Trial decision

Invalidation No. 2015-800027

Aichi, Japan
Demandant MAKITA CORPORATION

Tokyo, Japan
Patent Attorney KOBAYASHI, Takeshi

Tokyo, Japan
Demandee HITACHI KOKI CO. LTD.

Tokyo, Japan
Patent Attorney MURAI, Takashi

Tokyo, Japan
Patent Attorney MURAI, Hiromi

The case of the patent invalidation trial between the above parties on Japanese Patent No. 5633940, entitled "Portable Electric Cutter", has resulted in the following trial decision:

Conclusion

The patent for the inventions according to Claims 1, 2, and 9 of Patent No. 5633940 shall be invalidated.

The appeal of the case in relation to the inventions according to Claims 3 to 8 and 10 of Patent No. 5633940 was groundless.

Seven-tenths of the costs in connection with the trial shall be borne by the demandant and three-tenths by the demandee.

Reason

No. 1 History of the procedures

The history of the procedures of Japanese Patent No. 5633940 (hereinafter referred to as "the Patent") can be outlined as follows.

March 15, 2012:	Filing of the patent application for the Patent (Japanese Patent Application No. 2012-59182)
October 24, 2014:	Registration of establishment of the Patent (Japanese Patent No. 5633940)
February 13, 2015:	Filing of the written request for invalidation trial (hereinafter referred to as the "written request") (Invalidation No. 2015-800027)
April 30, 2015:	Submission of the written reply of the trial case (hereinafter referred to as the "written reply")
May 29, 2015:	Notification of matters to be examined
June 25, 2015:	Submission of an oral proceedings statement brief (by the demandant) (hereinafter referred to as "the demandant's statement brief")
June 26, 2015:	Submission of an oral proceedings statement brief (by the demandee) (hereinafter referred to as "the demandee's statement brief")
July 10, 2015:	Oral proceeding
July 16, 2015:	Submission of a written statement (by the demandee) (hereinafter referred to as "the demandee's written statement")
August 10, 2015:	Submission of a written statement (by the demandant) (hereinafter referred to as "the demandant's written statement")
September 25, 2015:	Advance notice of a trial decision
December 1, 2015:	Submission of a (second) written statement (by the demandant) (hereinafter referred to as "the demandant's written statement (2)")

No. 2 The patent invention

The inventions according to claims 1 to 10 of the scope of claims of the Patent of the case are identified as follows in view of the descriptions of the Description (hereinafter referred to as the "Description"), the scope of claims, and the drawings (hereinafter referred to as "the drawings") attached to the application for the Patent as specified by the matters described in claims 1 to 10 of the scope of claims. The constituent components thereof will be separately described as follows (the inventions according to the individual claims of the scope of claims of the Patent may be

hereinafter referred to as the "patent invention 1" or in a similar manner. Also, with regard to the punctuation marks, this trial decision uses Japanese "kuten" commas in place of commas in English or other languages.).

"[Claim 1]
A. A portable electric cutter having a motor, the portable electric cutter comprising:
A-1: a housing in which the motor is accommodated;
A-2: a saw blade driven to rotate by the motor;
A-3: a base coupled to the housing, having a bottom surface slidable on a material to be cut, and having an opening through which the saw blade can protrude downward from the bottom surface;
A-4: a fan driven to rotate by the motor and cooling the motor by fan air generated by the rotation;
B-1: a driving circuit including switching elements for switching power supplied to the motor;
B-2: a control circuit for controlling the driving circuit; and
B-3: a circuit board on which one or both of the driving circuit and the control circuit is mounted,
C-1: characterized in that motor cooling air vents are provided in the housing on a side opposite the saw blade, and circuit board cooling air vents are provided in the housing on the side opposite to the saw blade,
C-2: at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction,
C-3: at least a part of the circuit board is disposed in a flow path of the fan air,
D-1: the motor is a brushless motor,
D-2: the portable electric cutter further comprises a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor, and
D-3: the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for controlling the drive of the motor to the driving circuit.
[Claim 2]
The portable electric cutter according to claim 1, wherein
E-1: the fan is accommodated in a motor casing in the housing along with the motor,

E-2: an inside of the housing in which the circuit board is accommodated is in communication with the motor casing, and

E-3: the circuit board is disposed between the circuit board cooling air vents provided in the housing and the motor casing.

[Claim 3]

The portable electric cutter according to claim 1 or 2, wherein

F: the circuit board has a first board and a second board, the driving circuit is mounted on the first board, the control circuit is mounted on the second board, the first board is disposed at a position inside the housing located between a handle of the housing and the base, and the second board is disposed at a position away from the first board.

[Claim 4]

The portable electric cutter according to claim 1 or 2, wherein

G: the circuit board has a first board and a second board, the driving circuit is mounted on the first board, the control circuit is mounted on the second board, the second board is disposed at a position inside the housing located between a handle of the housing and the base, and the first board is disposed at a position on a lateral side of the motor inside the housing and in a flow path of the fan air.

[Claim 5]

The portable electric cutter according to claim 3 or 4, wherein

H: a rectifier and a smoothing capacitor for converting AC power supply input into DC power for driving a brushless motor are further mounted on the first board.

[Claim 6]

The portable electric cutter according to claim 1 or 2, wherein

I: the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor.

[Claim 7]

The portable electric cutter according to claim 6, wherein

J: the circuit board is disposed so as to be generally orthogonal to the upper surface of the base in a state where the motor resides near the base.

[Claim 8]

The portable electric cutter according to claim 7, wherein

K: a lever is provided between the handle and the saw cover, the lever being adapted to adjust an amount of protrusion of the saw blade from the bottom surface of the base.

[Claim 9]

The portable electric cutter according to claim 2, wherein

L-1: the rotation state detection unit is accommodated in the motor casing,

L-2: a sensor magnet is rotated by the motor, a sensor board is disposed so as to be near and opposed to the sensor magnet, and rotation position detection elements are disposed on the sensor board.

[Claim 10]

The portable electric cutter according to any one of claims 6 to 8, wherein

M-1: the rotation state detection unit has a sensor board accommodated in the motor casing in the housing, and

M-2: the sensor board and the circuit board are electrically connected to each other."

No. 3. Reasons for invalidation, reply to the reasons for invalidation, and means of proof

1. Reasons for invalidation alleged by the demandant

The demandant seeks, as stated in the written request for trial of the case, the trial decision to the effect that the patent for the inventions according to claims 1 to 10 of the case should be invalidated. The outline of the reasons for invalidation is as follows.

(1) Reasons for invalidation 1 (support requirement, clarity requirement, and enablement requirement)

A. Reason for invalidation 1-1 (clarity requirement)

The patent for the patent inventions 1 to 10 has been granted for a patent application that does not comply with the requirement under Article 36(6)(ii) of the Patent Act and should therefore be invalidated as falling under Article 123(1)(iv) of the same Act.

B. Reason for invalidation 1-2 (support requirement and clarity requirement)

The patent for the patent inventions 6 to 8 and 10 has been granted for a patent application that does not comply with the requirement under Article 36(6)(i) and (ii) of the Patent Act, and should therefore be invalidated as falling under Article 123(1)(iv) of the same Act.

C. Reason for invalidation 1-3 (enablement requirement)

The patent for the patent invention 8 has been granted for a patent application that does not comply with the requirement under Article 36(4)(i) of the Patent Act,

and should therefore be invalidated as falling under Article 123(1)(iv) of the same Act.

(2) Reason for invalidation 2 (prior art effect)

The patent for the patent inventions 1, 2, and 9 has been granted in violation of the provision of Article 29-2 of the Patent Act, and should therefore be invalidated as falling under Article 123(1)(ii) of the same Act.

(3) Reason for invalidation 3 (inventive step)

The patent for the patent inventions 1 to 10 has been granted in violation of the provision of Article 29(2) of the Patent Act, and should therefore be invalidated as falling under Article 123(1)(ii) of the same Act.

2. Demandee's reply relating to the reasons for invalidation

The demandee seeks, as stated in the written reply, a trial decision to the effect that the appeal of this case is groundless.

3. Means of proof

(1) Means of proof submitted by the demandant

The demandant submitted the following Evidence A Nos. 1 to 12 accompanying the written request and the following Evidence A Nos. 13 and 14 accompanying the demandant's statement brief.

Evidence A No. 1:	Japanese Patent No. 5633940
Evidence A No. 2:	Japanese Unexamined Patent Application Publication No. 2013-193133
Evidence A No. 3:	The written amendment dated October 30, 2013 regarding the application for the Patent
Evidence A No. 4:	The written amendment dated April 3, 2014 regarding the application for the Patent
Evidence A No. 5:	The written opinion dated April 3, 2014 regarding the application for the Patent
Evidence A No. 6:	The written opinion dated July 30, 2014 regarding the application for the Patent
Evidence A No. 7:	Japanese Unexamined Patent Application Publication No. 2012-178945
Evidence A No. 8:	Japanese Unexamined Patent Application Publication No.

2012-735

Evidence A No. 9: Japanese Unexamined Patent Application Publication No. H11-129169

Evidence A No. 10: Japanese Patent No. 4113538

Evidence A No. 11: Japanese Unexamined Patent Application Publication No. 2003-209960

Evidence A No. 12: "Motor Pocket Book for Practical Use: Home Appliance Motor and Inverter Technology," ed. Kazuo Nagatake (April 28, 2000; first edition, first printing by Nikkan Kogyo Shimbun, Ltd.)

Evidence A No. 13: Japanese Unexamined Patent Application Publication No. 2010-201516

Evidence A No. 14: Japanese Unexamined Patent Application Publication No. 2010-58182

(2) Means of proof submitted by the demandee

The demandee submitted as means of proof the following Evidence B Nos. 1 to 4 accompanying the demandee's statement brief.

Evidence B No. 1: Microfilm of Japanese Utility Model Application No. H01-126168 (Japanese Unexamined Utility Model Application Publication No. H03-64703)

Evidence B No. 2: Japanese Unexamined Patent Application Publication No. 2001-30201

Evidence B No. 3: Japanese Unexamined Patent Application Publication No. 2012-56192

Evidence B No. 4: Japanese Patent No. 5148297

No. 4 Arguments of the parties

With regard to the above reasons for invalidation 1 to 3, the demandant and the demandee argue as follows, respectively.

It should be noted that when the locations of the descriptions are identified by their line numbers, blank lines are not included in the number of lines. Also, the individual items of Evidence A and Evidence B are indicated as "Evidence A No.1," etc.

1. Reasons for invalidation 1 (support requirement, clarity requirement, and

enablement requirement)

(1) Reason for invalidation 1-1 (clarity requirement)

[Demandant]

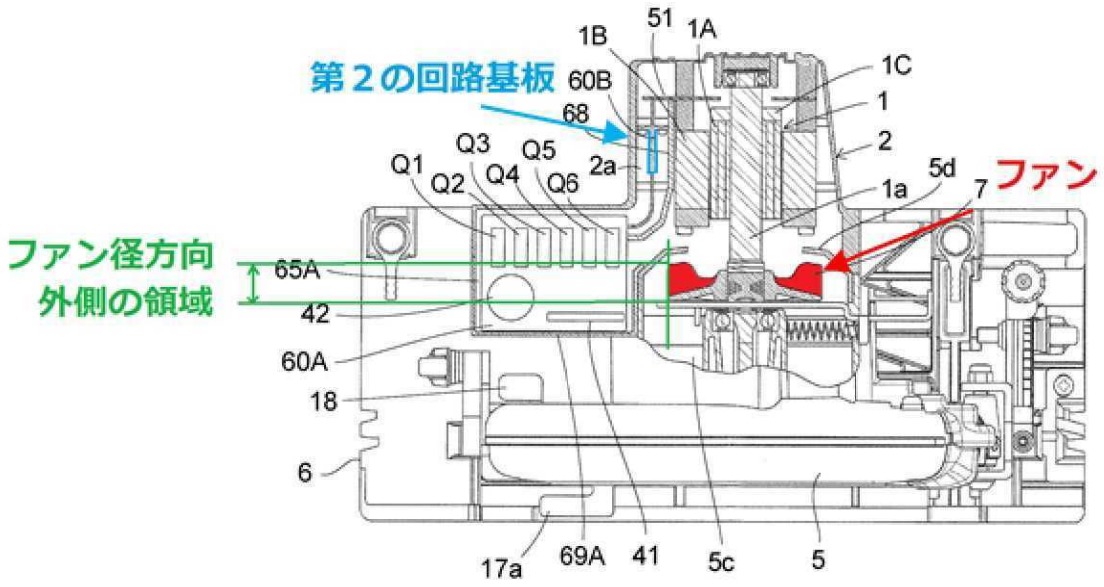
A. The constituent component C-2 of the patent invention 1 reads "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction." With regard to this constituent component, Paragraph [0027] of the Description contains the following descriptions:

"The circuit board casing 65 is located at a height position between the handle 3 and the base 6 and is formed inside a protruding portion 69 (protruding toward the saw cover 5 side) provided in a part of the housing 2 located on a radially outer side of the fan 7."

"The reason why the circuit board casing 65 is located on a radially outer side of the fan 7 is that the cooling air reaching the inside of the fan guide 5d from the circuit board cooling air vents 66 and 67 is generated by efficiently utilizing the negative pressure inside the fan guide 5d caused by the rotation of the fan 7."

