almost the same as those of water, the oscillation is not propagated instantly to the ultrasonic oscillator through the substantially uniform alignment member 7 at a speed twice as fast. Further, since a material which is inherently made in a substantially uniform manner is selected, variations therein need not be a concern, thus enabling uniform transmission and reception with small variations."

According to the above specification in [0025], it is stated that a flexible

material (vinyl material such as polyethylene) having a sound speed almost the same as a speed of sound that is propagated through a substance (water) flowing through the conduit, should be selected as the alignment member. Then, in [0026], following the above statement (cf. "Hence" at the sentence beginning of [0026]), it is stated that, when "the state of the joined portion of the ultrasonic oscillator 2 and the conduit 20 is, for example, bonding by an epoxy adhesive", "oscillation propagated through the liquid is propagated instantly from the liquid to the ultrasonic oscillator at a speed twice as fast through PTFE and the bonded portion having a width larger than a width of the oscillator and having unpredictable variations", but "in the substantially uniform alignment member 7 having a width larger than a width of the ultrasonic oscillator 2, by making a density (ρ), a sound speed (c) in the substance, and the like almost the same as those of water, the oscillation is not propagated instantly to the ultrasonic oscillator through the substantially uniform alignment member 7 at a speed twice as fast.

When both of these statements are read, it is easy for a person skilled in the art to understand that "a speed twice as fast" in [0026] is a different way of stating a speed (approx. 2500 m/s) of oscillation propagating through the portion bonded by use of the epoxy adhesive.

Accordingly, "a speed twice as fast" in [0026] does not mean a speed twice as fast as a sound propagation speed of the liquid (water) flowing through the conduit.

Thus, the demandant's allegation (ii) is incorrect in the premise that "a material in which the oscillation is not propagated instantly to the ultrasonic oscillator at a speed twice as fast" is interpreted as "a material having a sound speed not twice as fast as a sound speed of the liquid flowing in the conduit." Therefore, it cannot be said that Claim 1 after correction is not clear in terms of the demandant's allegation (ii).

(ii) Regarding demandant's allegation (i)

Next, considering that "a speed twice as fast" in [0026] is a different way of stating a speed (approx. 2500 m/s) of oscillation propagating through the portion bonded by use of the epoxy adhesive, it can be said that a technical ground for the invention of Claim 1 for which a patent is sought lies in the following respect: oscillation propagated through a liquid (water) is propagated instantly from the liquid (water) to the ultrasonic oscillator at a speed significantly faster than a speed of sound, which is propagated through the liquid (water), through the bonded portion having a width larger than a width of the ultrasonic oscillator (and having unpredictable

variations). (In other words, before oscillation is propagated through an original propagation route and reaches the ultrasonic oscillator, the oscillation is propagated faster through a propagation route passing through the bonded portion having a width larger than a width of the ultrasonic oscillator (and having unpredictable variations) and reaches the ultrasonic oscillator). This has prevented uniform and reliable detection of the oscillation propagated through the fluid in the conduit with small variations. Therefore, an alignment member which is wider than the ultrasonic oscillator and is flexible and uniform (with small variations) is provided in the joined portion of the ultrasonic oscillator and the conduit, and the wide alignment member is made a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit, so that the oscillation is not propagated instantly through the ultrasonic oscillator (in other words, a difference between the timing at which the oscillation reaches the ultrasonic oscillator after being propagated through the original propagation route and the timing at which it reaches the ultrasonic oscillator after being propagated through the propagation route made of the alignment member with small variations is made small as compared to a difference in the case of bonding). Thereby, variations in phase difference are prevented. (More detailed theoretical explanations will be given in "No. 7""2""(2)""A. Regarding theoretical ground for reduction of variations in phase difference", and "(B) Judgment on the body.)

Therefore, the technical significance of the invention for which a patent is sought is clarification of a mechanism that variations in phase difference occur also due to a difference between a sound propagation speed of a substance which is provided in the joined portion of the ultrasonic oscillator and the conduit and is wider than the ultrasonic oscillator and a sound propagation speed of the substance flowing through the conduit, and finding of technical knowledge, based on such clarification, that variations in phase difference can be made small by making small a difference between a sound propagation speed of a substance which is wider than the ultrasonic oscillator and a sound propagation speed of the substance flowing through the conduit. Accordingly, the statement "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit" in Claim 1 after correction is sufficient as an expression of solving means based on the technical knowledge as above.

Accordingly, it cannot be said that the invention for which a patent is sought is unclear because what is a difference or a proportion between a sound propagation speed of the alignment member and a sound propagation speed of the substance

flowing through the conduit is not stated in Claim .1 after correction.

Hence it cannot be said that Claim 1 after correction is unclear in terms of the demandant's allegation (i).

(iii) Regarding demandant's allegation (iii)

The statement in [0013] of the corrected description is a statement regarding grease, and not a statement regarding the alignment member. Hence there is no reason for having to consider the statement in [0013] of the corrected description so as to interpret "substantially" regarding the alignment member.

Hence it cannot be said that Claim 1 after correction is unclear in terms of the demandant's allegation (iii).

(iv) Summary

As above, it cannot be said that Claim 1 after correction is unclear in terms of the demandant's allegation (A).

G. Regarding the statement "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.16-18, p.18, l.17 - p.19, l.7)

Regarding the statement "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1, a configuration of the "alignment member" is not clear. That is, in Claim 1, what sort of substance flows through the conduit is not specified at all, and the meaning of "a sound propagation speed of a substance flowing through the conduit" is unclear. This results in that the configuration of the "alignment member" is unclear. More specifically, although the "alignment member" should be a specific material corresponding to a "substance", the "substance" is not specified, and hence what is the "alignment member" is unclear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" was corrected to "the alignment member is formed of a material having a sound

propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit" (Correction 4).

The invention for which a patent is sought has a technical significance that "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a [the] substance flowing through the conduit", and what sort of substance is "a substance flowing through the conduit" is not an essential matter for the invention.

Therefore, it cannot be said that the invention for which a patent is sought is unclear because "a substance flowing through the conduit" has not been specified.

Further, also in the corrected description, it is not stated that making "a substance flowing through the conduit" a specific substance is a required matter for specifying the invention.

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

H. Regarding the statement "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1

(A) Demandant's allegation (Written request p.13, l.18, p.19, l.8 - p.20, l.7, Written refutation p.7, l.25 - p.9, l.6)

Regarding the statement "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) in Claim 1, a meaning of "a sound propagation speed" is not clear. More specifically, a normal meaning of a "sound propagation speed" is a "sound speed" (Evidence A No. 1), and in [0011] of the description of the case stated is "being 'formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit' has the same concept as that the alignment member has a density substantially the same as a density of a fluid to be measured" (before correction). However, since that a sound speed does not have the same concept as a density is a technical common sense as of filing (Evidence A No. 2), it is unclear in which meaning a "sound propagation speed" in Claim 1 should be interpreted as being used, among the normal meaning, namely, the meaning of a "sound speed", the meaning of a "density" or the like.

Further, even when the specification in [0011] is corrected to "selecting an alignment member having a density substantially the same as a density of a fluid to be

measured has the same concept", it cannot be said that even selecting an alignment member having a density that is the same as a density of a fluid to be measured necessarily makes a sound speed of the alignment member the same as a sound speed of a substance flowing through the conduit. Thus, even after correction of the case, the meaning of "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit" of Claim 1 remains unclear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "being 'formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit' has the same concept as that the alignment member has a density substantially the same as a density of a fluid to be measured" stated in [0011] was corrected to "being 'formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit' has the same concept as selecting an alignment member having a density substantially the same as a density of a fluid to be measured (Correction 11).

In [0025] of the corrected description stated is "[0025] Normally, the conduit 20 is formed of polytetrafluoroethylene (PTFE) having a diameter of 3 mm, 4 mm or 6 mm, and when a fluid to be measured is water, the alignment member 7 is preferably made of a flexible vinyl material having a sound speed almost the same as a speed of sound that is propagated through water, such as polyethylene." Here, since "water" is one example of a substance flowing through the conduit, a person skilled in the art can easily understand a technical significance of the invention for which a patent is sought is that the alignment member is made of a flexible material having a sound speed almost the same as a speed of sound that is propagated through a substance flowing through the conduit.

Hence a "sound propagation speed" of Claim 1 after correction where the invention for which a patent is sought is stated has a literal meaning, and there is no room for interpreting this as a "density".

Hence it is not possible to decide that the statement in Claim 1 after correction is unclear in terms of (A) above.

I. Regarding the statement "contact surfaces ..... are processed so as to minimize adhesiveness of the contact surfaces" in Claim 2

(A) Demandant's allegation (Written request p.13, l.25 - p.14, l.4, p.20, l.17-26, Written refutation p.9, l.7 - 22)

Regarding the statement "contact surfaces ..... are processed so as to minimize adhesiveness of the contact surfaces" in Claim 2, while "minimum" means "being so small as to reach the smallest limit; lower limit" (Evidence A No. 14), a contact surface with what configuration a contact surface with "minimized" adhesiveness specifically means is vague. Further, also in the description of the case, a contact surface with what configuration a contact surface with "minimized" adhesiveness specifically means is not made clear.

Hence the statement in Claim 2 is not clear.

(B) Judgment on the body

The invention of Claim 2 for which a patent is sought has a technical significance that, in order to solve the problem stated in [0008] of the corrected description, "Further, since it is preferable to sandwich the oscillator between oscillation dampers and reliably remove reverberation so as to prevent oscillation of the oscillator and not to make detection of a flow rate impossible, the oscillator and the oscillation damper have been fixed by use an adhesive. However, since variations in bonding state between the oscillator and the oscillation damper also have an influence on transmission and reception of ultrasonic waves, variations also appears in a phase difference, to cause an error in detection of a minute flow rate", "the surface 8 between the oscillation dampers 3, 4 and the ultrasonic oscillator 2 are processed so as to prevent occurrence of adhesiveness" ([0029]).

A person skilled in the art easily understand that, even when the surface is processed by performing "surface coating" (Claim 3) or "plasma surface treatment" (Claim 4) so as to prevent occurrence of adhesiveness, it is impossible to completely prevent occurrence of adhesiveness, and hence the expression "so as to minimize adhesiveness of ....." is used in Claim 2.

Therefore, a configuration of the contact surface which the surface with "minimized" adhesiveness specifically means is not an essential matter for the invention for which a patent is sought.

Further, also in the corrected description, it is not stated that a specific configuration of the contact surface with "minimized" adhesiveness is a required matter for specifying the invention for which a patent is sought.

Hence it is not possible to decide that the statement in Claim 2 is unclear in terms of (A) above.

J. Regarding the statement "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" (before correction) in Claim 5

(A) Demandant's allegation (Written request p.14, l.5-12, p.21 l.1-12)

Regarding the statement "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" (before correction) in Claim 5, what sort of configuration "a non-adhesive substance is sandwiched between the contact surfaces" specifically means is unclear. That is, so long as the "contact surfaces" exist, the "ultrasonic oscillator" and the "oscillation damper" are in contact with each other and there is no space for sandwiching something therebetween, and hence what sort of configuration "a non-adhesive substance is sandwiched between the contact surfaces" specifically means is unclear. Further, also in the description of the case, a specific configuration of "a non-adhesive substance is sandwiched between the contact surfaces" is not made clear.

Hence the statement in Claim 5 is not clear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "a non-adhesive substance is sandwiched between the contact surfaces of the ultrasonic oscillator and the oscillation damper" was corrected to "a non-adhesive substance is intervened between the ultrasonic oscillator and the oscillation damper" (Correction 5), and a specific configuration of "a non-adhesive substance is sandwiched between the contact surfaces" has been made clear.

Hence it is not possible to decide that the statement in Claim 5 after correction is unclear in terms of (A) above.

K. Regarding the statement "an intervening member is provided on at least one surface of the contact surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment" (before correction) in Claim 6

(A) Demandant's allegation (Written request p.14, l.13-20, p.21 l.13-26)

Regarding the statement "an intervening member is provided on at least one surface of the contact surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment" (before correction) in Claim 6, what sort of configuration "an intervening member is provided on at least one

surface of the contact surfaces" specifically means is unclear. That is, so long as the "contact surfaces" exist, the "ultrasonic oscillator" and the "oscillation damper" are in contact with each other and there is no space for sandwiching something therebetween, and hence what sort of configuration "an intervening member is provided on at least one surface of the contact surfaces" specifically means is unclear. Further, also in the description of the case, a specific configuration of "an intervening member is provided on at least one surface of the contact surfaces" is not made clear.

Hence the statement in Claim 6 is not clear.

(B) Judgment on the body

By the request for correction dated on April 25, 2014, "an intervening member is provided on at least one surface of the contact surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment" was corrected to "an intervening member is provided on at least one surface of mutually opposed surfaces of the ultrasonic oscillator and the oscillation damper which has been subjected to non-adhesiveness treatment" (Correction 6), it is clear that an intervening member which has been subjected to non-adhesiveness treatment is provided between "the ultrasonic oscillator" and "the oscillation damper".

Hence it is not possible to decide that the statement in Claim 6 after correction is unclear in terms of (A) above.

L. Regarding the statement "grease having a density substantially the same as a density of a substance flowing in the conduit" in Claim 7

(A) Demandant's allegation (Written request p.14, l.21 - p.15, l.1, p.22, l.1-9, Written refutation p.9, l.23 - p.10, l.11)

Regarding the statement "grease having a density substantially the same as a density of a substance flowing in the conduit" in Claim 7, a range of "substantially the same" is vague. That is, what is a difference or a proportion between a density of grease and a density of the substance flowing through the conduit is vague whether it can be said that those are "substantially the same". Further, also in the corrected description, the range of "substantially the same" is not made clear. Moreover, it cannot either be said that "when grease having properties close to properties of a substance (water) flowing in the conduit is to be selected, making its density as same as possible as a density of the substance (water) flowing through the conduit is a technical common sense."

Hence the statement in Claim 7 is not clear.

(B) Judgment on the body

In "Problem to be solved by the invention" of the corrected description, as has already been stated, it is stated that an object is to solve the problem that has hitherto occurred due to bonding of the joined portion of the ultrasonic oscillator and the conduit. Hence it is clear for a person skilled in the art that a technical significance of the invention of Claim 7 for which a patent is sought is finding not an adhesive but a grease as a lubricant (Evidence A No. 12) is preferably applied between the ultrasonic oscillator and the alignment member, and also between the alignment member and the conduit.

Further, since it is stated in [0013] of the corrected description, "grease, having a density substantially the same as a density of a substance flowing in the conduit, is preferably applied between the ultrasonic oscillator and the alignment member and between the alignment member and the conduit. For example, when a substance flowing in the conduit is water, grease preferably has a density of substantially 1.00." Hence the statement "grease having a density substantially the same as a density of a substance flowing in the conduit" in Claim 7 just means that grease having a density close to a density of a substance flowing through the conduit should be selected from grease products having various density, and the technical significance of the invention of Claim 7 for which a patent is sought is not made unclear by the statement.

Hence it is not possible to decide that the statement in Claim 7 is unclear in terms of (A) above.

3. Summary of Reasons for invalidation 1 (Article 36(6)(ii))

As above, the statements of Claims 1 to 9 after correction of the Patent of the case meet the requirement stipulated in Article 36(6)(ii) of the Patent Act.

Therefore, there is no reason in Reasons for invalidation 1.

No. 7 Regarding Reasons for invalidation 2 (Article 36(4)(i))

1. Gist of Reasons for invalidation 2

As for Reasons for invalidation 2, a gist of a reason alleged by the demandant is that the statement in the detailed explanation of the invention in the description of the case violates the enablement requirement in terms of (1) below, and violates the ministry ordinance of delegation in terms of (2) below, and hence it does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act.

(1) In the detailed explanation of the invention, the alignment member which

is "formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction) stated in Claim 1 of the case is not stated clearly and sufficiently to such an extent as to allow a person skilled in the art to carry it out.