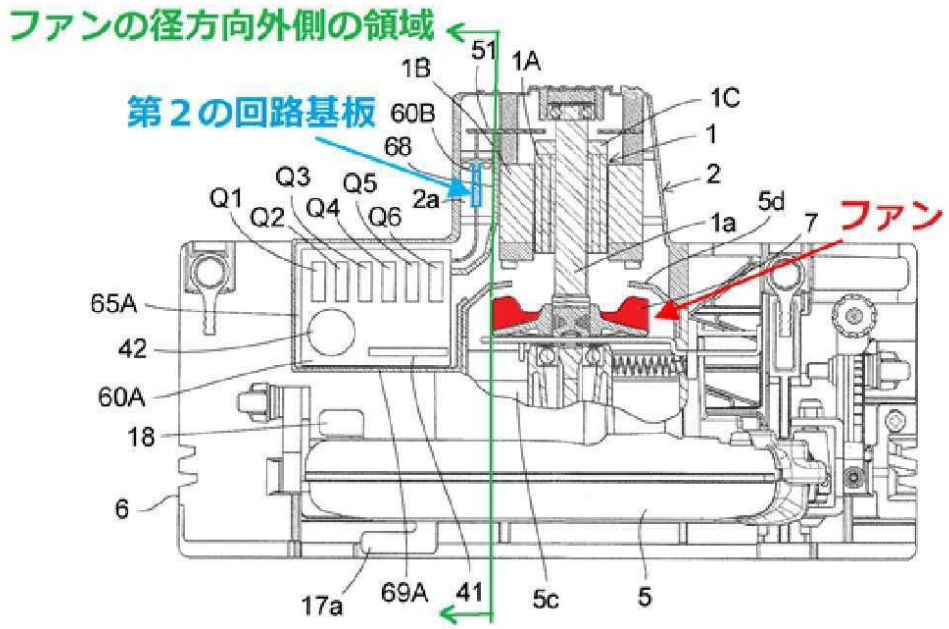
When the "radially outer side of the fan" recited in the constituent component C-2 is construed in its narrow sense, the term at issue can be construed as defining, as illustrated in the following explanation drawing 1(a), not only the range in the radial direction with reference to the rotation axis of the fan but also the range in the axial direction with reference thereto. When the same term is construed in its broader sense, it can be construed as solely defining the range in the radial direction as illustrated in the following explanation drawing 1(b). (See the written request, Page 9, Line 2 to the last line of Page 10.)

<Explanation drawing 1(a)>



第２の回路基板 Second circuit board
ファン径方向外側の領域 Region of the radially outer side of the fan
ファン Fan

<Explanation drawing 1(b)>



ファン径方向外側の領域 Region of the radially outer side of the fan

第２の回路基板 Second circuit board
ファン Fan

B. When the region delimited by the "radially outer side of the fan" is construed as defining, as in the explanation drawing 1(a), the range in the axial direction of the rotation axis of the fan as well, then it follows that part of the housing 69 of the radially outer side of the fan resides between the circuit board and the fan within this region, so that the circuit board within this region is isolated from the location at which the negative pressure is created by the fan, which leads to degradation of the cooling effect. Since the arrangement of the circuit board that is disposed in the path of the fan air is specified by the feature "at least a part of the circuit board is disposed in a flow path of the fan air" recited in the constituent components C-3, it follows that the feature of the constituent component C-2 has no technical significance.

In terms of the cooling effect, it is necessary to arrange the circuit board between the air vents 66, 67 provided in the housing and the opening at the upper portion of the fan guide 5d so as to allow the fan air to pass therethrough. Availability of the cooling effect is not determined by simply defining the positional relationship between the fan and the circuit board. (See the written request, Page 11, Lines 1 to 18.)

C. When the region delimited by the "radially outer side of the fan" is construed as solely defining the range in the radial direction with reference to the rotation axis of the fan as in the explanation drawing 1(b), such claim construction contradicts the arguments presented in the written opinion dated April 3, 2014 (Evidence A No. 5) which was submitted in the procedure of the examination of the patent application for the Patent.

Specifically, the demandee argued in Evidence A No. 5, Page 3, Lines 33 to 37 that FIGS. 3 and 5 of Japanese Unexamined Patent Application Publication No. 2012-178945 (Evidence A No. 7), which was cited in the notice of reasons for refusal, fail to disclose the constituent component C-2. However, when the region of the "radially outer side of the fan" is construed in accordance with the explanation drawing 1(b), then FIG. 5 of Evidence A No. 7 does disclose the constituent component C-2. (See the written request, Page 11, Line 19 to Page 13, Line 11.)

D. In view of the descriptions of Paragraph [0027] of the Description, it is

appreciated that the technical significance of the constituent component C-2 lies in the fact that the cooling air is generated by virtue of the negative pressure inside of the fan guide 5d in the direction orthogonal to the rotation axis of the fan from the radially outer side to the radially inner side, and that the circuit board is placed at a location where the cooling air thus created passes.

However, in view of FIG. 6 amongst the drawings, it is necessary to define the positional relationship between (a) the portion that brings the inside of the fan guide 5d and the circuit board casing 65 into communication with each other and (b) the circuit board, in order to generate the air for cooling the circuit board 60. Nevertheless, it is of no significance to define the positional relationship between (a) the axial position of the rotation axis of the fan and (b) the circuit board. Moreover, there is no relevance between (a) the circuit board residing in the region of the explanation drawing 1(a) and (b) air for cooling the circuit board being generated. Hence, the delimitation of the constituent component C-2 is not a recitation that accurately reflects the technical significance of the detailed description of the invention. (See the written request, Page 13, Line 12 to Page 15, Line 1.)

E. As discussed in the above subsections B to D, the "radially outer side of the fan" recited in the constituent component C-2 is construed as delimiting a certain range that is different than the region of the explanation drawing 1(a) and (b), but it is indefinite which range corresponds to the range at issue.

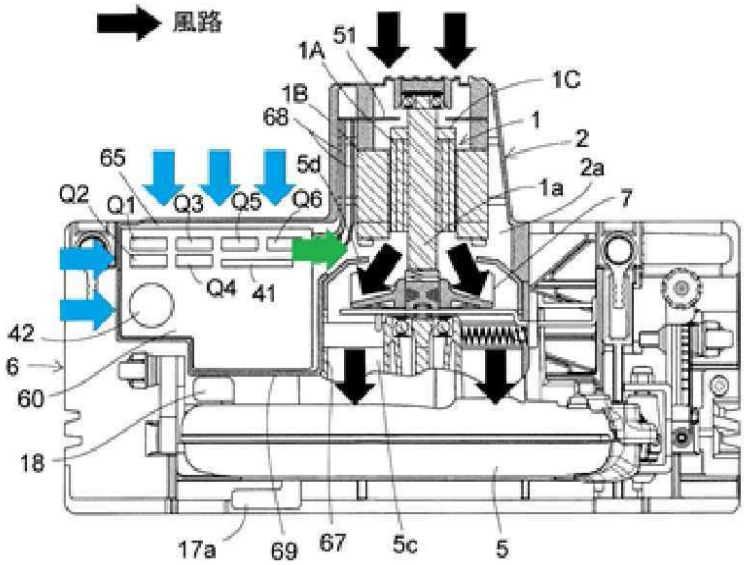
Accordingly, the patent invention 1 and the patent inventions 2 to 10 which directly or indirectly depend therefrom are not those that clearly set forth the inventions for which a patent is sought, and thus fail to comply with the requirement provided in Article 36(6)(ii) of the Patent Act. (See the written request, Page 15, Lines 2 to 7.)

F. It is understood that the technical significance of the constituent component C-2 can be found in Paragraph [0027] of the Description. The descriptions of the paragraph at issue are not construed as arranging the circuit board casing 65 on the radially outer side of the fan 7 so as to generate the negative pressure in the fan guide, but arranging the circuit board casing 65 at the location where the cooling air flows to reach the inside of the fan guide via the circuit board cooling vents 66, 67 by virtue of the negative pressure generated in the fan guide 65.

As indicated by the arrow to the right of the sign "Q6" of the explanation drawing 2 (hereinafter referred to as "arrow at the upper end of the fan guide"), since

air is suctioned via the upper end portion of the fan guide into the fan guide, the "radially outer side of the arrow at the upper end of the fan guide" is the section where the cooling air flows, and the switching elements Q1 to Q6 and the rectifier 41 of the rectifying and smoothing circuit 40 are arranged at the "radially outer side of the arrow at the upper end of the fan guide" and thus cooled.

<Explanation drawing 2>



風路 Air flow path

Meanwhile, arranging the circuit board in the region of the explanation drawing 1(a) has no relevance to cooling of the circuit board by the cooling air. In addition, the Description is silent about the technical significance associated with arranging the circuit board in the region of the explanation drawing 1(a).

In view of the above, if the descriptions of Paragraph [0027] of the Description contemplate arranging the circuit board casing 65 at a location where the cooling air flows that reaches the inside of the fan guide via the circuit board cooling vents 66, 67 by virtue of the negative pressure created in the fan guide 65, then it is construed that the "radially outer side of the fan 7" of the constituent component C-2 is not the region of the explanation drawing 1(a) but the "range with a certain length, in the axial direction, and above the fan guide" indicated by the arrow at the upper end of the fan guide of the explanation drawing 2. (See the demandant's statement brief, the last line of Page 2 to the second line from the bottom of Page 5.)

G. The demandee argues that the "radially outer side of the fan 7" of the constituent component C-2 is the region of the explanation drawing 1(a) but presents no arguments regarding its technical significance.

As pointed out in the above subsection F, no effects associated with cooling of the circuit board are obtained by arranging the circuit board casing 65 in the region of the explanation drawing 1(a). In addition, it is described in Paragraph [0043] of the Description describes that the "circuit board casing 65B is formed inside a part of the housing 2 located on a radially outer side of the fan 7 when the direction orthogonal to the rotation axis of the fan 7 is defined as the radial direction. Since the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted on another board, the second circuit board 60D on which the control circuit 30 is mounted can be reduced in size, and the protruding portion (protruding toward the saw cover 5 side) provided for mounting the second circuit board 60D in a part of the housing 2 can be eliminated. Accordingly, the third embodiment is advantageous in operability." When this statement is taken into account, it is contemplated that it is more advantageous not to arrange the circuit board in the region of the explanation drawing 1(a). (See the demandant's statement brief, the last line of Page 5 to Page 6, Line 14.)

H. As discussed in the above subsections F and G, if there is any technical significance in the constituent component C-2 of the patent invention 1, the "radially outer side of the fan" cannot be construed as being the region of the explanation drawing 1(a). Alternatively, if it is the region of the explanation drawing 1(a) as alleged by the demandee, then it must be said that the constituent component C-2 has no technical significance. It appears that the technical significance is obtained by the negative pressure created inside of the fan guide 5a. If it is so, then the fan guide 5a should be identified as the feature of the invention. (See the demandant's statement brief, Page 6, Line 15 to Page 7, Line 2.)

I. Since the (language of the) patent invention 1 does not mention the range of the direction of the rotation axis of the fan, the range in the axial direction is not delimited. Also, when the "radially outer side of the fan" is construed in its literal sense, it is not unequivocally and imitatively construed as indicating the region of the explanation drawing 1(a). (See the demandant's statement brief, Page 7, Lines 5 to 16.)

J. In the advance notice of the trial decision, the "radially outer side of the fan" is

assessed independently of the descriptions of the Description without mentioning the technical significance of the "radially outer side of the fan." However, such an assessment approach is improper. (See the demandant's written statement (2), Page 19, Lines 9 to 11 from the bottom.)

[Demandee]

A. When the constituent component C-2 of the patent invention 1 is construed in its literal sense, it is clear that the "radially outer side of the fan" refers to the region of the explanation drawing 1(a). Also, when the "radially outer side of the fan" in the constituent component C-2 is construed as referring to the region of the explanation drawing 1(a), this claim construction is fully in line with the arguments presented in the written opinion (Evidence A No. 5) submitted on April 3, 2014 in the prosecution of the application for the Patent.

Accordingly, the argument by the demandant as stated in the above E. is unreasonable and the patent inventions 1 to 10 in no way violate the provision of Article 36(6)(ii) of the Patent Act.

Further, the requirement which reads "the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction" is recited in claim 2 of the scope of claims at the time of filing of the application for the Patent, and the Patent was granted after overcoming two notices of reasons for refusal. In the examination procedures, at least the examiner did not find that the requirement at issue that had been described in the scope of claims from the time of filing of the application failed to clearly point out the invention for which a patent is sought. In view of this, it is clear that the patent inventions 1 to 10 in no way violate the provision of Article 36(6)(ii) of the Patent Act.

(See the written reply, Page 8, Line 12 from the bottom to Page 9, Line 10 from the bottom.)

B. The fact that the "radially outer side of the fan" in the constituent component C-2 of the patent invention 1 refers to the region of the explanation drawing 1(a) is also clear from the following reason.

When the region of the explanation drawing 1(b) is verbally expressed, it will be expressed as "an outer side with respect to the outer diameter of the fan" or "outer side with respect to the outer edge of the fan," and the region at issue will be expressed without using the phrase of "radially outer side of the fan" which appears in

the constituent component C-2. If it is attempted to identify a portion located at the outermost side in the radial direction of the fan and express, as the region at issue, the outer region with respect to this identified portion, then the region at issue will be expressed as "an outer side with respect to the portion of the radially outer side of the fan." In other words, it is clear that the constituent component C-2 does not denote the region illustrated in FIG. 1(b) of the written request.

The constituent component C-2 of the patent invention 1 uses the term "radially outer side of the fan" to represent the region of "the outer side with respect to the region occupied by the fan in the direction orthogonal to the rotation axis of the fan." The constituent component C-2 represents that at least a part of the circuit board is arranged in that region.

Accordingly, it is clear that the constituent component C-2, when construed in its literal sense, refers to the region of the explanation drawing 1(a). (See the demandee's statement brief, Page 2, Lines 4 to 21.)

(2) Reason for invalidation 1-2 (support requirement and clarity requirement)
[Demandant]
A. The recitation "the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor" in the constituent component I of the patent invention 6 is not literally described in the detailed description of the invention and accordingly its technical significance is not described, either. (See the written request, Page 15, Lines 8 to 14.)

B. A circuit board has a plate-like shape. A plate has a front face portion, lateral side portions, edge face portions, and respective edge lines. The feature of "the circuit board extending in parallel to the rotation axis of the motor" fails to define which one of these portions of the circuit board is in parallel with the rotation axis. It cannot be said that the invention is clearly described.

Accordingly, the patent invention 6 and the patent inventions 7, 8, and 10 which directly or indirectly depend therefrom are not those that clearly describe the inventions for which a patent is sought and therefore fail to comply with the provision of Article 36(6)(ii) of the Patent Act. (See the written request, Page 15, Lines 15 to 22.)

C. The term "extend" may be construed as meaning the longitudinal direction. Meanwhile, even when the "circuit board" is construed in a limitative manner as "the

longitudinal direction of the circuit board," an invention whose "longitudinal direction of the circuit board is disposed at a position on a lateral side of the motor and in parallel with the rotation axis of the motor" is described in neither the Description nor the drawings.

As the patent invention 1 from which the patent invention 6 depends does not specify the number of the circuit boards, the patent invention 6 covers an invention that includes one single circuit board as well, and thus covers the first embodiment. Meanwhile, the first embodiment does not describe an invention whose circuit board is disposed at a position on a lateral side of the motor.

The invention whose circuit board is disposed at a position on a lateral side of the motor corresponds to "the invention having a plurality of the circuit boards" described in the context of the second and third embodiments. This invention includes the circuit boards 60A and 60D arranged on the "radially outer side of the fan" which satisfies the constituent component C-2 of the patent invention 1, and further includes, as another circuit board different from these two circuit boards, the circuit board 60A on which the control circuit 30 is mounted or the circuit board 60C on which the driving circuit 20 is mounted.

The detailed description of the invention does not disclose an invention having the circuit board 60 arranged on the "radially outer side of the fan" which satisfies the constituent component C-2 of the patent invention 1, and extended to the lateral side of the motor.

Accordingly, the patent invention 6 and the patent inventions 7, 8, and 10 which directly or indirectly depend therefrom are not those that are described in the detailed description of the invention and fail to comply with the provision of Article 36(6)(i) of the Patent Act. (See the written request, Page 15, Line 4 from the bottom to Page 16, Line 12 from the bottom.)

D. The scope of claims (Evidence A No. 2) originally attached to the application for the Patent describes in claim 6 the invention whose circuit board is arranged on the lateral side of the motor, which reads "the driving circuit is mounted on the first board, the control circuit is mounted on the second board, ... and the first board is disposed at a position on a lateral side of the motor inside the housing and in a flow path of the fan air. ..." Meanwhile, new independent claim 8 was added by the written amendment dated October 30, 2013 (Evidence A No. 3), which reads ".... a circuit board on which one or both of the driving circuit and the control circuit is mounted is disposed at a position on a lateral side of the motor so as to extend in parallel to the

rotation axis of the motor...."

Here, the Description, the scope of claims, or the drawings (hereinafter referred to as the "original Description, etc.") originally attached to the application for the Patent only describes the one that includes the driving circuit incorporated in the circuit board which is arranged on the lateral side of the motor (the third embodiment) and another one that includes the control circuit incorporated in the circuit board which is arranged on the lateral side of the motor (the second embodiment), so that the amendment that introduces claim 8 which covers the one whose circuit board incorporates both the driving circuit and the control circuit arranged on the lateral side of the motor automatically constitutes violation of prohibition of introduction of new matter.

Subsequently, the written amendment dated April 3, 2014 (Evidence A No. 4) amended claim 7 on the basis of this claim 8, which reads ".... a circuit board on which one or both of the driving circuit and the control circuit is mounted is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor, ...".

And thus a part of claim 7 was reformulated as claim 6, which now appears in the scope of claims of the Patent.

As discussed in the foregoing, it is clear that the amendment to introduce claim 8 by the written amendment dated October 30, 2013 was not made within the range of the matters described in the original Description, etc. It is also clear that the descriptions of the Description are substantially identical to those of the original Description. Hence, claim 6 which is based on the recitation of claim 8 at issue is neither one that is within the range of matters described in the original Description, etc. nor one that is described in the detailed description of the invention. (See the written request, Page 16, Line 11 from the bottom to Page 18, Line 5 from the bottom.)

E. If the patent invention 6 was intended to add further delimitation associated with the circuit board 60 of the first embodiment, then it follows that a part of this circuit board resides in the region of the explanation drawing 1(a) and other portions thereof are disposed on the lateral side of the motor. Further, in the patent invention 7 which depends from the patent invention 6, the circuit board is disposed so as to be generally orthogonal to the upper surface of the base in a state where the motor resides near the base. (In the first embodiment, the circuit board 60 is disposed in parallel with the upper surface of the base in the state where the motor resides near

the base). It cannot be said that the invention having such a configuration is described in the Description.

It is noted that the demandant of the trial understands that the circuit board having the configuration of the patent invention 6 only encompasses the "second circuit board 60B" of the second embodiment of the Description and the "first circuit board 60C" of the third embodiment of the Description though the patent invention 6 is not limited to them. It is submitted that this fact caused the reason for invalidation 1-2. (See the demandant's statement brief, Page 8, Line 4 to Page 9, Line 17.)

F. The demandee argues that "the lateral side of the motor" covers the output shaft of the motor and the location of the fan (see [Demandee] D. below). Nevertheless, the constituent component C-2 of the patent invention 1 from which the patent invention 6 depends indicates the region of the explanation drawing 1(a), and this region corresponds to the "the lateral side of the motor" alleged by the demandee, so that the feature "on the lateral side of the motor" of the patent invention 6 cannot serve as a limitation. (See Annex 1 of the record of first oral proceeding, Page 1, Lines 9 to 12.)

G. In the written opinion dated April 3, 2014 (Evidence A No.5) regarding the application for the Patent, the demandee argues that the inventions according to claims 7 and 8 of the written amendment submitted on the same date are different from the invention described in Evidence A No. 7. However, it is clear that the circuit board of Evidence A No. 7 resides on the "the lateral side of the motor" alleged by the demandee as mentioned in the section [Demandee] D. below, so that in the prosecution of the application for the Patent, the demandee did not present any arguments as stated in the section [Demandee] D. below. (See Annex of the record of first oral proceeding, Page 1, Line 13 to the last line.)

H. The demandee argues that concentration of the entire circuitry at the location of the circuit board 60C of the third embodiment is included in the idea of the invention described in the detailed description of the invention (see [Demandee] E. below). However, this argument contradicts the descriptions of the Description and the other arguments by the demandee.

The patent invention 1 from which the patent invention 6 depends includes the constituent component C-2 and the demandee argues that the constituent component C-2 at issue represents the region of the explanation drawing 1(a) (see (1) [Demandee] A. above). Meanwhile, when all the circuitry is concentrated at the

location of the circuit board 60C of the third embodiment, the circuit board of the region of the explanation drawing 1(a) will disappear, causing failure to satisfy the constituent component C-2 of the patent invention 1 from which the patent invention 6 depends.

Also, the circuit board 60C of the third embodiment only incorporates the driving circuit and is arranged at a region surrounding the stator of the motor. In contrast, all the circuitry is concentrated on the circuit board 60 of the first embodiment, which is arranged in the region of the explanation drawing 1(a). Accordingly, the size of the circuit board and the surrounding situation are completely different, and the function and effect obtained by the modification to the arrangement of the circuit board should also be different. The Description does not describe the effect obtained as a result of arranging the circuit board 60C in accordance with the patent invention 6, so that it is impossible to recognize the effect of providing the circuit board 60 of the first embodiment at the location of the circuit board 60C of the third embodiment. It therefore cannot be said that such an invention is described therein. (See Annex of the record of first oral proceeding, Line 5 to the last line.)

I. Paragraph [0016] of the Description describes the effects of the invention, according to which the circuit board is arranged "inside the housing 2 located between the handle and the base" (hereinafter simply referred to as the "housing's inside" in the subsections I. to L.) and thereby ".... it is possible to secure the space to accommodate the circuit board without impairing the operability and greatly changing the shape of the housing in which the motor is accommodated...." As such, in light of the configuration and effects of the invention and the technical idea that can be derived therefrom, the presence of the circuit board that is arranged in the "housing's inside" and its effect are the essential requirements of the invention. It cannot be understood that the Description describes the technical idea that "both circuits may be arranged on one single circuit board" "in the space between an inner wall of the motor casing 2a and the stator 1B of the motor 1" without arranging a circuit board in the "housing's inside." (See the demandant's written statement (2), Page 4, Line 1 to Page 9, Line 5 from the bottom.)

J. The circuit board as contemplated in the patent invention 1 from which the patent invention 6 depends corresponds to the circuit board arranged in the "housing's inside." In the second and third embodiments, however, even when the circuit board arranged on the lateral side of the motor is enlarged, it does not mean that the circuit

board is arranged in the "housing's inside." (See the demandant's written statement (2) Page 9, Line 3 from the bottom to Page 11, Line 5 from the bottom.)

K. In the second and third embodiments, if the board arranged on the lateral side of the motor is enlarged, it will be brought into contact with the upper cover portion of the fan guide 5d and it will cause decrease in the cooling effect. Hence, it cannot be recognized that such an invention is described therein. (See the demandant's written statement (2), Page 11, Line 4 from the bottom to Page 14, Line 4.)

L. The patent invention 6 is a new matter that was added by the written amendment dated July 30, 2014 and therefore does not comply with the support requirement. (See the demandant's written statement (2), Page 14, Line 6 to Page 19, Line 7.)

[Demandee]

A. The constituent component I of the patent invention 6 does not mean that the "circuit board extends in parallel to the rotation axis of the motor" but that "the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor." It is a requirement that specifies how to arrange the circuit board. It is accordingly clear that it is directed to the "surface (the surface on which elements and the like are mounted)" which is the principal portion of the circuit board, and it is also clear that it means that "the circuit board is arranged on the lateral side of the motor such that the surface of the circuit board has a portion extending in parallel with the rotation axis of the motor."

Accordingly, the patent inventions 6 to 8 and 10 comply with the provision of Article 36(6)(ii) of the Patent Act. (See the written reply Page 9, Lines 9 from the bottom to Page 10, Line 12.)

B. As stated above, the constituent component I mean that "the circuit board is arranged on the lateral side of the motor such that the surface of the circuit board has a portion extending in parallel with the rotation axis of the motor." For example, it is clear that the circuit board 60 of FIG. 1 corresponds to the circuit board of the patent invention 6 as well. Also, in view of the feature "rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor" of the constituent components D-2, it is clear that "the lateral side of the motor" of the patent invention 6 refers to "the lateral side of the motor which includes the rotor that rotates relative to the stator." Accordingly, it is clear that the circuit board 60 satisfies

the constituent component C-2, and that the constituent component I is described in the detailed description of the invention.

In addition, it is a matter that is as a matter of course encompassed by the technical idea of the claimed invention at the time of filing of the application to apply the arrangement like that of the circuit board 60C as illustrated in FIGS. 12, 15, and 16 to the arrangement of the circuit board 60 of the first embodiment.

Accordingly, the patent inventions 6 to 8 and 10 comply with the provision of Article 36(6)(i) of the Patent Act. (See the written reply, Page 10, Line 13 to the second line from the bottom of the same page.)

C. The patent inventions 6 to 8 and 10 are matters that are as a matter of course encompassed by the technical idea of the claimed invention at the time of filing of the application and do not constitute addition of new matter. Accordingly, the patent inventions 6 to 8 and 10 do comply with the requirements provided in Article 36(6)(i) and (ii) of the Patent Act. (See the written reply, the last line of Page 10 to Page 11, Line 6.)

D. The motor 1 in the Description includes, in view of what is described in Paragraphs [0019] and [0023], the rotor 1A, the stator 1B, the sensor magnet 1C, and the output shaft 1a. This point is also clear from the fact that the constituent components of the motor 1 are all indicated by reference signs all beginning with 1 in the Description.

It can be seen from FIGS. 1 and 6 that the circuit board 60 of the first embodiment is positioned at least on the lateral side of the output shaft 1a which is one of the constituent components of the motor 1. Accordingly, it is clear from these drawings that the circuit board 60 resides on the lateral side of the motor 1.

Also, in view of what is described in Paragraph [0019], the fan 7 is fixed to the output shaft 1a, and the output shaft 1a which is one of the constituent components of the motor 1 resides and reaches at least the position of the fan 7. Accordingly, it is clear from the descriptions of the Description that at least a part of the circuit board 60 resides on the radially outer side of the fan 7 and on the lateral side of the motor 1. (See the demandee's statement brief, Page 2, Line 5 from the bottom to Page 3, Line 11 from the bottom.)