(2) In the detailed explanation of the invention, it cannot be said that a theoretical or experimental ground is stated so as to allow a person skilled in the art to substantially understand the relation between the subject of the case and the matter stated in Claim 1 of the case, and a matter required for a person skilled in the art to understand the technical significance of Inventions 1 to 9 of the case is not stated.

2. Judgment on the body regarding Reasons for invalidation 2

(1) Regarding how to manufacture and how to obtain alignment member (violation of enablement requirement)

A. Demandant's allegation (Written request p.22, l.17-24, p.23, l.8 - p.24, l.6, Written refutation p.10, l.26 - p.11, l.26)

Out of the matters specifying the invention according to Claim 1 of the case, as for the alignment member which is "formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction), how to manufacture and how to obtain the alignment member, and the like, are not stated in the detailed explanation of the invention, and specifically what sort of alignment member can be used is not made clear.

In [0025] of the description of the case, it is stated as an example of the alignment member, "the alignment member 7 is preferably made of a flexible vinyl material having a sound speed almost the same as a speed of sound that is propagated through water, such as polyethylene." However, a sound speed of water is approx. 1500 m/s (Evidence A No. 3) whereas a sound speed of polyethylene is approx. 2000 m/s (LDPE) to approx. 2500 m/s (HDPE) (Evidence A No. 3), and it cannot be said that these are "substantially the same".

Further, whether or not to be substantially the same should be determined between water and polyethylene, and a difference from a sound speed of a hard solid which is not stated in the description of the case should not be considered in making comparison. Thus, it cannot be acknowledged that the sound speed (1950 m/s) of polyethylene is substantially the same as the sound speed (1500 m/s) of water.

Accordingly, it cannot be said that in the detailed explanation of the invention, Inventions 1 to 9 of the case are stated clearly and sufficiently to such an extent as to

allow a person skilled in the art to carry them out.

B. Judgment on the body

The technical significance of the requirement that "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit" stated in Claim 1 after correction was detailed in "No. 6""2""F""(B)""(ii) Regarding demandant's allegation (i)", and it is thus not repeated here.

Next, when the statement in [0025] of the corrected description is considered, the sound speed of "water" is approx. 1500 m/s (Evidence A No. 3, Evidence B No. 3), whereas a sound speed of an epoxy adhesive is approx. 2500 m/s ([0026] of the corrected description). In contrast, some of low-density polyethylene (LDPE) and polyethylene (soft) have a sound speed of approx. 2000 m/s (Evidence A No. 3, Evidence B No. 3), and that sound speed is sufficiently closer to the sound speed of water than the sound speed of the epoxy adhesive is, and it can be said that sound speed is "a sound speed almost the same as a speed of sound that is propagated through water" ([0025] of the corrected description).

Then, in [0025] of the corrected description stated is "the alignment member is prepared using "a flexible vinyl material having a sound speed almost the same as a speed of sound that is propagated through water, such as polyethylene", and hence in the detailed explanation of the invention, Inventions 1 to 9 of the case are stated clearly and sufficiently to such an extent as to allow a person skilled in the art to carry them out.

Therefore, it cannot be said that the statement in the detailed explanation of the invention of the corrected description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act in terms of (A) above.

(2) Theoretical and experimental grounds for Inventions 1 to 9 of the case (violation of ministerial ordinance of delegation)

The demandant alleges that the theoretical and experimental grounds for Inventions 1 to 9 of the case cannot be said to be stated in the description of the case so as to allow a person skilled in the art to understand the relation between the object of the case (to provide an ultrasonic sensor capable of measuring a required accuracy by reducing a zero drift) stated in [0010] and the matter stated in Claim 1 of the case. Hence, the demandant alleges the detailed explanation of the invention in the description of the case is not an explanation stating the matter required for

understanding the technical significance for Inventions 1 to 9 of the case (Written request p.22, l.25 - p.23, l.4, p.24, l.7-21). Hereinafter, therefore, the theoretical ground (A, B) and the experimental ground (C, D) are separately considered.

(Regarding theoretical ground)

A. Theoretical ground for reduction of variations in phase difference

(A) Demandant's allegation (Written request p.24, l.22 - p.26, l.20, Written refutation p.11, l.27 - p.14, l.5)

It can be considered, from the statements in [0032] and [0026] of the description of the case, that Inventions 1 to 9 of the case are to employ the configuration that "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" (before correction), to prevent the oscillation propagated through the substance (water) from being propagated instantly to the ultrasonic oscillator at a speed twice as fast, thereby reducing variations in phase difference and as a result reducing a zero drift.

However, it cannot be said that in [0026] of the description of the case, there is explained a theoretical ground for reduction of variations in phase difference by preventing the oscillation propagated through the liquid from being propagated instantly to the ultrasonic oscillator at a speed twice as fast. In other words, there is no explanation as to how functions are different between the configuration that "the alignment member is formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of a substance flowing through the conduit" and the configuration that "the alignment member is formed of a material having a sound propagation speed twice as fast as a propagation speed of a substance flowing through the conduit", and there is no explanation as to whether the former has smaller variations in phase difference and the latter has larger variations in phase difference as a result of the different functions. Further, it cannot be said that the relation between the speed at which the oscillation propagated through the substance is propagated to the ultrasonic oscillator and the variations in phase difference is clear from the technical common sense as of the filing.

Further, since the "alignment member" being uniform is not stated in [0018] (before correction) of the description of the case, it also cannot be acknowledged that reduction of variations in phase difference is the effect of the "uniform alignment member".

Moreover, it is just stated in [0008] of Evidence B No. 4 that, with inclusion of

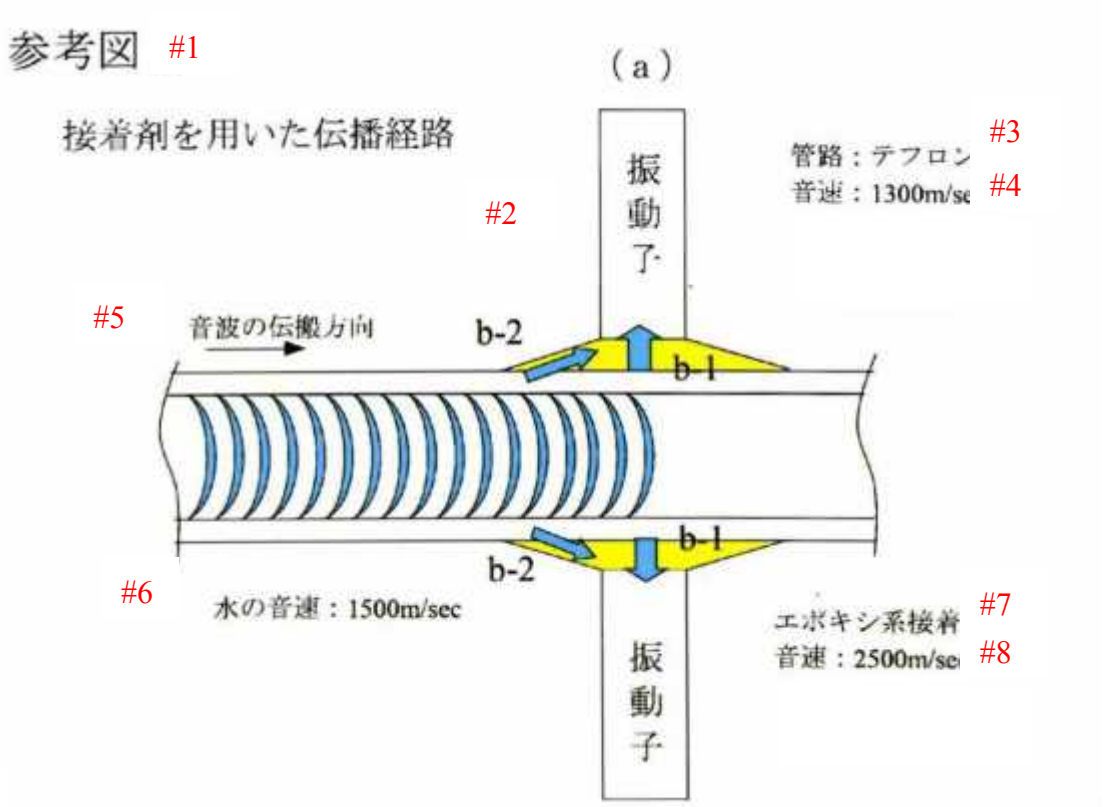
a number of uncertainty elements such as a temperature and pressure, as well as fields of propagation characteristics of a siphon and an acoustic binder (corresponding to the alignment member of Invention 1 of the case), the material intervenes a signal transmission route in an complex manner, and reversibility at the time of transmission and reception are not always the same. It is not stated how a sound speed of the substance forming the acoustic binder functions.

Hence it can be said that in [0026] and [0032] of the description of the case, the theoretical ground is stated so as to allow a person skilled in the art to substantially understand the relation between the object of the case and the above configuration.

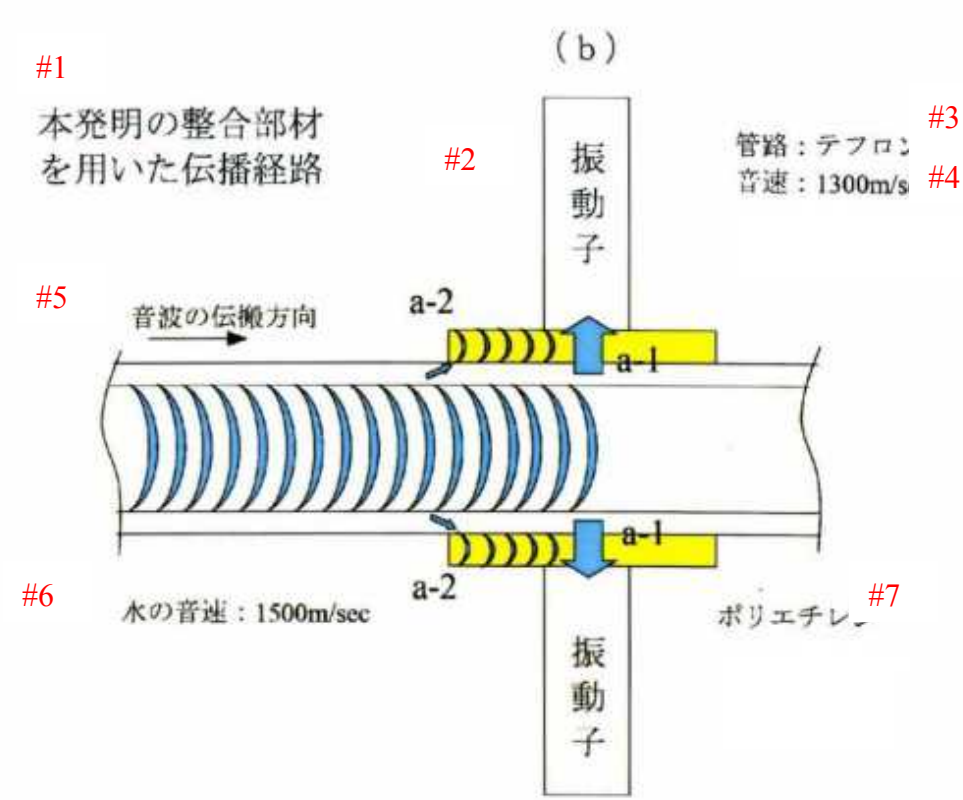
(B) Judgment on the body

As for the statement in [0026] of the corrected description, the technical significance of the invention for which a patent is sought, stated in [0026], was stated in "No. 6""2""F""(B)""(ii) Regarding demandant's allegation (i)" above, but consideration will be performed here using Reference FIG. 1 on page 8 of the oral proceeding statement brief (damandee) dated on December 1, 2014 (Densities, numerical values of acoustic impedances Z1 to Z3, and sound speed of polyethylene were deleted. However, the sound speeds (c) in the respective substances, PTEF and the epoxy adhesive, are stated as approx. 1300 m/s and approx. 2500 m/s in [0026] of the corrected description, and that the sound speed of water is approx. 1500 m/s is agreed between the party concerned and is also a technical common sense (Evidence A No. 3, Evidence B No. 3). Hence these numerical values of the sound speeds are left as they are).

It is to be noted that "a speed twice as fast" in [0026] is a different way of stating a speed (approx. 2500 m/s) of oscillation propagating through the portion bonded by use of the epoxy adhesive is as stated in "No. 6""2""F""(B)""(i) Regarding demandant's allegation (ii) above, and is not repeated here.



#1 Reference Drawing
Propagation route using adhesive
#2 Oscillator
#3 Tube passage: Teflon
#4 Sound speed: 1300 m/s
#5 Propagation direction of sound waves
#6 Sound speed of water: 1500 m/s
#7 Epoxy adhesive
#8 Sound speed: 2500 m/s



#1 Reference Drawing
Propagation route using alignment member of present invention
#2 Oscillator
#3 Tube passage: Teflon
#4 Sound speed: 1300 m/s
#5 Propagation direction of sound waves
#6 Sound speed of water: 1500 m/s
#7 Polyethylene

(a) Regarding propagation route

(i) Original propagation routes b-1/a-1

In [0021] of the corrected description stated is, "The upstream-side ultrasonic sensor 1A is applied with a high frequency and oscillated. The oscillation propagated vertical to a flow changes its direction in a central section of the conduit 20, and is propagated through a flowing fluid. The oscillation then oscillates an oscillator in the downstream-side ultrasonic sensor 1B and is electrically detected by

the control unit 30. Further, the downstream-side ultrasonic sensor 1B is applied with a high frequency and oscillated. The oscillation propagated vertical to the flow changes its direction in the central section of the conduit 20, and is propagated through the flowing fluid. The oscillation then oscillates an oscillator in the upstream-side ultrasonic sensor 1A and is electrically detected by the control unit 30." According to this statement, the original route in which the oscillation propagated through the fluid is propagated to the ultrasonic oscillator on the reception side is a propagation route in which the oscillation is propagated through the fluid in the conduit in an axial direction of the conduit and propagated to the ultrasonic oscillator from immediately below the ultrasonic oscillator, as indicated by b-1 of Reference FIG. 1A or a-1 of Reference FIG. 1B (hereinafter, the route is referred to as "original propagation route b-1/a-1").

(ii) Propagation route b-2 in which oscillation is propagated to the ultrasonic oscillator through a bonded portion having a width larger than a width of the oscillator and having unpredictable variations

Next, in the statement in [0026] of the corrected description that "when the state of the joined portion of the ultrasonic oscillator 2 and the conduit 20 is, for example, bonding by an epoxy adhesive, acoustic impedance ($z = \rho c$) obtained by multiplying a density (ρ) by a sound speed (c) is almost equivalent between PTFE and the epoxy adhesive, and sound speeds (c) in the respective substances are approx. 1300 m/s and approx. 2500 m/sec. Thus, oscillation propagated through the liquid is propagated instantly from the liquid to the ultrasonic oscillator at a speed twice as fast through PTFE and the bonded portion having a width larger than a width of the oscillator and having unpredictable variations.", the propagation route in which oscillation is "propagated to the ultrasonic oscillator" through "the bonded portion having a width larger than a width of the oscillator and having unpredictable variations" is a propagation route for the oscillation indicated by b-2 of Reference FIG. 1A (hereinafter referred to as "propagation route b-2").

(iii) Propagation route a-2 passing through the substantially uniform alignment member 7 having a width larger than a width of the ultrasonic oscillator

Also when an annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in the axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit,

the oscillation is propagated from the liquid to the ultrasonic oscillator through PTFE and the annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator. The propagation route is a propagation route for the oscillation indicated by a-2 of Reference FIG. 1B (hereinafter referred to as "propagation route a-2").