E. In the first embodiment, as described in Paragraph [0032] of the Description, there can be obtained the effect which reads: "since the circuit board 60 for driving the

brushless motor 1 is disposed at the position inside the housing 2 located between the handle 3 of the housing 2 in which the motor 1 is accommodated and the base 6 and in a flow path of fan air, it is possible to cool the circuit board 60 without impairing the operability and greatly changing the shape of the housing 2 in which the motor 1 is accommodated."

The second embodiment has the configuration that has the effect of the first embodiment and further divides circuit board into two boards and arranges them separately and thus achieves a configuration that has further effects in terms of operability greater than that of the first embodiment as described in Paragraph [0037] of the Description.

The third embodiment has the configuration that has the effect of the first embodiment and modifies the proportion of the circuit board 60A to the circuit board 60B of the second embodiment and reduces the amount of protrusion of the protruding portion 69A toward the saw cover 5 side, and thereby achieves a configuration that has further effects in terms of the operability greater than that of the second embodiment as described in Paragraph [0043] of the Description.

In other words, it is clear that the first embodiment, the second embodiment, and the third embodiment have configurations that have the same or similar effect but differ from each other in that the proportion of one circuit board to the other circuit board which are obtained by division of the single circuit board, and apparently leaves the degree of freedom of this proportion. Moreover, concentration of the entire circuitry at the position of the circuit board 60C of the third embodiment: i.e., integrating the entire circuitry onto one single circuit board, is as a matter of course encompassed by the idea of the invention as well. (See the demandee's statement brief, Page 3, Line 10 from the bottom to Page 5, Line 8.)

(3) Reason for invalidation 1-3 (enablement requirement)

[Demandant]

A. The patent invention 8 comprises the constituent component K. According to the written opinion dated July 30, 2014 (Evidence A No. 6) regarding the application for the Patent, it is constructed based on the descriptions of the Description, Paragraphs [0043], [0047] and FIGS. 8 to 16.

However, even when these descriptions are referred to, the effect of positioning the lever that adjusts the amount of protrusion of the saw blade from the bottom surface of the base between the handle and the saw cover is not described.

In the first place, the lever that adjusts the amount of protrusion of the saw blade

from the bottom surface of the base, the specific feature at issue, is not identified in the Description, and it is not possible to confirm whether or not a certain effect is obtained just because the lever that is a part of the adjustment mechanism is positioned at a particular location.

Accordingly, it is not possible to comprehend the technical significance regarding the patent invention 8 from the descriptions of the detailed description of the invention, and, since the descriptions of the detailed description of the invention are not described such that they enable any person ordinarily skilled in the art to which the invention pertains to work the patented invention 8, the patent for the patent invention 8 was granted to a patent application that fails to comply with the requirement provided in Article 36(4)(i) of the Patent Act. (See the written request, Page 18, Line 3 from the bottom to Page 20, Line 16.)

B. The advance notice of the trial decision cites the descriptions of Paragraphs [0043] and [0047] of the Description with regard to the technical significance of the patent invention 8. However, these descriptions are associated with the third embodiment and, with regard to the technical significance, the effect is obtained because the circuit board is arranged between the inner wall surface of the motor casing and the stator of the motor. Meanwhile, the patent invention 8 does not identify provision of the circuit board arranged in this manner. Accordingly, the technical significance described in Paragraphs [0043] and [0047] cannot be regarded as the technical significance of the patent invention 8. (See the demandant's written statement (2), Page 19, Line 7 from the bottom to the last line of the same page.)

[Demandee]

A. The constituent component K of the patent invention 8 is related to the arrangement of the lever that adjusts the amount of protrusion of the saw blade from the bottom surface of the base. The constituent component K as such is explicitly described in FIG. 1, FIG. 2, etc. of the drawings and there is no unclear point in it. Also, the lever as such that adjusts the amount of protrusion of the saw blade from the bottom surface of the base is a mechanism that should and has to be included in portable electric cutters in general, and its specific mechanism as well as its functions and effects are well known.

Accordingly, the descriptions of the lever 18 in Paragraph [0021] of the Description satisfy the enablement requirement and the patent invention 8 complies with the requirement under Article 36(4)(i) of the Patent Act. (See the written reply,

Page 11, Line to the last line of the same page.)

B. In a portable electric cutter, it was well known at the time of filing of the application for the Patent as described in Evidence B Nos. 1 and 2 to rotatably couple a housing supporting a saw blade to a base, this coupling is fixed via a link coupled to the base by a lever, and thereby to adopt a configuration that can adjust the amount of protrusion of a saw blade from the base bottom surface in accordance with the rotation state of the housing and the base.

In the Description, explanation of the link is omitted. Meanwhile, it is described in Paragraph [0021] that "although the details thereof are omitted, there are provided a mechanism to adjust the amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 by the operation of a lever 18 and a mechanism to incline the rotation plane of the round saw blade 4 with respect to the base 6 (that is, housing 2 is inclined with respect to the base 6)." It is clear that the effect of the lever is described. (See the demandee's statement brief, Page 6, Line 7 to Page 7, Line 2.)

2. Reason for invalidation 2 (prior art effect)

[Demandant]

(1) Comparison of the patent invention 1 with the invention of an earlier filed application

When the patent invention 1 is compared with the invention (hereinafter referred to as "the invention of an earlier filed application") described in the Description, the scope of claims, or drawings (hereinafter referred to as "the Description etc. of the earlier-filed application") originally attached to the application of Japanese Patent Application No. 2011-41436 (Japanese Unexamined Patent Application Publication No. 2012-178945) which was filed by Makita Corporation before the filing of the application for the Patent and laid open after the filing of the application for the Patent, they differ from each other in the following points, whilst they are identical to each other in the remaining points.

<Different feature 1 of Reason 2> The patent invention 1 comprises "a driving circuit including switching elements for switching power supplied to the motor" (the constituent components B-1), "a control circuit for controlling the driving circuit" (the constituent components B-2), and "a circuit board on which one or both of the driving circuit and the control circuit is mounted" (the constituent components B-3). In contrast, the invention of the earlier-filed application is configured such that the circuitry mounted in the circuit board is adapted to carry out the operation control of

the electric motor 11, but its specific features are undefined.
<Different feature 2 of Reason 2> The patent invention 1 is characterized by the fact that "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction" (the constituent component C-2). In contrast, the invention of the earlier-filed application leaves undefined the relationship between the fan and the circuit board.
<Different feature 3 of Reason 2> The patent invention 1 is characterized by the fact that "the portable electric cutter further comprises a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor" (the constituent components D-2) and that "the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for controlling the drive of the motor to the driving circuit" (the constituent components D-3). In contrast, it is undefined whether or not the invention of the earlier-filed application is so configured. (See the written request, Page 20, Line 11 from the bottom to Page 31, Line 4.)

(2) With regard to the Different feature 1 of Reason 2 and the Different feature 3 of Reason 2
A. In view of the principle of driving of the brushless motor (Evidence A No. 12), it is appreciated that a Hall sensor, a switching circuit including switching elements, and a logic circuit that switches the switching elements ought to be provided. The invention of an earlier filed application uses a brushless motor and it is appreciated that it includes a driving circuit, a control circuit, and a rotation state detection unit, and it is understood that the circuit board includes at least the driving circuit or the control circuit. Hence, the Different feature 1 of the Reason 1 and the Different feature 3 of Reason 2 are not substantial differences. (See the written request, Page 31, Lines 6 to 18.)

B. Since the invention of the earlier-filed application has the brushless motor, it is understood that it relies on the general operation control technique of the brushless motor.

As Evidence A No. 12 describes the switching circuit and the logic circuit as the explanation of the principle of driving of the brushless motor, it can be understood that the brushless motor of the invention of the earlier-filed application also includes a switching circuit and a logic circuit of this kind and that they are provided in the

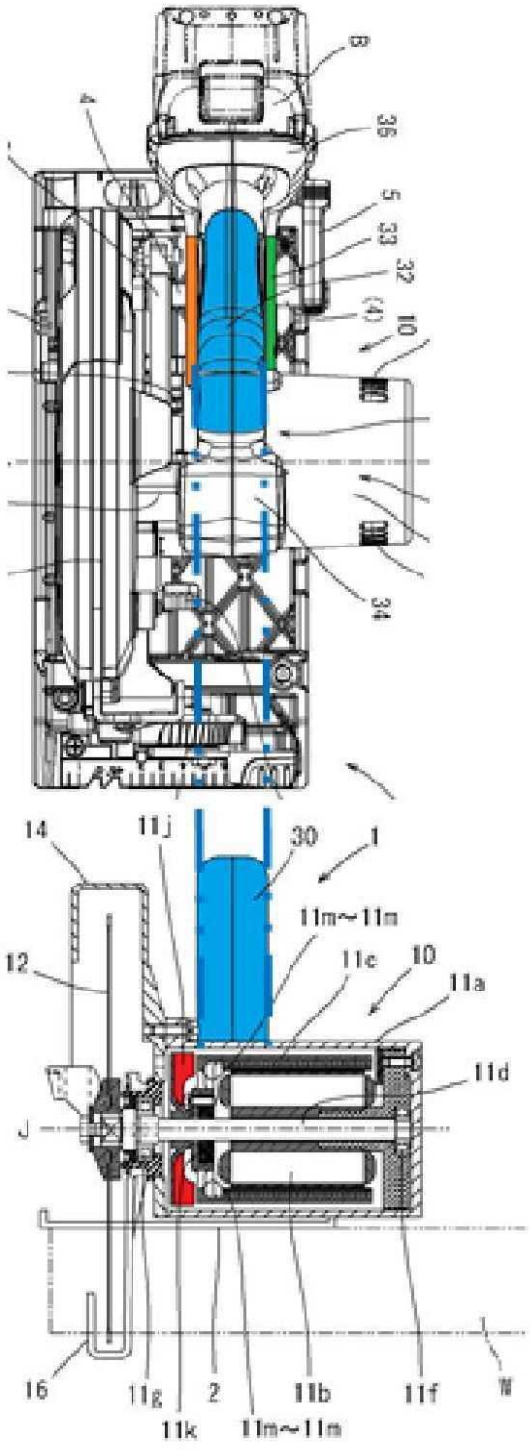
circuit board 40. (See the demandant's statement brief, Page 10, Line 7 from the bottom to Page 11, Line 5 from the bottom.)

(3) With regard to Different feature 2 of Reason 2

The Description etc. of the earlier-filed application does not explicitly describe, with regard to the circuit board 40 and the cooling fan 11j, the positional relationship in the direction of the rotation axis of the cooling fan 11j.

However, FIG. 5 of the Description etc. of the earlier-filed application illustrates the state where the handle 30 and the cooling fan 11j are adjacent to each other in the direction of the rotation axis of the fan, and FIG. 2 illustrates the state where the coupling section 33 projects toward both sides of the handle 30 (see the explanation drawing 3). In other words, it illustrates that the enlarged section on the side of the rotary cutter 12 of the coupling section 33 overlaps with the cooling fan 11j in the direction of the rotation axis of the cooling fan 11j.

<Explanation drawing 3>



Since the purpose of forming the coupling section 33 into a flattened shape is to provide a circuit board with a flat-plate-shape inside of the same section, it is appreciated that a part of the circuit board resides in the enlarged section on the side of the rotary cutter 12 of the coupling section 33. Accordingly, even if the "radially

outer side of the fan" of the constituent component C-2 of the patent invention 1 refers to the region of the explanation drawing 1(a), the invention described in the Description, etc. of the earlier-filed application includes the constituent component C-2 of the patent invention 1 and thus the different feature 2 of the Reason 2 is not a substantial difference. (See the written request, Page 31, Line 8 from the bottom to Page 33, Line 6.)

(4) Closing regarding the reason for invalidation 2

As discussed in the above sections (2) and (3), the Different features 1 to 3 of the Reason 2 are not substantial differences, and therefore the patent invention 1 is identical to the invention of the earlier-filed application.

Also, the delimiting feature of the patent invention 2 is one that is included in the invention of the earlier-filed application, and the delimiting feature of the patent invention 9 is merely intended to delimit the feature of a general Hall element, so that the patent inventions 2 and 9 are identical to the invention of an earlier filed application.

Accordingly, the patent for the patent inventions 1, 2, and 9 was granted in violation of the provision of Article 29-2 of the Patent Act. (See the written request, Page 33, Line 8 to Page 34, Line 5 from the bottom.)

(5) Counterargument in response to the written reply

A. With regard to Different feature 1 of Reason 2 and Different feature 3 of Reason 2

The demandee alleges that even if Evidence A No. 12 is a document that shows the well-known art, it is indefinite what kind of circuit is provided in the circuit boards 40, 42 of Evidence A No. 7 and accordingly it cannot be definitely said that the Different feature 1 of Reason 2 and the Different feature 3 of Reason 2 are not substantial differences (see [Demandee](1) below). However, in order to detect the rotational position of a rotor, it is necessary to arrange a detector near the rotor. Meanwhile, given the position of the circuit board 40 of Evidence A No. 7, it is not possible to detect the rotational position of the rotor. Hence, it is clear that the circuit board 40 does not include a rotation state detection unit. Here, Evidence A No. 12, which describes general techniques of a motor, describes the switching circuit and the logic circuit for explanation of the principle of driving of the brushless motor, and it can be understood that the brushless motor of Evidence A No. 7 which uses the general techniques associated with the brushless motor also includes the switching circuit and the logic circuit of this kind, and that they are provided in the circuit board

40. (See the demandant's statement brief, Page 10, Line 8 from the bottom to Page 11, Line 5 from the bottom.)

B. With regard to Different feature 2 of Reason 2

The demandee alleges that the circuit boards 40, 42 in Evidence A No. 7 are only indicated by the dotted lines in FIGS. 4 and 6, and the width directions of the circuit boards 40, 42 are not illustrated, which makes unclear the positional relationship with respect to the fan, and it cannot be said that it discloses the constituent component C-2 (see [Demandee](2) below). However, when the illustration of FIG. 5 which illustrates that the handle part 30 and the cooling fan 11j are adjacent to each other in the rotation axis of the fan and the description regarding the relationship between the enlarged section of the cooling section that accommodates the circuit board 40 and the circuit board 40 are taken into account, it can be understood that part of the circuit board resides within the enlarged section of the coupling section 33 on the side of the rotary cutter 12.

<Explanation drawing 4>

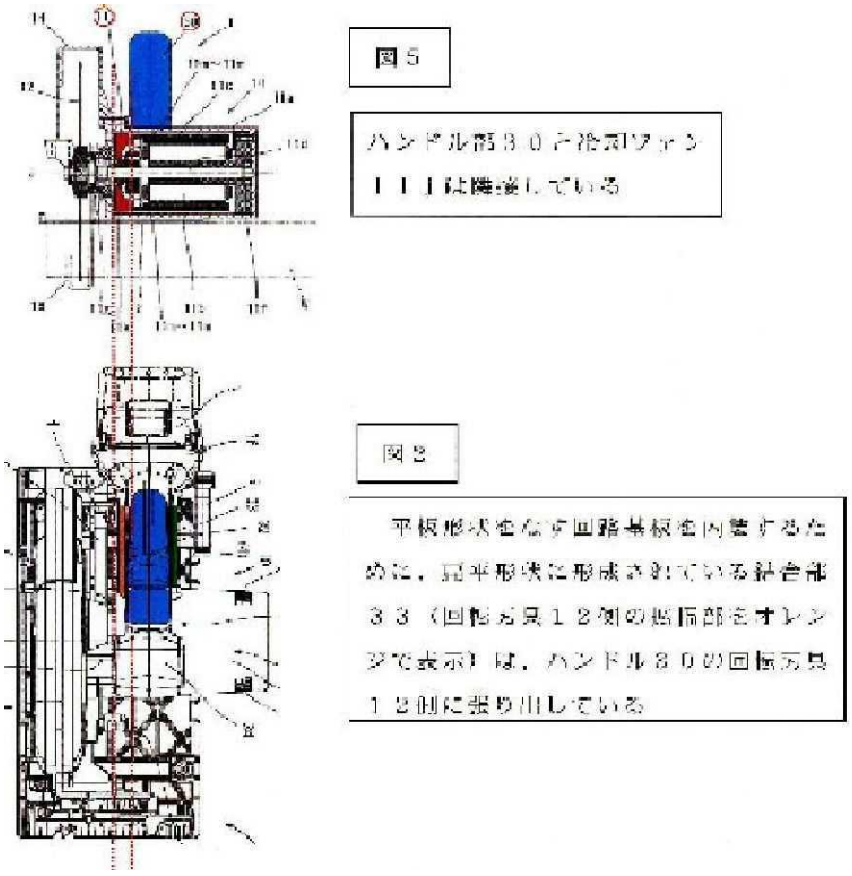


図５ FIG. 5
ハンドル部３０と冷却ファン１１ｊは隣接している
The handle part 30 and the cooling fan 11j are adjacent to each other.

図２ FIG. 2
平板形上をなす回路基板を内装するために、扁平形状に形成されている結合部３３（回転刃具１２側の拡幅部をオレンジで表示）は、ハンドル８０の回転刃具１２側に張り出している結合部３３がハンドル３０の両側に張り出している
In order to internally provide the circuit board having the flat-plate shape, the coupling section 33 (the enlarged section to the side of the rotary cutter 12 is indicated in orange) formed in a flattened shape is configured such that the cooling section 33 protruding from the handle 80 to the side of the rotary cutter 12 protrudes to both sides of the handle 30.

As can be seen from the explanation drawing 4, it is clear that the coupling section 33 that incorporates the circuit board overlaps with the cooling fan 11j in the direction of the rotation axis of the cooling fan 11j, and accordingly the invention of the earlier-filed application includes the feature of the constituent component C-2 of the Invention 1.

If, for the sake of argument, the invention of the earlier-filed application does not include the feature of the constituent component C-2, the constituent component C-2 has no technical significance and does not go beyond workshop modification or constitute a substantial difference. (See the demandant's statement brief, Page 11, Line 4 from the bottom to `age 14, Line 5.)

(6) Counterargument in response to the demandee's written statement

A. The demandee argues that FIG. 5 and FIG. 2 of the explanation drawing 3 differ from each other in their scales (see [Demandee] (4) A. below). However, the explanation drawing 3 is a figure that depicts the positional relationship between (i) the side portion of the handle 30 on the rotary cutter side and (ii) the cooling fan 11j and the coupling section 33. (See the demandant's written statement, Page 2, Line 14 from the bottom to Page 3, Line 15.)

B. The demandee alleges that the FIG. 5 and FIG. 2 of Evidence A No. 7 relate to

different embodiments and accordingly it is not appropriate to compare them with each other (see [Demandee] (4) B. below). However, since FIG. 5 differs from FIG. 2 in that modifications are made only to the orientation of the rotor 11c and the location of the cooling fan 11j, the length of protrusion of the coupling section 33 protruding from the left surface of the handle part 33 is the same in all of the embodiments. (See the demandant's written statement, Page 3, Line 16 to Page 4, Line 13.)

C. The demandee argues that, when the thickness of the handle part 30 is taken into account, the width of the circuit board inside of the handle coupling section 33 becomes smaller, by the amount of the thickness thereof, than the outer diameter width of the handle coupling section 33 (see [Demandee] (4) C. below). However, the width of the handle coupling section 33 is larger than the width of the main grip and it is possible to provide the space for accommodating the circuit board. Also, since nothing is enunciated about the technical significance of the constituent component C-2, the argumentation that the circuit board may not overlap with the circuit board is not meaningful and does not go beyond workshop modifications. (See the demandant's written statement, Page 4, Line 14 to Page 6, Line 8.)

[demandee]

(1) With regard to Different feature 1 of Reason 2 and Different feature 3 of Reason 2

Even if Evidence A No. 12 is a document that shows the well-known art, it is silent about the specific circuit board configuration, and it is indefinite what kind of circuit is provided in the circuit boards 40, 42 of Evidence A No. 7, so that it cannot be definitely said that the Different feature 1 of Reason 2 and the Different feature 3 of Reason 2 are not substantial differences. (See the written reply, Page 12, Line 5 from the bottom to Page 13, Line 7.)

(2) With regard to Different feature 2 of Reason 2

The circuit boards 40, 42 in Evidence A No. 7 are only indicated by the dotted lines in FIGS. 4 and 6, and the width direction of the circuit boards 40, 42 is not illustrated, which makes unclear the positional relationship with respect to the fan, and it cannot be said that it discloses the constituent component C-2 (see the written reply, Page 13, Lines 8 to 23).

(3) With regard to the patent inventions 2 and 9

The patent invention 2 incorporates all the features of the patent invention 1, and the patent invention 1 has constituent components that are not disclosed in Evidence A No. 7. Accordingly, the patent invention 2 does not violate the provision of Article 29-2 of the Patent Act.

Also, the invention of the earlier-filed application fails to disclose the constituent components L-1 and L-2. Even if Evidence A No. 12 is a document that shows the well-known art, it fails to illustrate the specific arrangement of the elements, so that the patent for the patent invention 9 is not granted in violation of the provision of Article 29-2 of the Patent Act. (See the written reply, Page 14, Lines 2 to 21.)

(4) Counterargument in response to the demandant's statement brief

A. Since the scales of FIGS. 5 and 2 in the explanation drawing 3 in the demandant's statement brief differ from each other, the argument by the demandant based on the explanation drawing 3 is not reasonable. (See the demandee's written statement, Page 1, Line 8 from the bottom to Page 3, Line 6.)

B. In the first place, FIGS. 5 and 2 of Evidence A No. 7 relate to different embodiments, and it is not reasonable to compare them with each other. (See the demandee's written statement, Page 3, Lines 7 to 9.)

C. When the thickness of the handle part 30 is taken into account, the width of the circuit board inside of the handle coupling section 33 becomes smaller, by the amount of the thickness thereof, than the outer diameter width of the handle coupling section 33. (See the demandee's written statement, Page 3, Lines 10 to 16.)

3. Reason for invalidation 3 (inventive step)

[Demandant]

(1) Comparison of the patent invention 1 with the invention described in Evidence A No. 8

When the patent invention 1 is compared to the invention (hereinafter referred to as "the invention described in Evidence A No. 8") described in Japanese Unexamined Patent Application Publication No. 2012-735 (hereinafter referred to as "Evidence A No. 8") which is a publication distributed prior to filing of the application for the Patent, they differ in the following points whilst they are identical to each other in the remaining points.

<Different feature 1 of the Reason 3> The patent invention 1 comprises "a driving

circuit including switching elements for switching power supplied to the motor" (the constituent components B-1), "a control circuit for controlling the driving circuit" (the constituent components B-2), and "a circuit board on which one or both of the driving circuit and the control circuit is mounted" (the constituent components B-3), whilst it is indefinite whether or not the invention described in Evidence A No. 8 has such a circuit board.

< Different feature 2 of the Reason 3> The patent invention 1 is characterized in that "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction" (the constituent component C-2) and that "at least a part of the circuit board is disposed in a flow path of the fan air" (the constituent components C-3). In contrast, the invention described in Evidence A No. 8 does not include such a cooling unit. (See the written request, Page 34, Line 4 from the bottom to Page 51, Line 1.)

(2) With regard to the Different feature 1 of the Reason 3

In view of the principle of driving of the brushless motor (Evidence A No. 12), the brushless motor includes a Hall sensor adapted to detect the position of the rotor (i.e., rotation state detection unit), a switching circuit including switching elements (i.e., driving circuit), and a logic circuit that switches the switching elements in accordance with the position of the rotor (i.e., control circuit). Since the invention described in Evidence A No. 8 uses the brushless motor, it is appreciated that it also includes a circuit board in which the driving circuit and the control circuit are provided. Hence, the Different feature 1 of the Reason 3 is not a substantial difference. (See the written request, Page 51, Lines 2 to 15.)

(3) With regard to the Different feature 2 of Reason 3

Japanese Unexamined Patent Application Publication No. H11-129169 (hereinafter referred to as "Evidence A No. 9"), which is a publication distributed prior to filing of the application for the Patent, describes a power tool in which a power element 1 is arranged inside of a handle positioned near a cooling fan and the power element 1 is cooled by air suctioned into a fan guide 4 from air vents 9 provided in the handle. In general, a driving circuit and a control circuit of a brushless motor need to be cooled, and the driving circuit and the control circuit of the invention described in Evidence A No. 8 should also be cooled, so that there is no difficulty in applying the matters described in Evidence A No. 9 to the invention described in Evidence A No. 8, arranging a circuit board including a driving circuit or

a control circuit for driving the brushless motor inside of the handle, and generating the cooling air that passes through the circuit board by the cooling fan that cools the motor. Also, the prior art of Evidence A No. 9 (FIG. 4) and the embodiment of Evidence A No. 9 (FIG. 2) differ from each other in the position of the ventilator window 9, and the position of the ventilator window is selected as appropriate, and it is merely a matter of design variation that should be done as appropriate by a person skilled in the art to provide it on the side of the handle part opposite to the saw blade. (See the written request, Page 51, Line 16 to Page 52, Line 17.)

(4) Closing regarding the Reason for Invalidation 3

The patent inventions 1, 2, and 9 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 8 and the matters described in Evidence A No. 9, and the patent inventions 3 to 8 and 10 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 8, matters described in Evidence A No. 9, and the matters described in Japanese Unexamined Patent Application Publication No. H2003-209960 (hereinafter referred to as "Evidence A No. 11"). Accordingly, the patent for the patent inventions 1 to 10 has been granted in violation of the provision of Article 29(2) of the Patent Act. (See the written request, Page 52, Line 18 to Page 58, Line 4 from the bottom.)

(5) Counterargument in response to the written reply

A. The demandee argues that the control board 31 of Evidence A No. 8 is a sensor board and that the driving circuit and the control circuit are not incorporated in the circuit board at issue (see [Demandee] (1) below). Evidence A No. 12 describes a switching circuit and a logic circuit that controls the switching circuit in the context of the explanation of the principle of driving of the brushless motor. Accordingly, a person skilled in the art would recognize that, in addition to the control board 31 of Evidence A No. 8, there is provided a circuit board that incorporates the switching circuit and the logic circuit. So long as the invention described in Evidence A No. 8 uses the brushless motor, it is appreciated that there is, as a matter of course, provided a circuit board that incorporates a circuit configured to control the operation of the brushless motor. (See the demandant's statement brief, Page 15, Line 2 from the bottom to Page 17, Line 8.)