(b) Comparison of propagation routes for oscillation

A speed at which oscillation is propagated in the propagation route b-1/a-1 as the original propagation route is the sound speed of water (approx. 1500 m/s (Evidence A No. 3, Evidence B No. 3), when the fluid is water.

In contrast, in the propagation route b-2 passing through the portion bonded by use of the epoxy adhesive, the oscillation is propagated through "the bonded portion having a width larger than a width of the oscillator (and having unpredictable variations)" formed of the epoxy adhesive, and hence a speed at which the oscillation is propagated in the propagation route b-2 is "approx. 2500 m/s" which is the sound speed of the epoxy adhesive ([0026] of the corrected description).

Therefore, "the oscillation propagated through the liquid is propagated instantly from the liquid to the ultrasonic oscillator at a speed twice as fast through PTFE and the bonded portion having a width larger than a width of the oscillator and having unpredictable variations" stated in [0026] of the corrected description can be interpreted as meaning that the oscillation is "propagated instantly to the ultrasonic oscillator" by the propagation route b-2 at "a speed twice as fast", namely at approx. 2500 m/s which is the sound speed of the epoxy adhesive ([0026] of the corrected description), before the oscillation is propagated in the propagation route b-1/a-1 which is the original propagation route at the sound speed (approx. 1500 m/s) of water and reaches the ultrasonic oscillator.

In contrast, in the propagation route a-2 passing through the substantially uniform alignment member 7 having a width larger than a width of the ultrasonic oscillator, when the fluid is water, a propagation speed of the oscillation propagated in the propagation route a-2 is a propagation speed almost the same as the sound speed (approx. 1500 m/s) of water since "the alignment member 7 is made of a flexible vinyl material having a sound speed almost the same as a speed of sound that is propagated through water, such as polyethylene" ([0025] of the corrected description). Then, it is possible for a person skilled in the art to easily understand that the statement of [0026] of the corrected description that "in the substantially

uniform alignment member 7 having a width larger than a width of the ultrasonic oscillator 2, by making a density (ρ), a sound speed (c) in the substance, and the like almost the same as those of water, the oscillation is not propagated instantly to the ultrasonic oscillator through the substantially uniform alignment member 7 at a speed twice as fast." means that, since the oscillation is propagated to the ultrasonic oscillator (not instantly, but) at almost the same propagation speed as the propagation speed of water, the oscillation propagated through the propagation route a-2 reaches the ultrasonic oscillator almost at the same timing as the oscillation propagated through the propagation route b-1/a-1 which is the original propagation route.

(c) Regarding the relation between the configuration of the "alignment member" stated in Claim 1 after correction and reduction of variations in phase difference

In the case of the prior art using the epoxy adhesive, the oscillation "instantly propagated to the ultrasonic oscillator" ([0026] of the corrected description) through the propagation route b-2 in contrast to b-1/a-1 which is the original propagation route has an influence on a detected waveform of the oscillation propagated through b-1/a-1 which is the original propagation route, and causes occurrence of variations in phase difference. Furthermore, even the time during which the oscillation is "instantly propagated to the ultrasonic oscillator" ([0026] of the corrected description) has unpredictable variations since the bonded portion itself which constitutes the propagation route b-2 "has unpredictable variations" ([0026] of the corrected description). Hence even the degree in which the oscillation having passed through the propagation route b-2 has an influence of the original detected waveform "has unpredictable variations".

As opposed to this, in the invention according to Claim 1 after correction, " an annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided" and the configuration of being "formed of a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit" is employed as the alignment member. Thereby, as explained in "(b)" above, since the oscillation is propagated to the ultrasonic oscillator through the propagation route a-2 at almost the same propagation speed as the propagation speed of the fluid (water) in the conduit, the oscillation propagated through the propagation route a-2 can reach the ultrasonic oscillator almost at the same timing as the oscillation propagated through the propagation route b-1/a-1 which is the original propagation route. Consequently, as

compared to the prior art using the epoxy adhesive, it is possible to reduce variations in phase difference and as a result reduce a zero drift.

Further, in the invention according to Claim 1 after correction, "a flexible uniform alignment member" is used as the alignment member, and "Further, since a material which is inherently made in a substantially uniform manner is selected, variations therein need not be a concern, thus enabling uniform transmission and reception with small variations" ([0026] of the corrected description).

As above, it can be said that in the corrected description, how functions are different between the prior art using the epoxy adhesive and the case of using the alignment member of the invention according to Claim 1 after correction, as well as whether the variations in phase difference decrease as a result in the case of using the alignment member of the invention according to Claim 1 after correction as compared to the prior art using the epoxy adhesive, are explained to such an extent as to allow a person skilled in the art to sufficiently understand.

(d) Other demandant's allegations

The demandant alleges that, since the "alignment member" being uniform is not stated in [0018] (before correction) of the description of the case, it cannot be acknowledged that reduction of variations in phase difference is the effect of the "uniform alignment member". However, by the request for correction dated on April 25, 2014, [0018] of the description was corrected to "an alignment member, which is made of a material having a sound propagation speed similar to that of a substance flowing in the conduit and is ring-like, flexible and uniform, is intervened between the ultrasonic oscillator and the conduit" (Correction 12). Accordingly, the demandant's allegation lacks its premise.

(e) Summary

As above, it cannot be said that, without considering the state of Evidence B No. 4, the statement in the detailed explanation of the invention in the corrected description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act in terms of (A).

B. Regarding variance stated on l.1-6, l.7-9 of [0026] of description

(A) Demandant's allegation (Written request p.26, l.21 - p.28, l.24, Written refutation p.14, l.6 - p.15, l.8)

According to the statement on l.1-6 of [0026] of the description of the case, the

object of the case is concerning the relation between a sound speed of "a substance provided between the conduit and the ultrasonic oscillator" and a sound speed of "a material constituting the conduit", whereas in Claim 1 of the case and on l.7-9 of [0026], the relation between a density, a sound speed and the like of the "alignment member" and a density, a sound speed and the like of "a substance (water) flowing through the conduit" is an issue. As above, a technical reason for the difference in the object for comparison between l.1-6 of [0026] and Claim 1 of the case / l.7-9 of [0026] is unclear.

In the detailed explanation of the invention, there is not clarified a theoretical ground for solving the problem of the relation between a sound speed of "a substance provided between the conduit and the ultrasonic oscillator" and a sound speed of "a material constituting the conduit" by making a density, a sound speed and the like of the "alignment member" and a density, a sound speed and the like of "a substance (water) flowing through the conduit" almost agree with each other.

Further, in Invention 1 of the case, since physical properties (a sound speed, etc.) of a material constituting the conduit are not defined at all, the working-effect of reducing variations in phase difference and reducing a zero drift should be obtained "regardless of what are physical properties (a sound speed, etc.) of the material constituting the conduit". However no explanation is give in this respect in the description of the case.

Accordingly, the statement in the detailed explanation of the invention does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act.

(B) Judgment on the body

That "a speed twice as fast" in [0026] of the corrected description is a different way of stating a speed (approx. 2500 m/s) of oscillation propagating through the portion bonded by use of the epoxy adhesive is as stated in "No. 6""2""F""(B)""(i) Regarding demandant's allegation (ii) above, and is thus not repeated here.

Then, as explained in "A. Theoretical ground for reduction of variations in phase difference" and "(B) Judgment on the body" above, it can be easily understood by a person skilled in the art that a sound speed which should be an object to be compared in [0026] of the corrected description is a difference between a speed at which sound is propagated through the propagation route b-1/a-1 which is the original propagation route, namely, the sound speed of water (approx. 1500 m/s (Evidence A No. 3, Evidence B No. 3)) and the sound speed of the "epoxy adhesive" forming the propagation route b-2, and a difference between a speed at which sound is propagated

through the propagation route b-1/a-1 which is the original propagation route, namely, the sound speed of water (approx. 1500 m/s (Evidence A No. 3, Evidence B No. 3)) and the sound speed of the "alignment member" forming the propagation route a-2.

Therefore, the demandant's allegation cannot be accepted because interpretation of the [0026] of the corrected description as a premise is incorrect.

Further, not stating physical properties (sound speed, etc.) of a material constituting the conduit in Claim 1 after correction does not lead to a conclusion that a person skilled in the art cannot carry out the invention according to Claim 1 after correction unless the working-effect of reducing variations in phase difference and reducing a zero drift is obtained "regardless of what are physical properties (a sound speed, etc.) of the material constituting the conduit".

Therefore, it cannot be said that the statement in the detailed explanation of the invention of the corrected description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act in terms of (A) above.

Regarding written statement (demandant)

The demandant has submitted the used for explanation in the oral proceeding held on December 15, 2014 as Evidence A No. 23. In Evidence A No. 23, a difference between a critical angle of ultrasonic waves and a length of a propagation route is explained based on Snell's law. However, the explanation of propagation of sound stated in Evidence A No. 23 is an explanation of the case on the premise of propagation of sound waves in a substance being large to such an extent as to be able to handle sound waves as ideal plane waves. Hence the explanation is not immediately applicable to propagation of oscillation in a device configured of complex fine components, such as the minute flow meter as the object of the invention according to Claim 1 after correction.

Therefore, even when Evidence A No. 23 submitted as the written statement (demandant) is read, the above determination on the theoretical ground remains unchanged.

(Regarding experimental ground)

C. Regarding comparison between waveform shown in FIG. 6 and waveform shown in FIG. 9

(A) Demandant's allegation (Written request p.28, l.25 - p.30, l.26, Written refutation p.15, l.9 - p.17, l.1)

FIG. 6 being a result of experiment of an ultrasonic sensor in a comparative

example shows examples of waveforms at a normal temperature and at the time of cooling. FIG. 9 being an experiment using an ultrasonic sensor in Invention 1 of the case shows examples of waveforms at a normal temperature, 45°C, 65°C and 85°C. For confirming the effect of the invention of the case, a waveform obtained at a temperature at the time of occurrence of the problem in the conventional example should be compared with a waveform of the invention of the case obtained at a temperature that is the same as or close to that temperature. However the temperatures in both examples are obviously different. Hence there is no technical meaning in comparing the waveform shown in FIG. 6 and the waveform shown in FIG. 9.

Further, the number and a proportion of periods in which a phase is shifted are both larger in the waveform shown in FIG. 9 than in the waveform shown in FIG. 6. Phase shift amounts in first to fourth periods and in twelfth to eighteenth periods of the waveform shown in FIG. 9 are hardly different from phase shift amounts in fifteenth and sixteenth periods of the waveform shown in FIG. 6.

Accordingly, the detailed explanation of the invention does not represent an experimental ground showing that the object of reducing variations in phase difference and reducing a zero drift can be solved by the matter specifying the invention according to Claim 1.

(B) Judgment on the body

FIGS. 6 and 9 which the demandant takes as the ground for the allegation are not to compare a waveform on the upstream side and a waveform on the downstream side, but to show only an influence exerted on "the waveform on the upstream side" due to "a temperature difference" in each of an ultrasonic sensor according to the comparative example and an ultrasonic sensor according to Claim 1 after correction. Hence even when the "temperatures" other than the normal temperature are different and a significant difference in an influence exerted on the phase shift is not recognized, it does not lead to denial of the effect of the invention according to Claim 1 after correction that, "since variations in phase difference are small" between the waveform on the upstream side and the waveform on the downstream side, "a zero drift is reduced" ([0018] of the corrected description).

It can be said that FIGS. 3A, 3B, 7, 8 and the like sufficiently show the effect of the invention according to Claim 1 after correction that, "since variations in phase difference are small" between the waveform on the upstream side and the waveform on the downstream side, "a zero drift is reduced" ([0018] of the corrected description).

Therefore, it cannot be said that the statement in the detailed explanation of the invention of the corrected description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act in terms of (A) above.

D. Regarding Examination result report by AKIYAMA, Toru

(A) Demandant's allegation (Written request p.30, l.27 - p.31, l.24, Written refutation p.17, l.2 - p.18, l.1)

As obvious from graphs showing changes with time in phase differences at 10°C, 20°C, 30°C, 40°C, 50°C and 60°C in Evidence A No. 4, variations in phase difference greatly change depending on the temperature, and also greatly change depending on the time. The results of experiments shown in [0034] to [0038] of the description of the case and FIGS. 3 to 9 of the case show only phase differences obtained in a first experiment, and are not subjected to statistical processing. Further, the waveforms in what time are shown are not made clear.

When values obtained in an experiment include a number of uncertainty elements such as a temperature and pressure, confirming its effect requires statistical processing to use a value such as a standard deviation. Hence a result of an experiment just once is insufficient as an experimental ground.

Accordingly, it cannot be said that the variations in phase difference in the ultrasonic sensor according to Invention 1 of the case cannot be evaluated based on FIGS. 6 and 9, and those drawings cannot be taken as an experimental ground showing the effect that variations in phase difference are hardly influenced by a temperature and a zero drift is reduced.

(B) Judgment on the body

As already stated in "A. Regarding theoretical ground for reduction of variations in phase difference" and "(B) Judgment on the body", since the theoretical ground for the invention according to Claim 1 after correction is shown in the detailed explanation of the invention of the corrected description, for saying that a statement is made to such an extent as to allow a person skilled in the art to carry out the invention according to Claim 1 after correction in the corrected description, an experiment serves its purpose when it is an experiment to such an extent as to enable certain confirmation of the effect of invention according to Claim 1 after correction with respect to the prior art. It is not necessarily that a person skilled in the art cannot carry out the invention according to Claim 1 after correction unless the effect of the invention is represented by concrete numeral values or the degree of changes with

time is confirmed.

Therefore, it cannot be said that the statement in the detailed explanation of the invention of the corrected description does not meet the requirement stipulated in Article 36(4)(i) of the Patent Act in terms of (A) above.

3. Summary of Reasons for invalidation 2 (Article 36(4)(i))

As above, in the detailed explanation of the invention in the corrected description, the alignment member which is "formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit" stated in Claim 1 after correction is stated clearly and sufficiently to such an extent as to allow a person skilled in the art to carry it out.

Further, in the detailed explanation of the invention in the corrected description, a theoretical or experimental ground is stated so as to allow a person skilled in the art to substantially understand the relation between the subject of the case and the matter according to Claim 1 after correction, and a matter required for a person skilled in the art to understand the technical significance of Claims 1 to 9 after correction is stated.

Accordingly, the statement in the detailed explanation of the invention in the corrected description meets the requirement stipulated in Article 36(4)(i) of the Patent Act.

Therefore, there is no reason in Reasons for invalidation 2.

No. 8 Regarding Reasons for invalidation 3 (Article 29(2))

Hereinafter, the scope of claims and the description refer to those after correction, unless otherwise stated.

1. Demandant's allegation

(1) Regarding Invention 1 of the case

An invention disclosed in Evidence A No. 5 is a known invention, and Invention 1 of the case can be easily realized by a person skilled in the art by considering a design matter based on the invention disclosed in Evidence A No. 5.

(2) Regarding Invention 2 of the case

An invention disclosed in Evidence A No. 8 is a known invention, and Invention 2 of the case can be easily realized by a person skilled in the art by considering a design matter based on the inventions disclosed in Evidences A No. 5

and A No.8

(3) Regarding Invention 3 of the case

Invention 3 of the case can be easily realized by a person skilled in the art by considering a design matter and well-known arts (Evidences A No. 9-1 to A No. 9-3) based on the invention disclosed in Evidence A No. 5.

(4) Regarding Invention 4 of the case

Invention 4 of the case can be easily realized by a person skilled in the art by considering a design matter and well-known arts (Evidences A No. 10-1 to A No. 10-3) based on the invention disclosed in Evidence A No. 5.

(5) Regarding Inventions 5, 6 of the case

Invention 5, 6 of the case can be easily realized by a person skilled in the art by considering a design matter and well-known arts (Evidences A No. 11-1 to A No. 11-3) based on the invention disclosed in Evidence A No. 5.