B. The demandee argues that there is no motivation to combine Evidence A No. 8

and Evidence A No. 9 (see the above [Demandee] (2)). It has been recognized that there is a need for cooling a driving circuit and a control circuit that controls the operation of a brushless motor, so that it would be easy for a person skilled in the art to apply the technology described Evidence A No. 9 as a cooling device for cooling such a circuit board. (See the demandant's statement brief, Page 17, Line 9 to Page 18, Line 4.)

C. The demandee argues as follows: When the descriptions of Paragraph [0051] of Evidence A No. 8 are taken into account, the handle of the invention described in Evidence A No. 8 resides in front of the flow of the fan air. Even when Evidence A No. 9 is taken into consideration and the circuit board is arranged inside of the handle of the invention described in Evidence A No. 8, the fan air does not flow in the handle in contrast to the case of Evidence A No. 9, and it would not be meaningful to combine Evidence A No. 8 and Evidence A No. 9 (see [Demandee] (2) below). However, the argument at issue of the demandee is incomprehensible, for the demandant identifies the invention described in Evidence A No. 8 from the illustration of FIG. 1 of Evidence A No. 8.

Evidence A No. 8 defines the relationship between the brushless motor and the cutter such that the center of mass is positioned below the handle, and the descriptions of Evidence A No. 8 as such do not lead to a conception that the position of the handle is to be modified in a predetermined manner. However, in the context of a portable cutter using a brushless motor, it has been recognized as an important problem to cool the circuit that controls the operation of the brushless motor. In addition, when there are several problems associated with the design of a product in normal cases, it is commonly practiced to compromise on some problems to solve a particular problem or problems. Accordingly, given the main purpose of cooling the circuit board of the brushless motor in the context of applying the technical matter described in Evidence A No. 9 to the invention of Evidence A No. 8, it is merely a matter that would have been easily arrived at by a person skilled in the art to define the positional relationship between the handle and the cooling fan as described in Evidence A No. 9. (See the demandant's statement brief, Page 18, Line 5 to Page 19, Line 11.)

D. The demandee argues that the arrangement of the motor cooling air vents is undefined in Evidence A No. 9 and a circuit board is not provided therein and thus it cannot be said that the circuit board cooling air vents are provided (see [Demandee]

(2) below). The positional relationships among the power element 1 and the cooling fan, the ventilator window, and the flow of the cooling air of Evidence A No. 9 are substantially the same as those of the patent invention 1. Also, although Evidence A No. 9 does not include descriptions regarding the motor cooling air vents, it is clear that the air that cools the motor flows in the circumference of the motor in the motor axis direction, so that the air vents for cooling the motor reside on the side opposite to the saw blade. (See the demandant's statement brief, Page 19, Line 12 to Page 20, Line 3.)

(6) Argument in response to the advance notice of the trial decision

The advance notice of the trial decision finds that the invention of the control board 31 of Evidence A No. 8 includes the sensor 31A and points to the position of the handle of the invention of Evidence A No. 8, and determines that the invention of Evidence A No. 9 cannot be applied to the invention of Evidence A No. 8. This finding and determination are erroneous. (See the demandant's written statement (2), Page 20, Lines 2 to 4.)

[demandee]

(1) With regard to Different feature 1 of Reason 3

In view of the descriptions of Paragraph [0024] of Evidence A No. 8, it appears that the control board 31 of Evidence A No. 8 is a sensor board, and it is not possible to infer that a driving circuit and a control circuit are mounted on the control board 31. It is recognized that Evidence A No. 8 leaves the constituent components B-3 of the patent invention 1 unconsidered, and it is completely silent about effectively cooling "a circuit board that incorporates either one or both of the circuit board that includes either or both of the driving circuit and the control circuit." (See the written reply, Page 15, Line 5 from the bottom to Page 16, Line 15.)

(2) With regard to Different feature 2 of Reason 3

Evidence A No. 8 does not discuss "the circuit board that includes either or both of the driving circuit and the control circuit" and the motivation to combine Evidence A No. 8 and Evidence A No. 9 cannot be ascertained therein.

Also, when the descriptions of Paragraph [0051] of Evidence A No. 8 are taken into account, it cannot be said that the invention described in Evidence A No. 8 has a handle that is positioned on a radially outer side of the fan. The handle is actually provided in front of the flow of the fan air. Hence, even if Evidence A No. 9 is taken

into consideration and "the circuit board that includes either or both of the driving circuit and the control circuit" is arranged in the handle of the invention described in Evidence A No. 8, the fan air does not flow in the handle as in the case of Evidence A No. 9 and there will be little value in combining Evidence A No. 8 and Evidence A No. 9.

Further, Evidence A No. 9 discloses cooling of the power element 1 as such but does not specifically describe the cooling structure to cool the circuit board. Also, since the arrangement of the motor cooling air vents is undefined and the circuit board is not provided, it cannot be said, either, that circuit board cooling air vents are provided. In other words, the constituent components B-1 to B-3 of the patent invention 1 are not disclosed and the constituent components C-1 and C-2 are not disclosed, either. Even if Evidence A No. 8 and Evidence A No. 9 are combined, the combination will not lead to the features of the patent invention 1. (See the written reply, Page 16, Line 16 to Page 17, Line 13.)

(3) Closing regarding Reason for invalidation 3

The patent inventions 1 to 10 would not have been easily made from Evidence A No. 8 to Evidence A No. 11 presented by the demandant and the patent of the case is not in violation of the provision of Article 29(2) of the Patent Act. (See the written reply, Page 17, Line 6 from the bottom to Page 21, Line 4 from the bottom.)

No. 5 Determination regarding the reason for invalidation by the body

1. With regard to the reason for invalidation 1-1 (clarity requirement)

(1) Interpretation of the constituent component C-2 of the patent invention 1

According to subsections [Demandant] A to I of the above section No. 4. 1. (1), the reason for invalidation 1-1 as alleged by the demandant is as follows: The range identified by the recitation "radially outer side of the fan" in "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction" in the constituent component C-2 of the patent invention 1 is not clear, and the patent for the patent inventions 1 to 10 has been granted to a patent application that fails to comply with the provision of Article 36(6)(ii) of the Patent Act, and should be invalidated as falling under Article 123(1)(iv) of the same Act

In response to the above allegation, when the recitation of the constituent component C-2 of the patent invention 1 indicated in the above No. 2 is referred to, the recitation at issue identifies the position where the "circuit board" is "arranged" on

the premise that "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction." Accordingly, it is clear that the recitation of "the radially outer side of the fan" is intended not to indicate the direction only, but to identify the position and the range where the circuit board should be identified.

Also, the definition of the term "radial direction" is given by the recitation "when a direction orthogonal to a rotation axis of the fan is defined as a radial direction." Since "the rotation axis of the fan" is a finite length having both ends in the axial direction, it can be said that the term "radial direction" at issue identifies not only the direction but also the range between the two ends in the axial direction. In addition, it is clear that the recitation "disposed on a radially outer side of the fan" appearing before the definition of the term at issue intends to delimit the range in the "radial direction of the fan" to the "outer side." Here, it can be said that the phrase "the radial direction of the fan" delimits the term "the radial direction" by another phrase "of the fan." The "radial direction" is, according to the above definition, "the direction orthogonal to the rotation axis of the fan" and intends to identify not only the direction but the range between the both ends of "the rotation axis of the fan." As such, with regard to the range of "the radial direction of the fan," the range between the two ends of "the rotation axis of the fan" is delimited by the phrase "of the fan," so that it can be said that "the radial direction of the fan" refers to the range in the rotation axis direction where the fan resides within the range between the two ends of "the rotation axis of the fan." Further, it can be interpreted that the range that is delimited by the term "outer side" will be the range indicated by the "explanation drawing 1(a)" in the subsection [Demandant] A of the above section No. 4. 1. (1).

(2) Consideration of the procedural history of the Patent

As discussed in the above section (1), when the language of "radially outer side of the fan" is interpreted, it is understood that the language at issue corresponds to the range indicated by the explanation drawing 1(a). Just for the record, we also take the procedural history of the Patent into consideration. The demandee submitted the written opinion dated April 3, 2014 (Evidence A No. 5) in the procedure of the examination of the application for the Patent. In Page 3, Lines 14 to 18 from the bottom of the written opinion, with regard to Japanese Unexamined Patent Application Publication No. 2012-178945 (Evidence A No. 7), the demandee argues as follows: "FIG. 4 illustrates a configuration where the circuit board 40 is arranged inside of the coupling section 33 of the handle part 30 and FIG. 6 illustrates a

configuration where the circuit board 40 is arranged inside of the rising part 31 of the handle part 30". Specifically, in view of the position of the handle part 30 in FIGS. 3 and 5, the circuit board 40 is positioned on the outer side in the radial direction of the rotor 11c of the motor 11, but they fail to disclose the configuration where "at least part of the circuit board is arranged radially outer side of the fan." It is clear that the argument at issue means that the circuit board 40 of Evidence A No. 7 is not arranged within the range indicated by the explanation drawing 1(a), and it is consistent with the interpretation discussed in the above (1).

(3) Demandant's allegation

The demandant argues, on the premise that the technical significance associated with the cooling effect arises by virtue of the feature of the constituent component C-2, that even when the "radially outer side of the fan" is interpreted as corresponding to the range of the explanation drawing 1(a), this is not sufficient for the creation of the cooling effect, so that the recitation "radially outer side of the fan" is not clear. (See subsections [Demandant] B to H of the above No. 4. 1. (1).)

However, it cannot be concluded that the description of the scope of claims is not clear just because the technical significance of the identified constituent components is not identified in the descriptions of the scope of claims. In addition, as discussed in the above section (1), the descriptions of the patent invention 1 can be literally understood in relation to the reason for invalidation 1-1, so that it cannot be said that the descriptions of the patent invention 1 is not clear for the reason for invalidation 1-1.

Also, although the demandant argues that the patent invention 1 does not mention the range of the direction of the rotation axis of the fan and the range in the axial direction is not delimited (see subsection [Demandant] I of the above section No. 4. 1. (1)), it is reasonable to understand, as discussed in the above section (1), that the recitation "the radially outer side of the fan" is intended not to indicate the direction only but to identify the position and the range where the circuit board should be identified. In light of this understanding, it has to be interpreted that the patent invention 1 does mention the range of the direction of the rotation axis of the fan, and the argument by the demandant cannot be accepted.

Further, the demandant argues that it is not a reasonable approach to interpret the meaning of the term at issue independently of the descriptions of the Description, without mentioning any technical significance of the term "radially outer side of the fan." (See the subsection [Demandant] J of the above section No. 4. 1. (1).)

However, it is not necessary for the detailed description of the invention to individually elucidate the technical significances of the constituent components that are part of the patent invention 1; i.e., the term "radially outer side of the fan," apart from the necessity of elucidation of the technical significance of the patent invention 1 as a whole. Hence, the argument by the demandant cannot be accepted.

(4) Closing regarding the reason for invalidation 1-1

In view of the foregoing, since it can be understood from the descriptions of the patent invention 1 that the "radially outer side of the fan" in the constituent component C-2 of the patent invention 1 will fall within the range indicated as the explanation drawing 1(a), the patent invention 1 and the patent inventions 2 to 10 that directly or indirectly depend from the patent invention 1 are clear and it cannot be said that the patent of the case has been granted for a patent application that fails to comply with the provision of Article 36(6)(ii) of the Patent Act and the patent for the patent inventions 1 to 10 cannot be invalidated for the reason for invalidation 1-1 as alleged by the demandant.

2. With regard to the reason for invalidation 1-2 (support requirement and clarity requirement)

(1) Clarity requirement for the patent invention 6

According to the subsections [Demandant] A to H of the above section No. 4. 1. (2), the reason for invalidation 1-2 as alleged by the demandant is as follows: The recitation "to extend in parallel to the rotation axis of the motor" in the recitation "the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor" of the patent invention 6 renders unclear which part of the circuit board is in parallel with the rotation axis (see subsection [Demandant] B of the above No. 4. 1. (2)). Also, "the circuit board" is "a circuit board on which one or both of the driving circuit and the control circuit is mounted" of the constituent components B-3 of the patent invention 1. With regard to the language "circuit board on which both of them are mounted" of this recitation, the Description and the drawings do not describe the arrangement thereof at a "position on a lateral side of the motor" (see subsections [Demandant] C to H of the above No. 4. 1. (2)), so that the patent for the patent inventions 6 to 8 and 10 has been granted to a patent application that fails to comply with the provisions of Article 36(6)(i) and (ii) of the Patent Act, and should be invalidated as falling under Article 123(1)(iv) of the same Act.

First, the recitation "to extend in parallel to the rotation axis of the motor" should be discussed. It is clear that the subject of the verb "extend" is "the circuit board." In general, it is an obvious matter for a person skilled in the art that a circuit board is a plate-like body and a circuit is constituted by the plate-like body and various components mounted thereon, and the circuit as a whole also has a plate-like shape. As such, the recitation "to extend in parallel to the rotation axis of the motor" has to be interpreted as meaning that the above plate-like shape that "the circuit board" as a whole exhibits extends in parallel to the rotation axis of the motor. The recitation "to extend in parallel to the rotation axis of the motor" in the recitation "the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor" is clear.

(2) Closing regarding clarity requirement of the reason for invalidation 1-2

As discussed in the above section (1), the recitation "to extend in parallel to the rotation axis of the motor" of the patent invention 6 is clear, and the patent for the patent invention 6 and the patent inventions 7, 8, and 10 which directly or indirectly depend from the patent invention 6 complies with the requirement under Article 36(6)(ii) of the Patent Act and the patent for the patent inventions 6 to 8 and 10 cannot be invalidated for the reason of the clarity requirement in the reason for invalidation 1-2 as alleged by the demandant.