(6) Regarding Invention 7 of the case

Invention 7 of the case can be easily realized by a person skilled in the art by considering a generally well-known art (Evidence A No. 12) and a well-known art based on the invention disclosed in Evidence A No. 5.

(7) Regarding Invention 8 of the case

Invention 8 of the case can be easily realized by a person skilled in the art by considering a design matter based on the invention disclosed in Evidence A No. 5.

(8) Regarding Invention 9 of the case

Invention 9 of the case can be easily realized by a person skilled in the art by considering a design matter and well-known arts (Evidences A No. 13-3 to A No. 13-5) based on inventions disclosed in Evidences A No. 5, A No. 13-1 and A No. 13-2.

Therefore, Inventions 1 to 9 of the case could be easily made by a person skilled in the art based on inventions that were publicly known in Japan prior to the filing of the patent application as stipulated in Article 29(1)(i) of the Patent Act and inventions that were described in a distributed publication in Japan prior to the filing

of the patent application or well-known arts (Article 29(2) of the Patent Act). Hence the patent for the inventions falls under Article 123(1)(ii) of the Patent Act, and should be invalidated.

2. Demandee's allegation

The prior art stated in Evidence A No. 5 does not fall under a "publicly known invention in Article 29(1)(i) of the Patent Law.

Therefore, Inventions 1 to 9 of the case could not be easily made by a person skilled in the art based on inventions that were publicly known as stipulated in Article 29(1)(i) of the Patent Act and inventions that were described in a distributed publication prior to the filing of the patent application or well-known arts.

Further, even if the prior art inventions stated in Evidence A No. 5 fall under publicly known inventions, Invention 1 of the case could not be easily made by a person skilled in the art based on the prior art inventions.

Moreover, as long as Invention 1 of the case could not be easily made by a person skilled in the art based on the prior art inventions, Inventions 2 to 9 of the case could not be easily made by a person skilled in the art from the prior art inventions and the arts stated in Evidences A No. 8 to 13.

3. Matters stated in Evidences A No. 5, 8 to 13

(Evidence A No. 5)

The following is stated in an e-mail in Evidence A No. 5.

From: "Iwasa Masamichi <masamichi.iwasa@tecsrg.co.jp>

Sent: Wednesday, March 10, 2010 16:20

To: Kin Hideki; Ishibashi Nobuyuki; Takemura Kazuo; Hoshikawa Ken; "Takahashi Kunihiro"; "Ashizawa Tokuman (e-mail)"; "Akiyama Toru"; SAITO Tetsuaki; Mr. Munekata (Tachyonish)

Subject: latest sensor structure

Attached file: sensor structure summary.ppt

Sirs,

The latest sensor structure and experiment data are on the file.

Please confirm.

****

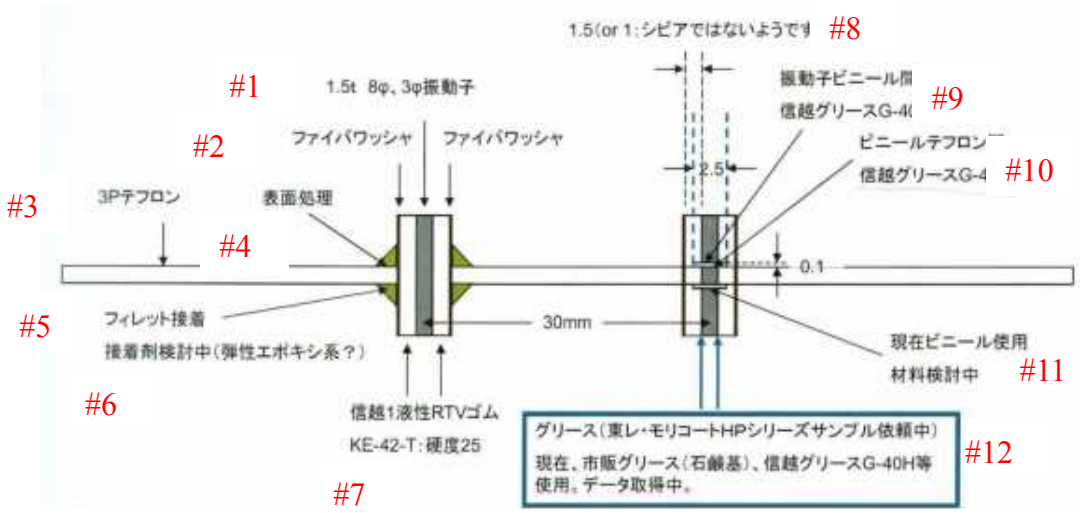
Tachyonish Holdings Co., Ltd.

Business Development Department, Mizuho Development Center

Iwasa Masamichi
(omitted)
**********"

Next, the following technical matter is stated on page 1 of an attached document (hereinafter may be referred to as "attached document" or "technical material") to the e-mail of Evidence A No. 5.

"Sensor structure (latest) March 10, 2010 Iwasa



#1 1.5t 8φ, 3φ Oscillator
#2 Fiber washer
#3 3P Teflon
#4 Surface treatment
#5 Fillet adhesion
#6 Adhesive under consideration (Elastic epoxy system?)
#7 Shinetsu 1 humoral RTV rubber KE-42-T: hardness 25
#8 1.5 (or 1, doesn't seem sever)
#9 Between oscillator-vinyl: Shinetsu Grease G-40H
#10 Between vinyl-Teflon: Shinetsu Grease G-40H
#11 Currently, vinyl is used
Material under consideration
#12 Grease (TORAY, Molykote HP series sample being requested)
Currently, commercially available grease (soap base), Shinetsu Grease G-40H, etc. are used.

Data being obtained

Awareness from recent experiment, etc.

●In this structure, especially a state between oscillator RTV works on data
(see next page)
●A phase flatness is stabilized in the case of extending a width of vinyl to 2.5 mm and fixing it at three points (The width until now is approx. 2 mm, the worst case is a width of 1.5 mm or smaller. The case of extending the width more will be studied in the future.).
●When grease between oscillator and vinyl and between vinyl and Teflon change, it seems to appear in data. Further, when Teflon contains something other than water, some change may be necessary.
●Isn't it possible that a fiber washer generates dust even being in a box? Other than that, fixing may be required by using something like a desiccant. (page 1)

In a drawing on page 1, there are statements as to the left-side oscillator: "1.5t 8ϕ, 3ϕ oscillator", "fiberwasher", "Shinetsu 1 humoral RTV rubber KE-42-T: hardness 25", "fillet adhesion adhesive under consideration (elastic epoxy system?)". There are statements as to an oscillator (on the right side of the drawing) 30 mm apart from the above oscillator: "1.5 (or 1, doesn't seem severe)", "between oscillator-vinyl: Shinetsu Grease G-40H", "between vinyl-Thelon: Shinetsu Grease G-40H", "Currently, vinyl is used Material under consideration".

Further, in the drawing on page 1, it is stated that vinyl pointed by an arrow with the statement "Currently, vinyl is used Material under consideration" has a thickness of "0.1" and a length of "2.5" in an axial direction of 3P Teflon.

The following items (1) to (3) can be seen concerning the above drawing on page 1.

(1) Judging from the statement "Teflon contains something other than water", a material pointed by the arrow of "3P Teflon" in the drawing is a tube and a fluid therein is water.
(2) Judging from the statement that "extending a width of vinyl to 2.5 mm", a unit of a numeral value in the drawing is mm.

(3) Since it is a common-sense matter that "t" is a size auxiliary symbol meaning a thickness, and "ϕ"is a size auxiliary symbol meaning a diameter, the statement "1.5t 8 ϕ, 3 ϕ" as to the oscillator means "a thickness of 1.5 mm, an inner diameter of 3 mm, an outer diameter of 8 mm".

Since it is found that the difference in statement between the right and left oscillators in the drawing of page 1 is due to being on the drawing, when the statements on page 1 of the attached document above and (1) to (3) above are totally considered, it is found that the following invention (hereinafter referred to as "prior art invention" or "Cited Invention" is stated in Evidence A No. 5.

"A sensor structure in which an annular oscillator with a thickness of 1.5 mm is provided outside a Teflon tube having water therein, vinyl with a thickness of 0.1 mm and a length of 2.5 mm in an axial direction of the Teflon tube between the annular oscillator and the Teflon tube, and both sides of the oscillator are sandwiched by rubber (Shinetsu 1 humoral RTV rubber KE-42-T; hardness 25).

(Evidence A No.8)

The following technical matter is stated in Evidence A No. 8.

"In a transparent RTV, practically, even grease is applied between the oscillator and the RTV, it cannot be stuck, and it is better to be smooth." (p.5, l.17-18)

From the above statement, a technical matter "it is better to be smooth between the oscillator and the RTV" is stated in Evidence A No. 8.

It is to be noted that the following are stated in Evidence A No. 8, as pointed on page 24, lines 14 to 23 of the written refutation:

"Since many data were not obtained by changing densities of the sheet and grease between the oscillator and Teflon," (p.1)

"I think it doesn't make any difference whether a thickness of polyethylene or the like is 0.15 mm or 0.1 mm." (p.1)

" I think a change in phase is very small when a sheet-like material such as polyethylene is sandwiched."(p.2)

"I think high clean polyethylene made by a company called ASO- would do"(p.3)"

"(This is why high clean polyethylene is being used" (p.5)

As described above, the above new stated portion in Evidence A No. 8, specified by page 24, lines 14 to 23 of the written refutation, will not be accepted as a proof for proving the reason for the request, the amendment of which was not accepted by the decision on permission of amendment dated on November 4, 2014.

(Evidence A No. 9-1)

The following technical matter is stated in Evidence A No. 9-1.

"[0011] By providing on the surface of a fluoro-rubber molding a coating layer made of a fluoro-rubber layer of the same sort of material mixed with a fluororesin powder at the above ratio, a an electrophotographic apparatus blade is obtained, the apparatus having excellent non-adhesiveness and including a coating layer with excellent adhesion. Further, by using fluoro-rubber as a base material of the coating layer, or mixing a fluoropolymer including a low-molecular weight, excellent tensile strength and elongation is shown and a tensile strength and elongation characteristic of not less than 200% is obtained. As a result, an electrophotographic apparatus blade with excellent durability is obtained." ([0011])

Thus, in Evidence A No. 9-1, "an electrophotographic apparatus blade with excellent non-adhesiveness, the blade being obtained by providing on the surface of a fluoro-rubber molding a coating layer made of a fluoro-rubber layer of the same sort of material mixed with a fluororesin powder" is stated.

(Evidence A No. 9-2)

The following technical matter is stated in Evidence A No. 9-2.

"[0015] Next, another example of a punching device will be described with reference to FIG. 3. The same material as that in the foregoing example is provided with the same numeral, and the description therein will be cited. In the present example, a description will be given to the case of punching a tape member 13 obtained by applying the adhesive 13b to the base material 13a. For example, when a tape member for die-bonding is to be stuck to a substrate (not shown) located therebelow, the sucking hole 14a is formed in the punch 14. Simultaneously with punching of the tape member 13, the punch 14 sticks the tape member 13 to the substrate while sucking and holding it, and blows an air from the sucking hole 14a, to be separated from the tape member 13. Since this tape member 13 is conveyed with its adhesive surface turned upward, the front-end surface 14b of the punch 14, which abuts on the adhesive 13b, and the abutting surface 8a of the fixing stripper 8, which

abuts on the workpiece 1 (or the abutting surface of a punch guide 5 when the punch guide 5 directly abuts), are subjected to non-adhesiveness surface coating treatment, such as fluororesin coating treatment.

[0016] Also in the present example, since the punch 14 slides and contacts the sliding contact member 7 and can perform punching while a coated film made of the lubricant 12 is formed on its surface, metal adhesion due to a residue of the punching does not occur, to extend the life of the punch 14, enabling improvement in durability thereof. Further, since the front-end surface 14b of the punch 14 and the abutting surface 8a of the fixing stripper 8 which abuts on the workpiece 1 (or the abutting surface of the punch guide 5 when the punch guide 5 directly abuts) is subjected to non-adhesiveness surface coating treatment, the adhesive 13b does not adhere to the punch 14 and the fixing platen 8 (punch guide 5), thereby to allow punching without making the workpiece dirty. ([0015] to [0016])

Thus, in Evidence A No. 9-2, "a punching device, where the front-end surface 14b of the punch 14, which abuts on the adhesive 13b, and the abutting surface 8a of the fixing stripper 8, which abuts on the workpiece 1 (or the abutting surface of a punch guide 5 when the punch guide 5 directly abuts), are subjected to non-adhesiveness surface coating treatment, such as fluororesin coating treatment" is stated.

(Evidence A No. 9-3)

The following technical matter is stated in Evidence A No. 9-3.

"[0006]

The present invention relates to a surface coated sealing material, and provides the sealing material in which non-adhesiveness, chemical resistance and plasma resistance are enhanced while strength, hardness, and sealing property of a soft substrate are held." ([0006])

Thus, in Evidence A No. 9-3, "a surface coated sealing material with enhanced non-adhesiveness" is stated.

From Evidences A No. 9-1 to A No. 9-3 above, "applying surface coating in order to reduce adhesiveness" is recognized as a well-known art.

(Evidence A No. 10-1)

The following technical matter is stated in Evidence A No. 10-1.

"The second surface 39 is a basically completely non-adhesive surface, and has

no adhesiveness to the web 11. This surface 39 can be formed, for example, by applying plasma coating to part of the external surface of the metal tube 40. It is to be noted that this kind of plasma coating can be provided by means of "900 traction/release series" (e.g., Coating No. 936), manufactured by Plasma Coatings Inc., Waterbury, Connecticut" (p.15, l.20-25)

Thus, in Evidence A No. 10-1, "A metal tube 40 with part of an external surface being a basically completely non-adhesive surface formed by applying plasma coating to part of the external surface" is stated.

(Evidence A No. 10-2)

The following technical matter is stated in Evidence A No. 10-2.

"[0029] As a mechanism in which non-adhesiveness is imparted to a fluoro-rubber molding by specific plasma irradiation as thus described, there can be considered generation of a new cross-link by plasma irradiation, selective etching removal of uncross-linked component or a low molecular weight component, or the like. It is considered that only the surface portion of the fluoro-rubber molding is highly cross-linked by plasma irradiation, and further, this cross-linked portion is hardly etched while the low molecular weight component which is an adhesive component is selectively removed to become non-adhesive. Moreover, an increase in ratio of fluorine atoms in the surface layer is also considered. Irradiation with non-equilibrium plasma of saturated fluorinated carbon gas leads to introduction of a fluoro-containing group into the surface layer of the fluoro-rubber molding. Further, irradiation with non-equilibrium oxygen plasma also leads to relative enhancement of the ratio of fluorine atoms by extracting hydrogen atoms from the surface layer of the fluoro-rubber molding and forming a double bond or a cross-linked part. ([0029])

Thus, in Evidence A No. 10-2, "a fluoro-rubber molding imparted with non-adhesiveness by specific plasma irradiation" is stated.

(Evidence A No. 10-3)

The following technical matter is stated in Evidence A No. 10-3.

"[0015]

In a silicone rubber layer laminate, an abutting device, a mounting method of articles onto a mounting substrate, or a manufacturing method of light emitting diode display device according to the present invention (hereinafter may be generically named and simply referred to as a silicone rubber layer laminate, and the like, of the present invention), the surface of a silicone rubber layer is preferably subjected to

oxygen plasma processing so as to impart non-adhesiveness to the surface of the silicone rubber layer. Specifically, for example, there can be cited a method of using a parallel plate RIE device and supplying an oxygen gas to the parallel plate RIE device, to perform oxygen plasma treatment (so-called ashing method). Examples of specific conditions for the oxygen plasma treatment may include a condition of irradiating with O_2 plasma at a discharge power of 100 W or higher, a pressure of approx. 10 to 400 Pa in an oxygen gas atmosphere for 1 to 30 minutes". ([0015])

Thus, in Evidence A No. 10-3, "a silicone rubber layer laminate in which the surface of a silicone rubber layer is subjected to oxygen plasma treatment so as to impart non-adhesiveness to the surface of the silicone rubber layer" is stated.

From Evidences A No. 10-1 to A No. 10-3 above, "applying plasma surface treatment in order to reduce adhesiveness" is recognized as a well-known art.

(Evidence A No. 11-1)

The following technical matter is stated in Evidence A No. 11-1.

"[0033]

The image forming apparatus 1 includes a surface property reforming sheet 40 intervened between the recording sheet 51 and the ink ribbon 30, as shown in FIG. 1. The surface property reforming sheet 40 reforms the surface state of the image print covered with the protective layer.

For example, as indicated in a plan view shown of FIG. 3A and a sectional view of FIG. 3B, an image printing opening 42 is formed in a ribbon-shaped base material sheet 41 in such a way that the ink ribbon 30 (cf. FIG. 1 and FIGS. 2A and 2B) comes into direct contact with the surface of the recording sheet 51 (cf. FIG. 1). Furthermore, surface property reforming portions 43 and 44 for reforming the surface state of the protective layer protecting the image formed on the recording sheet 51 are formed side by side in a longitudinal direction of the base material sheet 41.

The base material sheet 41 is formed from, for example, a polyimide film. As a matter of course, the base material sheet 41 may be formed from other types of resin film.

A non-adhesion treatment layer 45 (not shown) is formed on at least the surface of the surface property reforming sheet 40 on the side to come into contact with the above-described ink ribbon 30. This non-adhesion treatment layer 45 will be described later in detail. ([0033])

Thus, in Evidence A No. 11-1, "An image forming apparatus 1 which includes

a surface property reforming sheet 40 intervened between a recording sheet 51 and an ink ribbon 30, and at least the surface of which on the side to come into contact with the ink ribbon 30 is formed with a non-adhesion treatment layer 45" is stated.

(Evidence A No. 11-2)

The following technical matter is stated in Evidence A No. 11-2.

"[0014] This composite plating coated layer 40 is formed by dispersing and co-depositing minute particles of fluororesin in a nickel coated film, and examples thereof may include KANIFLON (product name) manufactured by Japan Kanigen Co., Ltd. The composite plating coated layer 40 with such a composition and structure has non-adhesiveness, being weak in adhesion to a resin material such as PET heated at a relatively high temperature and being smooth in sliding thereon. A composition of this composite plating coated layer 40 is preferably 80 to 90 wt% of nickel (Ni), 1 to 9 wt% of phosphor (P) which is a reducing agent, and 1 to 9 wt% of fluororesin (PTFE), and a particle diameter of fluororesin is preferably not larger than 1 μm. The composite plating coated layer 40 containing 83 to 86 wt% of nickel (Ni), 7.5 to 10 wt% of phosphor (P) which is a reducing agent, and 6 to 8.5 wt% of fluororesin (PTFE) is further preferred. The composite plating coated layer 40 containing 88 to 90 wt% of nickel (Ni), 8 to 9.5 wt% of phosphor (P) which is a reducing agent, and 1.5 to 3 wt% of fluororesin (PTFE) is further preferred. The latter is more excellent in abrasion resistance property. When such a composite plating coated layer 40 is observed by a microscopic photograph, it is observed as having a Ni-P matrix structure in the coated film, and a structure in which PTFE micro particles are almost uniformly dispersed in the matrix structure. ([0014])

Thus, in Evidence A No. 11-2, there is description "a composite plating coated layer 40 having non-adhesiveness, low adhesion and high slidability, which is formed by dispersing micro particles of fluororesin into a nickel coat.

(Evidence A No. 11-3)

The following technical matter is stated in Evidence A No. 11-3.

"[0018]

Hereinafter, one embodiment of the present invention will be described using the drawings. FIG. 1 is a perspective back view of a state where a laminated body 3 of the present invention is arranged in a car wheel 1 by adhesion, and FIG. 2 is a sectional view of a main part of the outer rim side. In FIG. 1, the laminated bodies 3 are arranged on both sides of a pair of bead seats 11a, 11b of the car wheel 1 in a

plurality of places at intervals in a circumferential direction. In FIG. 2, the laminated body 3 is made up of a non-adhesive resin base material 31 and an adhesion layer 32, and is arranged with the adhesion layer 32 adhering to the bead sheet 11a.

[0019]

FIG. 3 shows a sectional view of the time when a rubber tire 2 is rim-assembled to the car wheel 1 after arrangement of the bead seats 11a, 11b on the laminated body 3. The rubber tire 2 is rim-assembled, with the bead 21 being in contact with the non-adhesive resin base material 31 of the laminated body 3. ([0018], [0019]).

Further, in FIG. 3, it is shown that the rubber tire 2 is rim-assembled, with the bead 21 being in contact with the non-adhesive resin base material 31 of the laminated body 3.

Thus, in Evidence A No. 11-3, "a car wheel 1, in which a laminated body 3 is made up of a non-adhesive resin base material 31 and an adhesion layer 32, the adhesion layer 32 is arranged as adhering to a bead sheet 11a of the car wheel 1, and a rubber tire 2 is rim-assembled, with a bead 21 being in contact with the non-adhesive resin base material 31 of the laminated body 3" is stated.

From Evidences A No. 11-1 to A No. 11-3 above, "sandwiching a non-adhesiveness sheet or providing an intervening member subjected to non-adhesiveness treatment in order to reduce adhesiveness" is recognized as a well-known art.

(Evidence A No. 12)

Evidence A No. 12 shows that a specific gravity of grease "G-40H" manufactured by Shin-Etsu Chemical Co., Ltd. is 1.06.

(Evidence A No. 13-1)

The following technical matter is stated in Evidence A No. 13-1.

"[0020]

(First Embodiment)

Hereinafter, an ultrasonic fluid measuring apparatus according to an embodiment of the present invention will be described with reference to the drawings.

As shown in FIGS. 1 to 4, an ultrasonic fluid measuring apparatus 10 according to a first embodiment includes: a housing 13 communicated to a supply flow passage

11 and a discharge flow passage 12; a measurement flow passage 15 housed in a housing section 14 in the housing 13; an ultrasonic measurement section 16 in which a first wave transmitter/receiver 17 and a second wave transmitter/receiver 18 are provided in the measurement flow passage 15; and a plurality of partition plates 20 housed in the measurement flow passage 15 so as to be substantially parallel to an ultrasonic sound wave propagation passage (connecting line) 19 that connects between the first wave transmitter/receiver 17 and the second wave transmitter/receiver 18.

Although the plurality of partition plates 20 are housed in the measurement flow passage 15 so as to be substantially parallel to the ultrasonic sound wave propagation passage 19 in the present embodiment, this is not restrictive, and the plurality of partition plates 20 may be housed in the measurement flow passage 15 in a direction along the ultrasonic sound wave propagation passage 19.

The ultrasonic sound wave propagation passage 19 is provided in the form of a so-called Z-passage." ([0020])

"[0022]

The housing 13 is made up of a housing body 31 formed with a recessed section 32, and a lid 34 which is screwed to the housing body 31 to close an opening of the recessed section 32.

In the housing body 31, a body-side groove region 25A is formed at a supply-side end of the recessed section 32, and a body-side groove region 26A is formed at a discharge-side end of the recessed section 32.

In the lid 34, a lid-side groove region 25B is formed in a region facing the body-side groove region 25A, and a lid-side groove region 26B is formed in a region facing the body-side groove region 26A." ([0022])

"[0027]

As shown in FIG. 3, an elastic body 30 is intervened between the measurement flow passage 15 and the housing section 14.

Forming the elastic body 30 in an annular shape enables circulation of the elastic body 30 along the outer surface 15C of the measurement flow passage 15.

Hence a gap 43 between the measurement flow passage 15 and the housing section 14 is closed by the elastic body 30 to stop a fluid 40 from flowing through the gap 43, thus enabling improvement in measurement accuracy. ([0027])

"[0030]

In the ultrasonic measurement section 16 shown in FIG. 4, the first wave transmitter/receiver 17 is provided on a right-side wall 31A of the housing body 31

while being faced to a plurality of flat flow passages 41 (cf. FIG. 3), the second wave transmitter/receiver 18 is provided on a left-side wall 31B of the housing body 32 while being faced to the plurality of flat flow passages 41 (cf. FIG. 3), and the first wave transmitter/receiver 17 and the second wave transmitter/receiver 18 are connected to a computing section 44 (cf. FIG. 1).

The first wave transmitter/receiver 17 is arranged on the upstream side of the second wave transmitter/receiver 18 on the right-side wall 31A.

Specifically, the ultrasonic sound wave propagation passage 19 between the first wave transmitter/receiver 17 and the second wave transmitter/receiver 18 is set so as to obliquely cross a flowing direction (direction indicated by an arrow A) of the plurality of flat flow passages 41 in plane view." ([0030])

"[0044]

Ultrasonic waves are transmitted from the first wave transmitter/receiver 17 toward the second wave transmitter/receiver 18. The ultrasonic waves are propagated from the first wave transmitter/receiver 17 to the second wave transmitter/receiver 18 through the fluid 40 in the plurality of flat flow passages 41. First ultrasonic wave propagation time T1 in which ultrasonic waves are propagated from the first wave transmitter/receiver 17 to the second wave transmitter/receiver 18 is obtained in the computing section 44 (cf. FIG. 1).

[0045]

Similarly, ultrasonic waves are transmitted from the second wave transmitter/receiver 18 toward the first wave transmitter/receiver 17. The ultrasonic waves are propagated from the second wave transmitter/receiver 18 to the first wave transmitter/receiver 17 through the fluid 40 in the plurality of flat flow passages 41. Second ultrasonic wave propagation time T2 in which ultrasonic waves are propagated from the second wave transmitter/receiver 18 to the first wave transmitter/receiver 17 is obtained in the computing section 44 (cf. FIG. 1).

A gas flow rate U is obtained based on the first and second ultrasonic wave propagation time T1, T2. ([0044], [0045])

When the above stated matters and FIGS. 1, 3 and 4 are totally considered, it is found the following is stated in Evidence A No. 13-1: "an ultrasonic fluid measuring apparatus 10 including a measurement flow passage 15 housed in a housing section 14 in a housing 13, and an ultrasonic measurement section 16 in which a first transmitter/receiver 17 and a second wave transmitter/receiver 18 are provided in the measurement flow passage 15. An elastic body 30 is intervened between the measurement flow passage 15 and the housing section 14. Forming the elastic body

30 in an annular shape enables circulation of the elastic body 30 along the outer surface 15C of the measurement flow passage 15. Hence a gap 43 between the measurement flow passage 15 and the housing section 14 is closed by the elastic body 30 to stop a fluid 40 from flowing through the gap 43, thus enabling improvement in measurement accuracy. The first wave transmitter/receiver 17 and the second wave transmitter/receiver 18 are connected to a computing section 44. First ultrasonic wave propagation time T1 in which ultrasonic waves are propagated from the first transmitter/receiver 17 to the second wave transmitter/receiver 18 is obtained in the computing section 44, and second ultrasonic wave propagation time T2 in which ultrasonic waves are propagated from the second wave transmitter/receiver 18 to the first wave transmitter/receiver 17 is obtained in the computing section 44. A gas flow rate U is obtained based on the first and second ultrasonic wave propagation time T1, T2."

(Evidence A No. 13-2)

The following technical matter is stated in Evidence A No. 13-2.

"[0024]

Subsequently, the best mode for carrying out the present invention will be described with reference to the drawings. FIG. 1 is a sectional structural view of an ultrasonic transceiver of the present embodiment. FIG. 2 is a circuit diagram of a discharge system circuit.

An ultrasonic transceiver 10 of the present embodiment as shown in FIG. 1 includes a wedge 1, an ultrasonic oscillator 2, a sleeve 3, a backing member 4, a lead wire 5, a connector section 6, and an electric resistor 7.

[0025]

The wedge 1 is a block of epoxy resin or the like, which is generally used as an ultrasonic wave transmission member, and has a corner section at a predetermined angle.

The ultrasonic oscillator 2 is, for example, a piezo-electric device such as PZT (Pb(Zr,Ti)03). This ultrasonic oscillator 2 has a plus-side connecting section 2a and a minus-side connecting section 2b.

Although not shown, a matching layer is intervened between the wedge 1 and the ultrasonic oscillator 2. The matching layer serves to efficiently emit ultrasonic waves to a test object and efficiently receive a reflection echo from the test object. Generally, a frequency of ultrasonic waves can be controlled by adjusting a thickness of a matching layer. An acoustic impedance of this matching layer can be changed

by means of a mixing rate of a main material and a mixture. The main material is epoxy resin, for example, and the mixture is tungsten particles or the like, for example. The plus-side connecting section 2a and the minus-side connecting section 2b are covered by an insulator.

The sleeve 3 is bonded to the wedge 1 so as to surround the ultrasonic oscillator 2.

[0026]

The backing member 4 has the function of absorbing oscillation of unnecessary ultrasonic waves, and is made to fill a space surrounded by the wedge 1 and the sleeve 3. The backing member 4 covers the lower sides of the ultrasonic oscillator 2, the lead wire 3 and the connector section 6.

Two leads 5 are used, which are respectively connected to the plus-side connecting section 2a and the minus-side connecting section 2b of the ultrasonic oscillator 2. ([0024] - [0026]).

When the above stated matters and FIG. 1 are totally considered, it is found the following is stated in Evidence A No. 13-2: "an ultrasonic transceiver 10 including a wedge 1, an ultrasonic oscillator 2, a sleeve 3, a backing member 4, a lead wire 5, a connector section 6, and an electric resistor 7. The sleeve 3 is bonded to the wedge 1 so as to surround the ultrasonic oscillator 2. The backing member 4, having the function of absorbing oscillation of unnecessary ultrasonic waves, is made to fill a space surrounded by the wedge 1 and the sleeve 3. The backing member 4 covers the lower sides of the ultrasonic oscillator 2, the lead wire 3 and the connector section 6.

(Evidence A No. 13-3)

The following technical matter is stated in Evidence A No. 13-3.

"[0023] (Example 4) FIG. 5 is a longitudinal sectional view of an ultrasonic flow meter of Example 4 according to the present invention, and FIG. 6 is an exploded perspective view of a flow passage body of the same flow meter. In FIG. 5, numeral 21 denotes a connection body for mechanically connecting and fixing an inlet section 10 and an outlet section 11, and here, the connection body 21 integrally molds the inlet section 10 and the outlet section 11 by use of a metal material. Numeral 22 is a space section formed by being surrounded by the connection body 21 and a U-shaped body 12, and a flow rate computing section 14 is housed in this space section 22. ([0023])

"[0026] (Example 5) FIG. 7 is a longitudinal sectional view, vertical section of

an ultrasonic flow meter of Example 5 according to the present invention. In FIG. 7, numeral 25 denotes wireless transmitting/receiving means for wirelessly transmitting and receiving a measurement value, abnormality generation, an operation order to a flow meter, or the like, to and from an external unit 26. The wireless transmitting/receiving means 25 includes a wireless transmitting/receiving means body 25a and a wireless transmitting/receiving means antenna 25b, and the external unit 26 includes an external unit body 26a and an external antenna 26b. Numeral 27 is a housing for covering the wireless transmitting/receiving means 25 and the U-shaped body 12. This housing 27 is made of an electric wave transmittable material such as synthetic resin, and covers the opening/closing body 9, the pair of ultrasonic waves oscillators 13, the flow rate computing section 14 and the like, other than the wireless transmitting/receiving means 25 and the U-shaped body 12. Further, flow rate computing section 14 and the wireless transmitting/receiving means body 25a of the wireless transmitting/receiving means 25 are housed in the space section 22, and shielded from disturbance electric waves by a sealing member (not shown). ([0026])

"[0038] Further, with flow rate computing section being housed in the space section formed between the U-shaped body and the connection body for mechanically fixing the inlet section and the outlet section, the inlet section and the outlet section each located at the contact port with the outside are fixed by the contact section, thus leading to high intensity of the flow meter, thereby enabling improvement in workability for assembly and in reliability measurement. Moreover, housing the flow meter computing section in the space section formed between the connection body and the U-shaped body allows reduction in size of the flow meter. Furthermore, since four surfaces of the flow rate operating section are necessarily surrounded by the metal material by means of the contact body and the U-shaped body, just surrounding the remaining two surface can shield all surfaces of the flow rate operating section from disturbance such as electric waves from the outside, thus allowing improvement in reliability at low cost. ([0038])

When the above stated matters and FIGS. 5, 7, 9 and 10 are totally considered, it is found the following is stated in Evidence A No. 13-3:

"an ultrasonic flow meter, where a flow rate computing section 14 is housed in a space section 22 formed by being surrounded by a connection body 21 and a U-shaped body 12, and the U-shaped body 12, a pair of ultrasonic waves oscillator 13, the flow rate computing section 14 and the like are covered by a housing 27."