(3) Support requirement for the patent invention 6

Next, the patent invention 6 reads as follows: "The portable electric cutter according to claim 1 or 2, wherein the circuit board is disposed at a position on a lateral side of the motor so as to extend in parallel to the rotation axis of the motor" and "the circuit board" in this recitation is "a circuit board on which one or both of the driving circuit and the control circuit is mounted" of the constituent component B-3 of the patent invention 1. With regard to the "circuit board on which both of them are mounted," it should be assessed whether or not arrangement in a "position on a lateral side of the motor" is described in the detailed description of the invention of the Description and the drawings.

A. Descriptions of the Description and the drawings

The Description and the drawings contain the following descriptions. It should be noted that the underlines are given by the body.

(A) "[0019]

A first embodiment of a portable electric cutter according to the present invention will be described with reference to FIG. 1 to FIGS. 6 and 17... (Omitted)"

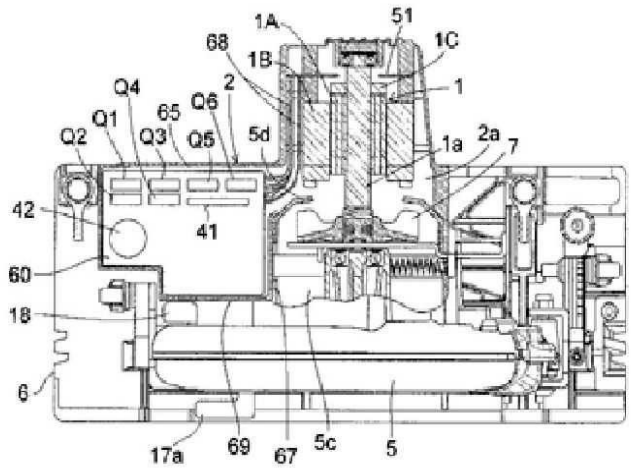
(B) "[0022]

Thus, the adoption of the brushless motor 1 makes it possible to achieve high efficiency and a reduction in size and weight. The brushless motor 1 needs to have the circuit configuration, for example, as shown in FIG. 17. More specifically, the brushless motor 1 requires a driving circuit 20 including switching elements for switching the power supplied to the brushless motor 1 and a control circuit 30 for controlling the driving circuit 20. Also, the brushless motor 1 requires a rectifying and smoothing circuit 40 which converts AC power supply (AC 100 V commercial power supply) input from a power supply cord 25 extending from the back surface of the housing 2 into DC power for driving the brushless motor and a rotation state detection unit 50 which generates a signal in accordance with the rotation position of the brushless motor 1."

(C) "[0026]

In the circuit configuration of FIG. 17, in particular, the cooling of the driving circuit 20 which consumes a large amount of power and generates a large amount of heat becomes a problem. In this first embodiment, as shown in FIG. 1 and FIG. 6, a circuit board 60 in which the driving circuit 20, the control circuit 30, and the rectifying and smoothing circuit 40 are mounted on one board is disposed in a circuit board casing 65 in the housing 1. For example, the switching elements Q1 to Q6, the rectifier 41, the capacitor 42, and others are mounted on an upper side of the circuit board 60. Also, the microcomputer and others of the control circuit 30 are disposed at a position on the board where they are less likely to be affected by these heat-generating components. Note that the motor 1, the sensor board 51, and the circuit board 60 are electrically connected to one another by a number of wires 68."

(D) FIG. 1



(E) "[0036]

A second embodiment of the present invention will be described with reference to FIG. 7 to FIG. 11. Since the second embodiment is substantially similar to the first embodiment except for the cooling structure of the circuit board, the different feature will be described below.

[0037]

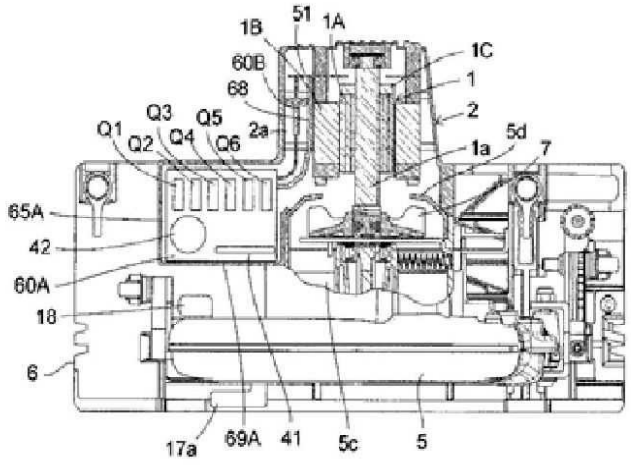
In the second embodiment, the driving circuit 20 and the rectifying and smoothing circuit 40 of FIG. 17 are mounted on a first circuit board 60A, the control circuit 30 is mounted on a second circuit board 60B, and the first circuit board 60A is disposed at the position inside the housing 2 located between the handle 3 and the base 6; that is, in a circuit board casing 65A. The circuit board casing 65A is the same as the first embodiment described above in the point that it is formed inside a protruding portion 69A (protruding toward the saw cover 5 side) provided in a part of the housing 2 located on a radially outer side of the fan 7 when the direction orthogonal to the rotation axis of the fan 7 is defined as the radial direction. Meanwhile, since the control circuit 30 is mounted on another board, the first circuit board 60A can be reduced in size and the protruding portion 69A (protruding toward the saw cover 5 side) provided in a part of the housing 2 can also be reduced in size, and thus the second embodiment is advantageous in operability.

[0038]

The second circuit board 60B on which the control circuit 30 is mounted is disposed at the position away from the first circuit board 60A; for example, in the space between an inner wall of the motor casing 2a and the stator 1B of the motor 1 (disposed vertically with respect to the plane of paper in FIG. 7). In this case, the electrical connection between the rotation position detection element 52 mounted on

the sensor board 51 and the control circuit 30 in FIG. 17 is shortened, and the influence of noise or the like in this arrangement can be suppressed."

(F) FIG. 7



(G) "[0042]

A third embodiment of the present invention will be described with reference to FIG. 12 to FIG. 16. Since the third embodiment is substantially similar to the first embodiment except for the cooling structure of the circuit board, the different feature will be described below.

[0043]

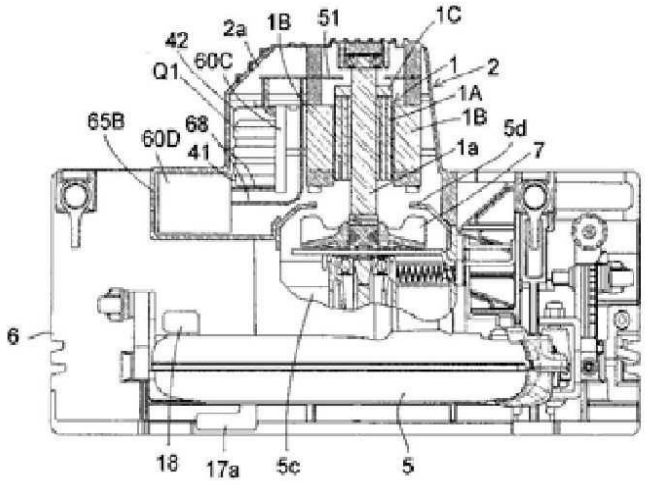
In the third embodiment, the driving circuit 20 of FIG. 17 is mounted on a first circuit board 60C, the control circuit 30 is mounted on a second circuit board 60D, and the second circuit board 60D is disposed at the position inside the housing 2 located between the handle 3 and the base 6; that is, in a circuit board casing 65B. The circuit board casing 65B is formed inside a part of the housing 2 located on a radially outer side of the fan 7 when the direction orthogonal to the rotation axis of the fan 7 is defined as the radial direction. Since the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted on another board, the second circuit board 60D on which the control circuit 30 is mounted can be reduced in size, and the protruding portion (protruding toward the saw cover 5 side) provided for mounting the second circuit board 60D in a part of the housing 2 can be eliminated. Accordingly, the third embodiment is advantageous in operability. For example, the operation of the lever 18 which adjusts the amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 in FIG. 12 and FIG. 16 can be

facilitated.

[0044]

The first circuit board 60C on which the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted is disposed at the position away from the second circuit board 60D, in the space between an inner wall of the motor casing 2a and the stator 1B of the motor 1. The circuit board cooling air vents 67 are formed also in the sidewall part of the motor casing 2a."

(H) FIG. 12



B. In view of the above subsections A. (A) to (D), it can be appreciated that the driving circuit 20 and the control circuit 30 in the first embodiment are mounted on the circuit board 60. Also, in view of the above subsections A. (E) and (F), it can be appreciated that the driving circuit 20 is mounted on the third circuit board 60A, the control circuit 30 is mounted on the second circuit board 60B, and the second circuit board 60B is arranged in the space between the inner wall surface of the motor casing 2a and the stator 1B of the motor in the second embodiment. Further, in view of the above subsections A. (G) and (H), it can be appreciated that the driving circuit 20 is mounted on the third circuit board 60C, the control circuit 30 is mounted on the second circuit board 60D, and the third circuit board 60C is arranged in the space between the inner wall surface of the motor casing 2a and the stator 1B of the motor in the third embodiment.

A person skilled in the art who reads these descriptions of the Description would select as appropriate, as the location where the driving circuit and the control circuit

are provided, whether to provide them in the circuit board casing inside of the housing as in the case of the circuit board 60, 60A, 60D or to provide them in the space between the inner wall surface of the motor casing and the motor stator as in the case of the circuit board 60B, 60C, would be able to understand in this context the technical matter that these two circuits may be arranged on one single circuit board, and as a matter of course would appreciate that both of the driving circuit and the control circuit may be mounted on the circuit board arranged in the space between the inner wall surface of the motor casing 2a and the motor stator 1B as in the case of "the third circuit board 60C" of the third embodiment. In addition, it is clear that the circuit board arranged between the space between the inner wall surface of the motor casing 2a and the motor stator 1B is arranged at "position on a lateral side of the motor" in the context of the patent invention 6 (it should be noted that the demandant admits that the circuit board of the second and third embodiments are arranged at a "position on a lateral side of the motor" (see subsections [Demandant] D and E of the above section No. 4. (2)).).

C. Nevertheless, if both of the driving circuit and the control circuit are mounted on the circuit board arranged between the space between the inner wall surface of the motor casing 2a and the motor stator 1B in that manner, then it is clear that it is necessary to enlarge the area of the circuit board so that it is larger than the "second circuit board 60B" of the second embodiment and "the third circuit board 60C" of the third embodiment. And, if it is attempted to arrange such an enlarged circuit board "without considerable change in the size of the housing that accommodates the motor," (see the Description, Paragraph [0006]), then a person skilled in the art will appreciate that it will lead to the configuration in which it "extends in parallel to the rotation axis of the motor to extend in parallel to the rotation axis of the motor" as identified by the patent invention 6 and "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction" as identified by the patent invention 1 from which the patent invention 6 depends.

As such, it can be said that it is described in the Description or in the drawings to arrange "circuit board that includes both of" the driving circuit and the control circuit at a "position on a lateral side of the motor."

(4) Demandant's allegation

The demandant argues that, when all the circuitry is concentrated at the position

of the circuit board 60C of the third embodiment, then the circuit board in the region of the explanation drawing 1(a) will no longer exist, failing to satisfy the constituent component C-2 of the patent invention 1 from which the patent invention 6 depends, which contradicts the descriptions of the Description (see subsection [Demandant] H of the above section No. 4. (2)).

However, as discussed in the above subsection (3) C, it is clear that the area of the circuit board needs to be enlarged if both of the driving circuit and the control circuit should be incorporated at the position of the circuit board 60C of the third embodiment, and it is also clear that arrangement of such an enlarged circuit board will result in the region of the explanation drawing 1(a). Hence, it follows that it satisfies the constituent component C-2 of the patent invention 1 and no contradiction will arise.

Also, the demandant argues that the Description fails to disclose the effect obtained by arranging the circuit board 60C as in the case of the patent invention 6, so that it is impossible to comprehend the effect of arranging the circuit board 60 of the first embodiment at the position of the circuit board 60C of the third embodiment, and that it cannot be said that an invention having such a configuration is described therein (see subsection [Demandant] H of the above section No. 4. (2)).

However, it cannot be directly concluded that the patent invention 6 is not described in the Description just because its effect is not described. As assessed in the above section (3), the patent invention 6 is described in the Description. Accordingly, the argument of the demandant, which is based on the contention that the effect of the patent invention 6 is not explicitly described, cannot be accepted.

Further, the demandant argues that, in light of the features and effects of the invention and the technical idea that is derived therefrom, the invention described in the Description is based on the very existence and the effect of the circuit board that is arranged "inside of the housing positioned between the handle and the base." On this premise, the demandant further argues that the Description fails to describe the technical idea that the circuit board is only arranged in "the space between the inner wall surface of the motor casing 2a and the stator 1B of the motor 1" (see subsection [Demandant] I of the above section No. 4. (2)).