(Evidence A No. 13-4)

The following technical matter is stated in Evidence A No. 13-4.

"[0049]

Further, a circuit board 10 is arranged inside a case 30. A signal line 20 made of a stranded wire and arranged along an inner wall of a fluid tube passage 1 is connected between a first ultrasonic waves oscillator 2 and the circuit board 10 and between the second ultrasonic waves oscillator 3. The number of turns of this signal line 20 is preferably made an even number." ([0049])

When the above stated matters and FIG. 7 are totally considered, it is found that in Evidence A No. 13-4, "a circuit board 10 is arranged inside a case 30" is stated.

(Evidence A No. 13-5)

The following technical matter is stated in Evidence A No. 13-5.

"[0019]

FIG. 1 is a sectional schematic view showing a configuration of an ultrasonic flow meter in a first embodiment of the present invention. A flow passage 51 is a tube for passage of a fluid, and in the middle thereof, ultrasonic sensors 52, 53 are provided. The ultrasonic sensors 52, 53 are lead wires, and connected to a printed board 55 provided with a signal processing section 54. Further, the printed board 55 is also provided with a control section 56, a noise filter 57, and a terminal stage 58. A plurality of surfaces of the terminal stage 58 are covered by a shielding member 59. The shielding member 59 is connected to a metal-made housing 60 in an electrically direct manner, or through a capacitor. Since noise to be problematic is a high frequency in the capacitor, an impedance of the capacitor at a high frequency is thus small so long as the capacitor has a certain degree of capacity, and hence it can obtain an effect a substantially the same as that of the direction correction. A cord 61 is connected to the terminal stage 58, to exchange an electric signal to and from external equipment. ([0019])

Further, FIG. 1 shows that the ultrasonic sensors 52, 53 are provided as opposed to each other in the middle of the flow passage (51) (tube through which a fluid passes) in the housing (60), and connected to the printed board (55) through the shielded lead wire 65, and the printed board is provided inside the housing (60), and provided with the signal processing section (54), the control section (56), the noise filter (57), and the terminal 58.

Thus, in Evidence A No. 13-5, the following is stated: "A ultrasonic flow meter, where ultrasonic sensors 52, 53 are provided as opposed to each other in the middle of

a flow passage (51) (tube through which a fluid passes) in a housing (60), and connected to a printed board 55 provided with a signal processing section 54 by a lead wire, and a printed board is provided inside a housing (60), and provided with a signal processing section (54), a control section (56), a noise filter (57), and a terminal 58."

From Evidences A No. 13-3 to A No. 13-5 above, "providing a case that covers an operating section" is recognized as a well-known art.

4. Judgment on the body

Before consideration of Reasons for invalidation 3, it is determined whether or not the invention stated in Evidence A No. 5 (hereinafter may be referred to as "prior art invention") is a publicly known invention prior to the filing of the application of the patent of the case.

(1) Fact as premise

First, when the documents, the proofs (excluding a proof not accepted by the decision on permission of the amendment dated on the date of September 16, 2014 and the decision on permission of the amendment on the date of November 4, 2014, and so forth), and the proceeding result in the oral proceeding are summing up, the following fact is found.

A. Regarding employment relation between demandee and Tachyonish Holdings Co., Ltd. (hereinafter may be written as "Tachyonish HD")

(A) The demandee received a notice of employment offers from TechnoSuruga Laboratory Co., Ltd. (merged by Tachyonish HD on November 1, 2007 (B-11, B-12)) dated on September 28, 2007 (B-8), and entered Tachyonish HD on November 1, 2007 (A-6, B-8). (Written response p.2, l.16-19).

(B) Then, the demandee was transferred to Kaijo Electric Corporation on January 1, 2010 (B-9-1). The transfer was extended on April 1, 2010 to set the transfer period until March 31, 2011 (B-9-2). However, the demandee received an order (until March 31, 2011) for transferring to SONIC CORPORATION from Tachyonish HD on September 16, 2010 (A-20, A-21; However, a judgment of A-21 has not become final and binding), and left Tachyonish HD on December 2, 2010 for the convenience of its employer (A-6). (It is to be noted that there was contention over the effectiveness of dismissal between the demandee and Tachyonish HD, and a

Petition for Acceptance of Final Appeal (B-16) has been taken on the judgment of A-21.)
(Written request p.33, l.20-23, Written response p.2, l.21-p.3, l.2, Oral proceeding statement brief (demandant) p.5, l.12-27, p.6, l.8-10))

B. Relation among demandant, Tachyonish HD and Kaijo Electric Corporation
The demandant (its trade name was changed from "Kaijo Sonic Corporation" on April 2009 (A-13)) is a company (so-called subsidiary company), where the majority of voting rights are held by Tachyonish HD, and substantial control by Tachyonish HD is recognized. Together with Ultrasonic Measurement Instrument Division of Tachyonish HD, the demandant continuously researches and develops, as well as manufactures, ultrasonic measurement instruments such as ultrasonic sensors and ultrasonic flow meters.

Further, "Kaijo Electric Corporation" is one of subsidiary companies of Tachyonish HD, and has taken part in the ultrasonic measurement instrument business together with the demandant. (Oral proceeding statement brief (demandant) p.3, l.8-22, p.4, l.13-14))

C. Role-sharing with person in charge in research and development (R&D) regarding ultrasonic sensor and ultrasonic flow meter

(A) Tachyonish HD (Mizuho Development Center (provisional name: Tachyon TRI) and the demandant were conducting R&D regarding ultrasonic sensors and ultrasonic flow meters (B-10). When work concerning ultrasonic flow meters are to be divided into R&D of an ultrasonic sensor and R&D of a processing section for processing a signal from a sensor, Mizuho Development Center was in charge of development of the ultrasonic sensor, and the demandant was in charge of designing of ultrasonic sensors other than that sensor and development and designing of the processing section.
(Written response p.4, l.16 - p.5, l.12)

(B) Although Mizuho Development Center of Tachyonish HD and Kaijo Electric Corporation mainly conduct R&D of ultrasonic measurement instruments, and the demandant mainly conduct manufacturing of ultrasonic measurement instrument, these roles are not clearly divided. An employee of the demandant may join R&D of ultrasonic measurement instruments, and an employee of Tachyonish HD or Kaijo Electric Corporation may join manufacturing of ultrasonic measurement

instruments.
(Oral proceeding statement brief (demandant) p.3, l.22- p.4, l.2)

(C) R&D of ultrasonic measurement instruments was being conducted by teams for conducing R&D of ultrasonic measurement instruments in a group of companies with their parent company being Tachyonish HD and their subsidiary company being Kaijo Electric Corporation (teams for the same development of companies of the same group).

(Written reply p.23, l.2-3, p.24, l.6, Oral proceeding statement brief (demandant) p.4, l.3-14, B-18)

D. Regarding joint research development

(A) Regarding joint research development contract

A contract is not particularly made between Tachyonish Holdings Co., Ltd. and the demandant in conducting R&D regarding ultrasonic sensors and ultrasonic flow meters.

The reasons for this are as follows.

(i) The demandant is a subsidiary company of Tachyonish Holdings Co., Ltd.

(ii) A leader (Mr. AKIYAMA, Toru) of the team for conducting R&D regarding ultrasonic sensors and ultrasonic flow meters serves as both a board member of Tachyonish Holdings Co., Ltd. and a board member of the demandant.

That is, a contract in conducting R&D is not made between Tachyonish Holdings Co., Ltd. and the demandant because there has not occurred a situation in which acceptance is not given to a purpose of R&D, a period of R&D, application for handling of a research result, and the like.

(Oral proceeding statement brief (demandant) p.4, l.15-27)

(B) Regarding handling of research result

The leader (Mr. AKIYAMA, Toru) of the R&D team determines, in accordance with a key person who led a research result or a detail of the research result, whether or not to file an application for patent and make public, and also determines which will do

them in the case of filing an application for patent and making public, between Tachyonish HD and the demandant.

When Mr. AKIYAMA, Toru determines that obtainment of a patent right is necessary for the research result (invention), Tachyonish Holdings Co., Ltd. and/or the demandant individually take over the right to obtain a patent from the inventor and files an application for patent.

(Oral proceeding statement brief (demandant) p.5, l.1-8)

E. Regarding sending of e-mail of Evidence A No. 5

(A) Regarding development members of those days

Members and role-sharing at the time when R&D regarding ultrasonic sensors and ultrasonic flow meters was being conducted are as follows.

SONIC CORPORATION: Members of Industrial Equipment Division

Akiyama: CTO, also serving as CTO of Tachyonish Holdings Co., Ltd.

Saito: Director

Takahashi: In charge of designing a processing system circuit, designing a sensor, designing a jig, etc.

Ashizawa: In charge of selecting a tube joint

Ishibashi: In charge of developing processing system software, measuring a sensor sample developed by the demandant, etc. (A-8)

Kin: In charge of making measurement by use of a sensor sample developed by the demandee, creating software for displaying a phase difference in a PC from measurement data fetched into the PC, etc. (A-8)

Hoshikawa: In charge of making measurement by use of a sensor sample developed by the demandee

SONIC CORPORATION: Member of Sales

Takemura: In charge of doing sales work between engineers and a client company, making measurement of conventional types of minute flow meter, etc.

Tachyonish Holdings Co., Ltd.: Members of Mizuho Development Center

Munekata: Development first manager, and later, Director of Mizuho Development Center

A superior who was submitted a schedule table (B-14) by the demandee before or after the time when the e-mail of Evidence A No. 5 was sent.

Sato: Entered the company in March, 2010 Director (from the middle of the period concerned), Director of Mizuho Development Center

Igarashi: Entered the company on November 24, 2009, in charge of evaluating a circuit, etc. (from the middle of the period concerned)

Kawaguchi: In charge of burning a device, evaluating a sensor, etc.

The following should be noted. Out of the names to which the e-mail of Evidence A No. 5 was sent, Mr. Akiyama is the board members of both the demandant and Tachyonish Holdings Co., Ltd. Mr. Kin, Mr. Ishibashi, Mr. Takemura, Mr. Hoshikawa, Mr. Takahashi, Mr. Ashizawa, and Mr. Saito are the employees of the demandant. Mr. Munekata is the employee of Tachyonish Holdings Co., Ltd. (Written response p.4, l.7-10, p.5, l.13 - p.6, l.10, p.6, l.16-19, Oral proceeding statement brief (demandant) p.7, l.16-25, B-13)

(B) Work in the demandee's charge

In charge of developing and simulating a sensor by use of a Teflon tube.

In an initial period, he was in charge of performing simulation in the case of using a glass tube, and handling and checking a variety of data obtained by use of a conventional type for analyzing a cause. Subsequently, he was in charge of checking a phase difference by means of a development sample by using a Teflon tube, and presenting the sample to SONIC CORPORATION.

Further, on every Monday mornings, he submitted Mr. Munekata, his superior, a schedule for R&D (B-14) which the demandee had created in Excel.(Written response p.6, l.11-19)

(2) Regarding argument of demandant

A. Ground for prior art invention being publicly known invention

As a ground for the prior art invention being a publicly known invention, the demandant alleges that the prior art invention was publicly known by employees and the like of the demandant who do not have a duty to maintain a secret. The demandant alleges the following as a reason why the employees and the like of the demandant do not have a duty to maintain a secret.

B. Reason why employees and the like of demandant do not have duty to maintain secret

(A) Regarding duty of secrecy based on employment relation when dismissal is

valid

The demandee left Tachyonish HD as his transferred company on December 2, 2010 (A-6), and the employment contract between the demandee and the Tachyonish HD was cancelled. Following this, the employment of the demandee as a transferred employee (A-20, A-21) by the demandant was cancelled (even if the order for transfer according to A-20 is invalid, the relation of the demandee being employed by the demandant is replaced by the relation of the demandee being employed by Tachyonish HD, and a conclusion would not change.)

Then, the duty of the employees and the like of the demandant to the demandee to maintain a secret (the duty of the employees and the like of the demandant to maintain a secret for the demandee) was imposed due to there being an employment relation between the demandee and the demandant and there being an employment relation between the employees and the like of the demandant and the demandant. Hence, when the demandee left Tachyonish Holdings Co., Ltd. and the employment relation therewith was terminated (legal relation varies), the duty of the employees and the like of the demandant to the demandee to maintain a secret is influenced and lapses.

That is, even assuming that the joint researcher and the like owe a duty to keep the subject matter of the invention a secret from the third party in the relation with the inventor in the contract or the principle of faith and trust based on the legal relation with the inventor, in the present case, the duty has lapsed due to termination of the employment relation (variation of the legal relation) between the demandant and the demandee (A-6, A-15).

Accordingly, for the demandee, the employees and the like of the demandant had become those who do not have the duty to maintain a secret concerning the prior art invention on December 3, 2010, which was prior to the filing of the application of the patent (filing date of the patent of the case: November 4, 2011), at the latest, and hence the prior art invention had become an invention publicly known by the employees and the like of the demandant who do not have the duty to maintain a secret (A-7).

Further, since the demandant considered the invention of the case as not corresponding to "development business indicated by a confidential document" (B-10) (the consideration: A-17), this respect has no influence on the above conclusion.

(Written demand for trial P.33, l.20 - p.34, l.6, Written refutation p.18, l.19 - p.19, l.5, p.22 l.4-6, p.22, l.13-18, p.22, l.22 - p.23, l.8), Oral proceeding statement brief

(demandant) p.5, l.9 - p.6, l.27)

(B) Regarding duty of secrecy in the Office Regulations

The Office Regulations (A-18) of Tachyonish HD taken part in by the demandant only states "should take care of leakage and other handling of information regarding work in the company" (Article 4(4)), and there is no clear regulation concerning a duty of secret maintenance or a duty of secrecy. Even if it corresponds a stipulation concerning a duty of secret maintenance or a duty of secrecy, it cannot be recognized as such a behavior as to greatly impair a benefit of the user even in the case of leakage of the prior art invention. The relation among the employees and the like of the demandant, in which a secret concerning the prior art invention should be maintained for the demandant, cannot be recognized as continuing. (Written refutation p.21, l.18-26)

Further, the Office Regulations of the demandant (A-22) stipulates "should not disclose, without a legitimate reason, technical information and the like that can be obtained in work or should not handle the information beyond a purpose of its use or leak it" (Article 8(3) of No. A22). However in the present case, in addition to the employment relation between the demandant and the demandee having lapsed, the leader (Mr. AKIYAMA, Toru) of R&D team has determined the matter stated in A-5 as valueless (A-17), and it is thus found that the demandant permitted the employees and the like of the demandant to disclose the matter stated in No. A 5 without a legitimate reason.

Hence the employees and the like of the demandant can freely perform disclosure, and the like, of the above matter based on the Office Regulations, and do not have the duty to maintain a secret of the employees and the like of the demandant stipulated in the Office Regulations.

(Oral proceeding statement brief (demandant) p.7, l.1-10)

(C) Regarding elimination of duty of secrecy caused by hostility

At the time of sending the e-mail of No. A 16 (October 29, 2010, 19:28), Mr. AKIYAMA, Toru, the director of the demandant, considered the patentability in "Patent" in A-16 (related to a ultrasonic flow meter, from Written response p.4, l.6 - p.6, l.15, and B-14), and at the time of sending the e-mail of No. A 17 (November 1, 2010, 18:24), he determined that the invention for which the demandee was going to file an application for patent would not be beneficial. Further, in the mail of No. A 17, the demandee suggested exercising the patent right in the case of acquiring the

patent right, and it is found that the demandee has hostility to the demandant.

Hence in the present case, considering that the demandee suggested the demandant to enforce a patent right in the case of obtaining the patent right and that the demandee left the company for the reason of dismissal and has been contending the effectiveness of the dismissal by Tachyonish HD, faith between the employees and the like of the demandant and the demandee has been lost. Thus the employees and the like of the demandant do not have a duty to maintain a secret also in the principle of faith and trust. (Written refutation p.19, l.6 - p.20, l.10, p.20, l.23-25, p.21, l.4-13, p.22, l.18-21, Oral proceeding statement brief (demandant) p.7, l.11-15)

C. Therefore, on December 3, 2010, which was prior to the filing of the application of the patent, at the latest, the prior art invention had become an invention publicly known by the employees and the like of the demandant who do not have the duty to maintain a secret.

(3) Demandee's allegation

The demandee alleges the following as a reason why the prior art invention does not correspond to a publicly known invention:

A. Regarding duty of secrecy of employees and the like of the demandant

(A) Regarding duty of secrecy which employees and the like of the demandee have in generally accepted perspective or business practice

It is appropriately presumed that the document of the prior art invention was sent as above for the purpose of having a meeting on a result of R&D in the teams for the same development of companies of the same group, and that the demandee sent the above e-mail to the employees and the like of the demandant while expecting with trust that they would treat the e-mail as confidential. Hence it can be said that the employees and the like of the demandant who received the above e-mail are those who have a relation in which they should maintain a secret concerning the subject matter of the invention in the generally accepted perspective or business practice (B-7).

This remains unchanged whichever the time when a person having been engaged in R&D is serving a company of the same group as a company of another person having been engaged in R&D of the same product, or after the person is retired from the company.

Further, the demandee was notified of dismissal one-sidedly from Tachyonish HD, and the demandee, who disagreed with the dismissal, filed with a labor trial in a

request of returning to the company on March 2011. This trial is for contending the effectiveness of dismissal, and is still in place at the present (B-16), and there is a possibility that the demandee will return to the company. Accordingly, the demandant's logic of the prior art invention becoming a publicly known invention one day after the day of dismissal of the demandee (December 2, 2010) is hard to understand.
(Written reply p.22, l.17 - p.23, l.22, Written response p.7, l.17 - p.8, l.7)

B. Regarding duty of secret maintenance generated by development of sensor in absolute secrecy

The development work of ultrasonic sensors was promoted in absolute secrecy between Tachyonish HD and the demandant (SONIC CORPORATION) so as to be only found in confidential documents (B-10). At the time of developing sensors under such a policy of the company (the stage on which the e-mail of A-5 reached the employees and the like of the demandant), even when there was no arrangement for maintaining a secret concerning the subject matter of the prior art invention between the demandant and the employees and the like of the demandant, a relation had occurred among the employees and the like of the demandant in which a secret concerning the prior art invention should be maintained for the demandant.(Written response p.6, l.20 - p.7, l.4)

(C) Regarding duty of secret maintenance in work

In the Office Regulations to be present in the demandant and Tachyonish HD, there should commonly be a stipulation regarding a duty of secret maintenance or a duty of secrecy of an employee. Further, even if there is not such a stipulation, it is natural that a worker should owe a duty to avoid such a behavior as to greatly impair a benefit of the user in the principle of faith and trust as a duty associated with a labor contrast (B-15). A worker related to the development work shown in the confidential document (B-10) all the more owes such a duty. Then, such a duty does not lapse immediately owing to retirement of the demandee or completion of R&D, but continues to be laid on the employees and the like of the demandant for the sake of the demandant.
(Written response p.7, l.5-16)

B. Regarding relation between retirement of demandee and employees and the like of demandant and duty of secrecy

Even after retirement of demandee, the employees and the like of the demandant will not disclose the subject matter of the invention of the case (Note for the body: interpreted as "prior art invention") even if receiving an inquiry from an outsider, and are not in a position to have to disclose the subject matter.

There is no relation between whether or not to be dismissed and whether or not the duty to keep the subject matter of the prior art invention a secret from the third party, the duty being imposed on the employees and the like of the demandant in the contract or the principle of faith and trust. Hence the duty to keep the subject matter of the prior art invention a secret from the third party, the duty being imposed on the employees and the like of the demandant in the contract or the principle of faith and trust based on their legal relation with the demandant, does not lapse immediately owing to retirement of the demandee.

(Oral proceeding statement brief (demandant) p.28, l.16 - p.29, l.2, p.30, ll.7-14)

C. Regarding evaluation of prior art invention and hostility

Even if the prior art invention does not bring a benefit and the prior art invention is leaked, whether or not the demandee has hostility has nothing to do with dissolution of the relation among the employees and the like of the demandant in which a secret concerning the prior art invention should be maintained for the demandant.

Further, also as for the respect of whether or not the demandee has hostility to the demandant, an exchange shown in A-17 is just to make an inquiry about a general idea of the patent right, and nothing is mentioned about enforcement of the right. Hence it cannot be said from this that the demandee has hostility.

(Oral proceeding statement brief (demandant) p.29, l.5-13, p.30, l.1-6)

(4) Judgment on the body

A. Regarding duty of the employees and the like of the demandant to maintain secret

Whether or not the prior art invention was publicly known by the employees and the like of the demandant will be considered from the viewpoint of the duty of the employees and the like of the demandant to maintain a secret.

B. Regarding duty of employees and the like of the demandee to maintain a secret for the demandee based on close relation of trust

Generally, a relation among members in an R&D team is a relation in which

each member mutually discloses a research result without concealing it, and mutually considers and improves the research result, to proceed R&D in a cooperative manner, and is thus a relation established based not on a mere sense of comradeship, but on the closer mutual relation of trust. It can be said that such a relation is established by tacitly requiring the members not to disclose techniques reported by other members to the third party even when no particular explicit agreement or no explicit instruction or request concerning maintenance of secret is made, and to try not to infringe mutual benefits (e.g., a right to obtain a patent, concealment of a matter until conference presentation, etc.).

Therefore, in the relation established based on the close relation of trust such as the relation among members in the R&D team. It can be said that, even when some member leaves the company, the duty of the other members to maintain a secret concerning technical information reported by the member having left does not lapse immediately.

Then, consideration will be made as follows. From the fact stated in "(A) Regarding joint research development contract" in "(1)""D" above, in conducting R&D regarding ultrasonic sensors and ultrasonic flow meters, a contract is not required to be made between Tachyonish Holdings Co., Ltd. and the demandant because there has not occurred a situation in which acceptance is not given to a purpose of R&D, a period of R&D, application for handling of a research result, and the like. Further, as in (1)(C)"(B)", the roles of Mizuho Development Center of Tachyonish HD and the demandant were not clearly divided, and the employees of both parties were mutually involved in R&D. Hence the team for conducting R&D regarding ultrasonic sensors and ultrasonic flow meters which were conducted between Tachyonish HD and the demandant (hereinafter simply referred to as "R&D team") can be recognized as being substantially the same as an R&D team of R&D conducted in one company.

Next, a detail of the statement in the technical material attached to the e-mail of A-5 belongs to "developing a sensor by use of a Teflon tube" (cf. "(1)""E""(B)" above), of which the demandee is in charge in the R&D team. From the fact that a statement concerning a devise by the demandee is seen in a field of "Awareness from recent experiment, etc.:", and the fact that those who were sent the e-mail of Evidence A No. 5 are the members of the R&D team (cf. "(1), "(E)""(A)" above), it is found that the e-mail was sent for reporting the research result of the demandee to other members of the R&D team as part of R&D for ultrasonic sensors and ultrasonic flow meters in the demandant and Tachyonish HD (Mizuho Development Center).

It is then found that the members of the R&D team, who understood the detail of the technical material attached to the e-mail, easily recognized: the material attached to the e-mail was technical information regarding the R&D and included unpublished technical information; and they were being asked to consider the detail of the technique.

It is found that in such a situation, the members of the R&D team, who understood the detail of the technical material attached to the e-mail, owed a duty to maintain a secret and try not to infringe a benefit of the demandee (e.g., a right to obtain a patent, etc.) on the basis of the tacit contrast or the principle of faith and trust, based on the close relation of trust among the members of the R&D team even when no particular explicit agreement or no explicit instruction or request concerning maintenance of secret is made.

Then, this duty is a duty that arose based on the tacit contrast or the principle of faith and trust on the basis of the close relation of trust, and hence it can be said that the duty will not lapse in association with the demandee leaving the company.

C. Regarding duty of the employees and the like of the demandant in work

As above, for the R&D members who understood the detail of the technical material attached to the e-mail of A-5, the detail of the statement in the technical material attached to the e-mail corresponds to the technical information that can be obtained in work. The following are stipulated in the Office Regulations of Tachyonish HD and the demandant.

(A) Office Regulations of Tachyonish HD (A-18):

"Article 4 Employees should faithfully obey command and obeys of superiors, cooperate with each other to perform duty, and keep the following. In the case of violating the following, an employee may be subject to punishment.

1. to 3. (omitted)

4. The employee should take care of leakage and other handling of information regarding work in the company".

"Article 18 In the case of falling under the following in Article 18, an employee's salary is cut or an employee is suspended. However, he may be delivered an admonition depending on circumstances.

1. to 2. (omitted)

3. When an employee violates the provisions of Articles 2, 4 of the Regulations, and the matter is minor."

"Article 23 At the time of retirement, an employee should return goods borrowed from the company, such as working cloths and a staff card, and return customer information such as a name card and technical information concerning work."

(B) Office Regulations of demandant (SONIC CORPORATION) (A-22)

"Article 8 (Service)

The employee should always observe the matters in the following and work hard.

(1) to (2) (omitted)

(3) While observing separately stipulated "Information Management Rules", an employee should not disclose, without a legitimate reason, personal information of a client, a customer, other parties concerned, and a board member and an employee of the company, and technical information and the like that can be obtained in work, or should not handle the information beyond a purpose of its use or leak it (the same applies after retirement)."

"Article 55 (Prohibition on disclosure of secret information)

The employee should not disclose, leak or use information acquired in the company when he is dismissed or retires."

It is thus found from the above office regulations that the employees of Tachyonish HD and the demandant (SONIC CORPORATION) (as stated in Oral proceeding statement brief (demandant) p.7, l.16-22, out of the names to which the e-mail of A-5 was sent, Mr. Kin, Mr. Ishibashi, Mr. Takemura, Mr. Hoshikawa, Mr. Takahashi, Mr. Ashizawa, and Mr. Saito are the employees of the demandant, and Mr. Munekata is the employee of Tachyonish Holdings Co., Ltd.) had a duty not to leak the detail of the technical material attached to the e-mail of A-5 to the outside of the company.

As above, it is found that, out of the employees of Tachyonish HD and the demandant, the R&D members who understood the detail of the technical material attached to the e-mail of A-5 had a duty to maintain a secret concerning the detail of the technique disclosed in the technical material attached to the e-mail of A-5 as a duty in work, regardless of the demandee leaving the company.

D. Regarding duty of secrecy of Mr. AKIYAMA, Toru

Since Mr. AKIYAMA, Toru is the directors of Tachyonish HD and the demandant (SONIC CORPORATION), he is thought to have received a mandate of

administration from Tachyonish HD and the demandant (SONIC CORPORATION) (Article 330 of the Companies Act), and owes "a duty to administer mandated business with a care of a good manager" according to the provision (Article 644) regarding mandatary in the Civil Code. Further, he is in a position to have to perform his duties for Tachyonish HD and the demandant (SONIC CORPORATION) in a loyal manner (Article 355 of the Companies Act). If he causes damage to the company due to negligence of the duties against his obligation, he shall be liable to the company for the damage (Article 423 of the Companies Act).

Moreover, Mr. AKIYAMA, Toru is the leader of the team for conducting R&D regarding ultrasonic sensors and ultrasonic flow meters. As for handling a research result, he was in the following position. He determines, in accordance with a key person who led the research result or a detail of the research result, whether or not to file an application for patent and make public, and also determine which will do them in the case of filing an application for patent and making public, between Tachyonish HD and the demandant. When Mr. AKIYAMA, Toru determines that obtainment of a patent right is necessary for the research result (invention), Tachyonish Holdings Co., Ltd. and/or the demandant individually take over the right to obtain a patent from the inventor and files an application for patent ("(1)""(D)""(B)" above).

Therefore, it can be said that as the directors and the leader of the R&D team, Mr. AKIYAMA, Toru owed a duty to act while thinking of benefits of Tachyonish HD and the demandant (SONIC CORPORATION) for a result produced by R&D in a greater deal than the employees of the demandant.

Then, it went without saying that leaking secret technical information to the outside was against benefits of Tachyonish HD and the demandant (SONIC CORPORATION). It can thus be said that, from the point in time when Mr. AKIYAMA, Toru understood the detail of the technique in the technical material attached to the e-mail of A-5, he owed a high level of duty to maintain a secret concerning the detail of the technique. It is also obvious that the duty does not lapse by the demandee leaving the company.

Moreover, Mr. AKIYAMA, Toru knew that the demandee was scheduled to file an application for patent (A-17), and furthermore, it is found from the fact that he determined whether or not an application for patent was necessary as the leader of the R&D team that he had knowledge concerning the Patent Act. Hence it is found that he understood that making public the technical material attached to the e-mail of A-5 would obstruct the demandee from acquiring the patent right. If so, it is found that

Mr. AKIYAMA, Toru had a duty not to make public the technical material attached to the e-mail of A-5 in the generally accepted perspective or as a person who was revealed the schedule for application for patent, regardless of the demandee leaving the company.

From the above, it is found that Mr. AKIYAMA, Toru, the directors of Tachyonish HD and the demandant (SONIC CORPORATION) also had the duty to maintain a secret concerning the prior art invention, regardless of the demandee leaving the company.

E. Summary

As above, it is found that the employees and the like of the demandant who understood the detail of the technical material attached to the e-mail of A-5 had the duty to maintain a secret concerning the detail of the technical material attached to the e-mail of A-5 based on the duty in the implied contract or the principle of faith and trust on the basis of the close mutual relation of trust, the duty in work, the duty as the director and the leader of the R&D team, and the duty in the generally accepted perspective or the principle of faith and trust of the person who was revealed the schedule for application for patent, regardless of the demandee leaving the company. Further, it is found that the duty should not be influenced by the demandee leaving the company.

Therefore, it cannot be said that the invention (prior art invention) stated in the technical material attached to the e-mail of A-5 is a publicly known invention as stipulated in Article 29(1)(i) of the Patent Act.

(5) Regarding argument of demandant

A. Regarding "(A) Regarding duty of secrecy based on employment relation when dismissal is valid" (in "(2)""B")

The demandant alleges in "(2)""B""(A)" that the duty of the employees and the like of the demandant to the demandee to maintain a secret (the duty of the employees and the like to maintain a secret for the demandee) was imposed due to there being an employment relation between the demandee and the demandant and there being an employment relation between the employees and the like of the demandant and the demandant. First, this allegation will be considered.

The demandant alleges that the duty of the employees and the like of the demandant to the demandee to maintain a secret was imposed due to there being an

employment relation between the demandee and the demandant and there being an employment relation between the employees and the like of the demandant and the demandant. However, the demandee and the demandant are not in a direct relation based on an employment contract. It is thus not clear based on what legal ground or what contract relation the duty to maintain a secret in accordance with the demandant's allegation arises. Hence the duty to maintain a secret in accordance with the demandant's allegation cannot help being interpreted to be a duty as a sense of solidarity, which arises from a sense of comradeship of those who belonging to the same organization, such as a superior and a subordinate, or colleagues.

In the case of such a duty as a sense of solidarity, the duty of the employees and the like of the demandant to maintain a secret based on a sense of solidarity may lapse in association with the demandee leaving the company.

However, the duty of the employees and the like of the demandant to maintain a secret is not always a duty that arises based on a sense of solidarity as stated in "(4)""B" or "D" above. Thus, even when the duty of the employees and the like of the demandant to maintain a secret based on a sense of solidarity lapses in association with the demandee leaving the company, it does not mean that all duties of the employees and the like of the demandant to maintain secrets lapse.

Therefore, the above demandant's allegation in "(2)""B""(A)" itself is in the first place not connected to a proof that the invention (prior art invention) stated in Evidence A No. 5 is a publicly known invention.

Hence the demandant's allegation cannot be accepted.

B. Regarding "(B) Regarding duty of secrecy in the Office Regulations" in "(2)""B" above.

In Article 4 of the Office Regulations of Tachyonish HD, the following is stipulated, including the possibility of punishment: "Employees should faithfully obey command and obeys of superiors, cooperate with each other to perform duty, and keep the following. In the case of violating the following, an employee may be subject to punishment." In Article 18, punishment of a salary cut or suspension is specifically stipulated. Hence it can be said that the stipulation "The employee should take care of leakage and other handling of information regarding work in the company." in "Article 4(4)) is a clear regulation concerning the duty of secret maintenance or the duty of secrecy.

Further, the regulation cannot be interpreted as a regulation to allow an employee to freely leak a secret unless it is not "such a behavior as to greatly impair a

benefit of the user".

Moreover, it goes without saying that dissolution of the employment relation between the demandee and the demandant does not have an influence on the duty of secret maintenance in work which are imposed on the employees of the Tachyonish HD and the demandant.

Furthermore, the wording "Mr. Iwasa is not interested, so if you want to file it individually, you can do it as you like!" in A No. 17 can also be taken as words said due to temporary excitement toward prior exchange over application for patent. Being "not interested in application for patent" cannot be immediately determined as coolly determining that the prior art invention is valueless.

Even if Mr. AKIYAMA, Toru determined that the prior art invention was not valuable enough for application for patent, since Mr. AKIYAMA, Toru, the directors of both Tachyonish HD and the demandant (SONIC CORPORATION), is in the position to act while thinking of benefits of Tachyonish HD and the demandant (SONIC CORPORATION), he should consider storing the invention as know-how in the company, assigning it to another company, using a technical material obtained related to the prior art invention to help R&D in the future, and the like. It is thus not found that the above determination is permission to disclose the prior art invention to the Tachyonish HD and the demandant (SONIC CORPORATION) without a legitimate reason.

Moreover, as for the duty of secrecy, a legitimate reason in the Office Regulations should be interpreted as an objectively rational reason or an appropriate case in the generally accepted perspective, such as an inevitable accident or the case of obtaining individual specific permission of the user. Hence it should be said that the director's simply determining "it is not valuable enough for application for patent" is not sufficient.

C. Regarding "(C) Regarding elimination of duty of secrecy caused by hostility" in "(2)", "B" above

The demandant alleges that the demandee has hostility to the demandant based on the wording "Mr. Akiyama. So, there is no assignment right now for Horiba, right? A patent is individually held, and if a patent is granted for this, wouldn't it be a case of patent infringement?" in No. A 17, and on the fact that the demandee "has been contending the effectiveness of the dismissal by Tachyonish Holdings Co., Ltd." Therefore, the demandant alleges that the faith has been lost and the duty to maintain a secret has been eliminated. However, it cannot be said from the above statement

in A-17 that the demandee "suggested the demandant to enforce a patent right ". Further, "contending the effectiveness of the dismissal by Tachyonish Holdings Co., Ltd" is legitimate enforcement of the right of the people to be on trial, and enforcing such a legitimate right cannot lead to immediate determination that the faith between the employees and the like of the demandant and the demandee has been lost.

Therefore, the demandant's allegation cannot be accepted.

(6) Summary of Reasons for invalidation 3

As above, it cannot be said that the invention (prior art invention) stated in the technical material attached to the e-mail of A-5 is a publicly known invention prior to the filing of the application of the patent of the case as stipulated in Article 29(1)(i) of the Patent Act. Hence it cannot be said that the patent for invention according to Claim 1 of the case (Invention 1 of the case) was granted in violation of the provisions of Article 29(2) of the Patent Act.

Further, the inventions according to Claims 2 to 9 of the case (Inventions 2 to 9 of the case) are inventions made by adding predetermined technical limitations to the invention according to Claim 1 (Invention 1 of the case). Hence it cannot be said for a similar reason to the above that the patent for the inventions according to Claims 2 to 9 of the case (Inventions 2 to 9 of the case) were granted in violation of the provisions of Article 29(2) of the Patent Act.

Therefore, it cannot be said by the reasons alleged by the demandant and the means of proof submitted by the demandant that the patent for the inventions according to Claims 1 to 9 of the case were granted in violation of the provisions of Article 29(2) of the Patent Act.

(7) Inventive step of Inventions 1 to 9 of the case

Assuming that the invention stated in Evidence A No. 5 (hereinafter referred to as "Cited Invention") is a publicly known invention, the inventive steps of Inventions 1 to 9 of the case will be considered by way of caution.

A. Subject patent Invention 1

Claim 1 of the case is shown again as follows. Invention 1 of the case is specified by the matter stated in Claim 1 of the scope of claims as follows.

"An ultrasonic sensor, comprising: a ring-like ultrasonic oscillator that is arranged on an outer circumference of a conduit in which a substance with a minute flow rate flows, oscillates by receiving high frequency signals and generates high

frequency signals by receiving the oscillation; and a pair of oscillation dampers that are arranged so as to sandwich and fix the ultrasonic oscillator,

wherein an annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit, and the alignment member is formed of a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit."

B. Cited Invention

The invention (Cited Invention) stated in Evidence A No. 5, stated in "No. 8""3""(Evidence A No. 5)" above, is shown again as follows.

"A sensor structure in which an annular oscillator with a thickness of 1.5 mm is provided outside a Teflon tube having water therein, vinyl with a thickness of 0.1 mm and a length of 2.5 in an axial direction of the Teflon tube between the annular oscillator and the Teflon tube, and both sides of the oscillator are sandwiched by rubber (Shinetsu 1 humoral RTV rubber KE-42-T; hardness 25)."

C. Comparison

Invention 1 of the case and Cited Invention are compared.

A "Teflon tube" in Cited Invention corresponds to a "conduit" in Invention 1 of the case.

Next, "water" in Cited Invention is the content of the "Teflon tube" and it is obvious that it flows in the tube. Hence "water" corresponds to a "substance with a minute flow" in Invention 1 of the case.

Next, it is obvious that in "an annular oscillator with a thickness of 1.5 mm" in Cited Invention, a frequency of oscillation is a high frequency, judging from a thickness of the oscillator. Therefore, it corresponds to "a ring-like ultrasonic oscillator ....., oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation".

Next, "rubber (Shinetsu 1 humoral RTV rubber KE-42-T; hardness 25)" which "sandwiches" "both sides of the oscillator" in Cited Invention corresponds to "a pair of oscillation dampers that are arranged so as to sandwich and fix the ultrasonic oscillator" in Invention 1 of the case.

Next, "vinyl with a thickness of 0.1 mm and a length of 2.5 in an axial direction

of the Teflon tube is provided between the annular oscillator and the Teflon tube" in Cited Invention is in common with "an annular flexible uniform alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit" in Invention 1 of the case. There are in common in that "an annular alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit."

Next, a "sensor structure" in Cited Invention corresponds to an "ultrasonic sensor" in Invention 1 of the case except for a difference feature below.

Invention 1 of the case and Cited Invention are consistent in the following feature.

<Corresponding feature>

An ultrasonic sensor, comprising: a ring-like ultrasonic oscillator that is arranged on an outer circumference of a conduit in which a substance with a minute flow rate flows, oscillates by receiving high frequency signals and generates high frequency signals by receiving the oscillation; and a pair of oscillation dampers that are arranged so as to sandwich and fix the ultrasonic oscillator,

wherein an annular alignment member having a width being in the same direction as and being larger than a width in an axial direction of the conduit of the ultrasonic oscillator is provided between an inner circumference surface of the ultrasonic oscillator and an outer circumference surface of the conduit.

Further, the two inventions are different in the following feature.

<The different feature>

In Invention 1 of the case, a member is "an annular flexible uniform alignment member" and is a member "formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit", whereas in Cited Invention, such a structure is not shown.

D. Judgment

The above different feature will be considered below. In [0027] of the description stated is "in a direction to the conduit 20, smooth oscillation of the ultrasonic oscillator 2 is possible by the flexible and substantially uniform alignment

member 7, to allow uniform propagation of the oscillation to the fluid flowing in the conduit 20 with small variations". In [0030] of the description stated is: "Hence smooth oscillation to the conduit 20 with respect to a flowing direction of the fluid is possible by the oscillation dampers 3, 4 and the flexible and substantially uniform alignment member 7, namely by free oscillation without firmly fixing those members instead of hardening those members by use of an adhesive and generating fixed-end oscillation, to allow control of the oscillation in the flowing direction by means of the oscillation dampers 3, 4 and uniform removal of reverberations of the ultrasonic oscillator 2 without variations, and also in a direction to the conduit 20, smooth oscillation of the oscillator is possible by the oscillation dampers 3, 4 and the flexible and substantially uniform alignment member 7, namely by free oscillation without firmly fixing those members instead of hardening those members by use of an adhesive and generating fixed-end oscillation, to allow uniform propagation of the oscillation to the fluid flowing in the conduit 20 with small variations." As stated above, the technical reason for using the flexible alignment member is "to allow smooth oscillation of the ultrasonic oscillator 2 by free oscillation without firmly fixing those members" and "to allow uniform propagation of the oscillation to the fluid flowing in the conduit 20 with small variations". However, in Cited Invention, the material name "vinyl" is just stated, and any technical ground for using "vinyl" is shown. All the worse, on page 1 of the document attached to the e-mail of Evidence A No. 5, "Currently, vinyl is used Material under consideration" is stated, and this means what type of material is to be used was under consideration. Hence only the material name "vinyl" in Cited Invention does not motivate setting of its hardness (flexibility) to such an extent as "to allow smooth oscillation of the ultrasonic oscillator 2 by free oscillation without firmly fixing those members" and "to allow uniform propagation of the oscillation to the fluid flowing through the conduit 20 with small variations", as in Invention 1 of the case. Thus even a matter of designing is taken into consideration, this feature is not a thing at which a person skilled in the art could have easily arrived.

Next, as already stated in "No. 6""2""F""(B)" (and more theoretically explained in "No. 7""2""(2)""A""(B)"), the technical significance of the material for the alignment member being "a material having a sound propagation speed substantially the same as a sound propagation speed of the substance flowing through the conduit" in Invention 1 of the case is as follows. In the prior art, sound waves propagated through a tube passage reaches an adhesive before reaching an oscillator, and a sound

propagation speed of this adhesive is particularly faster than a propagation speed of a liquid in the tube passage, and hence oscillation of the propagation route through the adhesive is instantly propagated to the ultrasonic oscillator from the point in time when it reaches the adhesive. However, Invention 1 of the case is based on a new technical knowledge that, when sound waves approach the alignment member, the sound waves are propagated at a sound propagation speed of the alignment member, and are thus prevented from being propagated instantly to the ultrasonic oscillator as in the adhesive, to reduce variations in phase difference.

In contrast, in Cited Invention, the material name "vinyl" is just stated, and any technical ground for using "vinyl" is shown. All the worse, on page 1 of the document attached to the e-mail of Evidence A No. 5, "Currently, vinyl is used Material under consideration" is stated, and this means what type of material is to be used was under consideration. Hence there is no motivation to find a cause of having an influence on such variations in phase difference in Cited Invention and using a material of "vinyl" having a sound propagation speed substantially the same as the sound propagation speed of "water" in the Teflon tube. Thus even a matter of designing is taken into consideration, this feature is not a thing at which a person skilled in the art could have easily arrived.

Then, in Invention 1 of the case, it is found that as a comprehensive effect of an alignment member being "a flexible uniform" member and being a member "formed of a material having a sound propagation speed that is substantially the same as a sound propagation speed of the substance flowing through the conduit", a particular working-effect of "since variations in phase difference are small, a zero drift is reduced" ([0032] of the description) is exerted.

E. Summary regarding Invention 1 of the case

As above, Invention 1 of the case is not recognized as an invention which can be easily made by a person skilled in the art based on the invention stated in Evidence A No. 5.

F. Regarding Inventions 2 to 9 of the case

Inventions 2 to 9 of the case are inventions made by adding predetermined technical limitations to Invention 1 of the case. Hence it cannot be recognized for a similar reason to the above that Inventions 2 to 9 of the case could be easily made by a person skilled in the art.

G. Summary regarding inventive step

As above, even if the invention stated in Evidence A No. 5 is a publicly known invention, it cannot be said that Invention 1 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5 even with a matter of designing taken into consideration. It cannot be said that Invention 2 of the case is an invention which could be easily made by a person skilled in the art based on the inventions disclosed in Evidences A No. 5 and A No. 8 even with a matter of designing taken into consideration. It cannot be said that Invention 3 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5 and the well-known arts (Evidences A No. 9-1 to A No. 9-3) even with a matter of designing taken into consideration. It cannot be said that Invention 4 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5 and the well-known arts (Evidences A No. 10-1 to A No. 10-3) even with a matter of designing taken into consideration. It cannot be said that Invention 5 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5 and the well-known arts (Evidences A No. 11-1 to A No. 11-3) even with a matter of designing taken into consideration. It cannot be said that Invention 6 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5, and the well-known arts (Evidences A 11-1 to A. 11-3) even with a matter of designing taken into consideration. It cannot be said that Invention 7 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5, a generally known art (Evidence A No. 12) and the well-known arts even with a matter of designing taken into consideration. It cannot be said that Invention 8 of the case is an invention which could be easily made by a person skilled in the art based on the invention disclosed in Evidence A No. 5 even with a matter of designing taken into consideration. It cannot be said that Invention 9 of the case is an invention which could be easily made by a person skilled in the art based on the inventions disclosed in Evidence A No. 5, A No. 13-1 and A No. 13-2, and the well-known arts (Evidence A No. 13-3 to A No. 13-5) even with a matter of designing taken into consideration.

Therefore, even if the invention stated in Evidence A No. 5 is a publicly known invention, the patent for the inventions according to Claims 1 to 9 of the case are not inventions granted in violation of the provisions of Article 29(2) of the Patent Act.

5 Summary of Reasons for invalidation 3 (Article 29(2))

As above, it cannot be said that the patent for the inventions according to Claims 1 to 9 of the case were granted in violation of the provisions of Article 29(2) of the Patent Act, and hence it does not fall under the provisions of Article 123(1)(ii) of the Patent Act.

Therefore, there is no reason in Reasons for invalidation 3.

No. 9 Conclusion

As considered above, the patent for the inventions according to Claims 1 to 9 of the case cannot be invalidated by the reasons alleged by the demandant and the means of proof submitted by the demandant.

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

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

April 20, 2015

Chief administrative judge: SHIMIZU, Minoru
Administrative judge: TAKEDA, Tomokuni
Administrative judge: HIGUCHI, Nobuhiro