However, the technical problem to be solved by the invention is described in Paragraphs [0005] and [0006] of the detailed description of the invention of the Description, and the solution to the technical problem is described in Paragraphs [0007] and [0009]. Meanwhile, arranging the circuit board inside of the housing positioned in the space between the handle and the base is not described in these

paragraphs. In addition, it is described in Paragraph [0011] that "in the above-described mode, ... another configuration may be contemplated where ... the circuit board is disposed inside of the housing that is positioned in the space between the handle of the housing and the base and ..." Hence, arrangement of the circuit board "inside of the housing positioned in the space between the handle and the base" is merely an optional or selectable requirement and it cannot be said that it is a mandatory one. No solid basis can be found on which the argument of the demandant can and should be founded, and thus the argument of the demandant cannot be accepted.

In addition, the demandant argues, on the premise that the circuit board in the context of the patent invention 1 from which the patent invention 6 depends corresponds to the circuit board arranged "inside of the housing positioned in the space between the handle and the base," that even when the circuit board arranged to the lateral side of the motor is enlarged in the second and third embodiments, it does not follow that the circuit board is arranged "inside of the housing positioned in the space between the handle and the base" (see subsection [Demandant] J of the above section No. 4. (2)).

However, the patent invention 1 from which the patent invention 6 depends fails to identify the feature that the circuit board is arranged "inside of the housing positioned in the space between the handle and the base," so that the argument by the demandant has no basis and thus cannot be relied upon.

Also, the demandant argues that when the circuit board arranged to the lateral side of the motor is enlarged in the second and third embodiments, the enlarged circuit board will collide with the upper cover part of the fan guide 5d (see subsection [Demandant] K of the above section No. 4. (2)).

However, for example, referring to FIG. 12 illustrating the third embodiment, the interference with the fan guide 5d caused when the third circuit board 60C is enlarged occurs only slightly to the degree of the thickness of the circuit board, and it is merely a matter that can be understood as a matter of course by a person skilled in the art, for example, to move the circuit board slightly in order to avoid such interference, and accordingly the argument by the demandant cannot be relied upon.

Further, the demandant argues that the patent invention 6 introduces a new matter and, as a result, violates the support requirement. (See subsections [Demandant] D and L of the above section No. 4. (2))

However, the above argument of the demandant is unreasonable, because the patent invention 6 is described in the Description and the drawings as discussed in the

above section (3) and whether or not the amendments made in the past introduces new matter has no direct relevance to the reason for invalidation 1-2.

(5) Closing (first half) regarding the support requirement from to the reason for invalidation 1-2

As discussed in the above subsections (3) B and C, with regard to "the circuit board that incorporates both of" the driving circuit and the control circuit, it can be said that arrangement (of the circuit board) in the "position on a lateral side of the motor" is a matter that can be regarded as being substantially described in the Description or the drawings. Accordingly, the patent invention 6 is an invention that is described in the detailed description of the invention of the Description and it does not need to be assessed whether or not the first embodiment described in the Description or the drawings corresponds to the embodiment of the patent invention 6.

Accordingly, it cannot be said that the patent for the patent invention 6 and the patent inventions 7, 8, and 10 which directly or indirectly depend from the patent invention 6 has been granted to a patent application that fails to comply with the provision of Article 36(6)(i) of the Patent Act. The patent for the patent inventions 6 to 8 and 10 therefore cannot be invalidated for the reason regarding support requirement in the reason for invalidation 1-2 as alleged by the demandant.

(6) Closing to the reason for invalidation 1-2

As has been discussed in the foregoing sections (2) to (5), the patent for the patent inventions 6 to 8 and 10 cannot be invalidated for the reason for invalidation 1-2 as alleged by the demandant.

3. Regarding the reason for invalidation 1-3 (enablement requirement)

In view of the above section No. 4. 1. (3) [Demandant], the reason for invalidation 1-3 as alleged by the demandant is as follows: "The lever being adapted to adjust an amount of protrusion of the saw blade from the bottom surface of the base" in the constituent component K of the patent invention 8 is not described in the detailed description of the invention, the patent for the patent invention 8 has been granted to a patent application that does not comply with the requirement under Article 36(4)(i) of the Patent Act, and accordingly the patent should be invalidated as falling under Article 123(1)(iv) of the same Act.

We must accordingly examine the descriptions of the Description and the drawings in light of the common technical knowledge.

(1) Descriptions of the Description and the drawings

The Description and the drawings of the case contain the following descriptions.

A. "[0021]

The saw cover 5 described above is coupled to the base 6 so as to interpose the round saw blade 4 in the vicinity of the two end sides in the longitudinal direction of the base 6. Although the details thereof are omitted, a mechanism to adjust the amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 by the operation of a lever 18 and a mechanism to incline the rotation plane of the round saw blade 4 with respect to the base 6 (that is, the housing 2 is inclined with respect to the base 6) are provided."

B. "[0043]

In the third embodiment, the driving circuit 20 of FIG. 17 is mounted on a first circuit board (first board) 60C, and the control circuit 30 is mounted on a second circuit board (second board) 60D. The second circuit board 60D is disposed at a position inside the housing 2 located between the handle 3 and the base 6; that is, in a circuit board casing 65B. The circuit board casing 65B is formed inside a part of the housing 2 located on a radially outer side of the fan 7 when the direction orthogonal to the rotation axis of the fan 7 is defined as the radial direction. Since the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted on another board, the second circuit board 60B on which the control circuit 30 is mounted can be reduced in size, and the protruding portion (protruding toward the saw cover 5 side) provided for mounting the second circuit board 60D in a part of the housing 2 can be eliminated. Accordingly, the third embodiment is advantageous in operability. For example, the operation of the lever 18 which adjusts the amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 in FIG. 12 and FIG. 16 can be facilitated."

C. "[0047]

In the case of the third embodiment, since the control circuit 30 is mounted on another board; that is, the second circuit board 60D, the area of the second circuit board 60D can be reduced, and the circuit board casing 65B in which the second circuit board 60D is accommodated can also be made small, so that the amount of protrusion of the housing 2 to the saw cover 5 side can be further reduced. As a result, the operability of the lever 18 which adjusts the amount of protrusion of the round

saw blade 4 from the bottom surface of the base 6 can be improved. Also, the first circuit board 60C on which the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted is disposed at the position on a lateral side of the motor 1 inside the housing 2 and in a flow path of fan air. As described above, the circuit board 60C is disposed at a position on a lateral side of the motor 1 so as to extend in parallel to the output shaft 1a corresponding to the rotation axis of the motor 1. More specifically, since the first circuit board 60C is disposed on the lateral side of the motor 1 inside the motor casing 2a, sufficient fan air can be easily supplied."

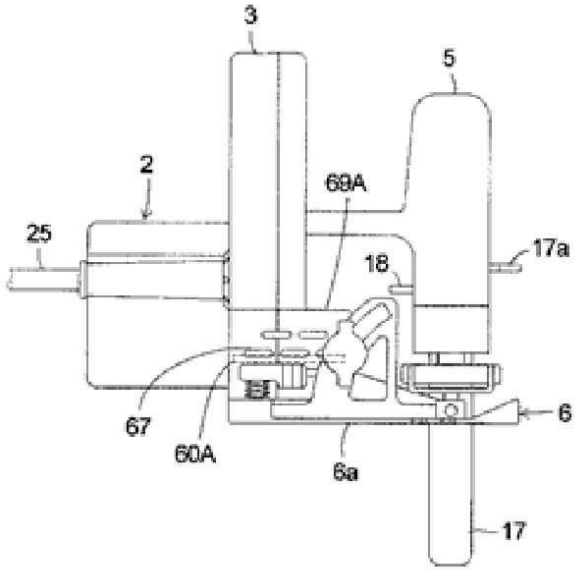
D. FIG. 1

See the above section 2. (3) A. (D).

E. FIG. 7

See the above section 2. (3) A. (F).

F. FIG. 10



G. FIG. 12

See the above section 2. (3) A. (H).

(2) In view of the above subsections (1) A to G, the detailed description of the invention of the Description describes the existence of a mechanism that adjusts the

amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 by operation of the lever 18, and a mechanism that makes the rotation plane of the round saw blade 4 incline with respect to the base 6. Also, in view of the drawings, it can be understood that the lever 18 is provided on a lateral side of the saw cover 5 opposite to the handle 3. Meanwhile, it is not possible to identify a mechanism that adjust the amount of protrusion of the round saw blade from the bottom surface of the base and a mechanism that makes the rotation plate of the round saw blade incline with respect to the base in the detailed description of the invention or the drawings.

Here, referring to the microfilm of Japanese Utility Model Application No. H01-126168 (Japanese Unexamined Utility Model Application Publication No. H03-64703) which is a publication distributed prior to the filing of the patent application of the case (hereinafter referred to as "Evidence B No. 1"), Page 2, Lines 5 to 12 of the Description read as follows: "[Background of the Device] Prior art is described with reference to FIG. 3. According to the method of cutting adjustment in a portable cutter 5 including cutting adjustment lever 4, the cutting adjustment lever 4 is turned in the direction indicated by the arrow A to be released, and the surface plate 3 is lifted and lowered in the direction indicated by the arrow C to adjust the degree of cutting. Upon completion of the adjustment, the cutting adjustment lever 4 is turned in the direction indicated by the arrow B to fix the surface plate 3." The description at issue is intended to explain the mechanism that adjusts the amount of protrusion of the round saw blade from the bottom surface of the base and a mechanism that makes the rotation plane of the round saw blade incline with respect to the base. When the fact that these mechanisms are described as "prior art" is taken into account, it can be said that the specific feature at issue was common technical knowledge prior to filing of the application of the case.

In addition, in view of the above-identified common technical knowledge, it can be said that "the lever being adapted to adjust an amount of protrusion of the saw blade from the bottom surface of the base" of the patent invention 8 is described in the detailed description of the invention of the Description to the extent that a person skilled in the art can work the invention.

(3) Demandant's allegation

The demandant argues that it is not possible to comprehend the technical significance of the patent invention 8 and accordingly the patent invention 8 is not described to the extent that a person skilled in the art can work this invention (see subsection [Demandant] A of the above section No. 4. 1. (3)).

Here, referring to the detailed description of the invention of the Description, the following descriptions are found: "Since the driving circuit 20 and the rectifying and smoothing circuit 40 are mounted on another board, the second circuit board 60B on which the control circuit 30 is mounted can be reduced in size, and the protruding portion (protruding toward the saw cover 5 side) provided for mounting the second circuit board 60D in a part of the housing 2 can be eliminated. Accordingly, the third embodiment is advantageous in operability (see the above subsection (1)B); "The area of the second circuit board 60D can be reduced, and the circuit board casing 65B in which the second circuit board 60D is accommodated can also be made small, so that the amount of protrusion of the housing 2 to the saw cover 5 side can be further reduced. As a result, the operability of the lever 18 which adjusts the amount of protrusion of the round saw blade 4 from the bottom surface of the base 6 can be improved." (see the above subsection (1)C). From these descriptions, it is possible to understand the technical significance that, when the circuit board that incorporates the driving circuit and the control circuit is arranged on the lateral side of the motor as mentioned in the above sections (1) F and G, the size of the circuit board casing of the housing can be reduced as compared with a case where the driving circuit and the control circuit are mounted on one single circuit board as mentioned in the above subsection (1) D, and the space between the accommodation part and the lever can be enlarged and thus operability of the lever can be improved.

In addition, the patent invention 8 depends from the patent invention 7, which in turn depends from the patent invention 6. The patent invention 6 defines the feature that at least either one of the driving circuit and the control circuit is arranged on a lateral side of the motor. Hence, it can be said that the patent invention 8 has technical significance that can be understood from the detailed description of the invention.

Accordingly, the argument of the demandant which is constructed on the premise that the technical significance of the patent invention 8 cannot be understood is erroneous in its premise and cannot be accepted.

Also, the demandant argues as follows: The descriptions of Paragraphs [0043] and [0047] of the Description are associated with the third embodiment and, with regard to the technical significance, the effect is obtained because the circuit board is arranged between the inner wall surface of the motor casing and the stator of the motor; meanwhile, the patent invention 8 does not identify that the circuit board arranged in this manner is provided; accordingly, the technical significance described in Paragraphs [0043] and [0047] cannot be regarded as the technical significance of the patent invention 8. (See the subsection [Demandant] B of the above section No. 4.

1. (3).)

However, the patent invention 8 depends from the patent invention 7, which in turn depends from the patent invention 6. The patent invention 6 defines the feature that at least either one of the driving circuit and the control circuit is arranged on a lateral side of the motor. Accordingly, as the matters specifying the patent invention 8, it must be understood that the patent invention 8 as a matter of course includes the feature that a circuit board incorporating at least either one of the driving circuit and the control circuit should be arranged on the lateral side of the motor. Accordingly, the body in no way errs in recognizing the technical significance of the patent invention 8 on the basis of the descriptions of Paragraphs [0043] and [0047], and the argument by the demandant cannot be relied upon.

(4) Closing regarding the reason for invalidation 1-3

In view of the above, the descriptions of the detailed description of the invention of the Description of the Patent of the case are so clearly and sufficiently described that a person having ordinary skill in the art to which the patent invention 8 pertains can work the invention. It cannot be said that the patent for the patent invention 8 has been granted to a patent application that fails to comply with the requirement provided in Article 36(4)(i) of the Patent Act, and the patent for the patent invention 8 cannot be invalidated for the reason for invalidation 1-3 alleged by the demandant.

4. With regard to the reason for invalidation 2 (prior art effect)

According to the above subsections No. 4. 2. [Demandant] (1) to (6), the reason for invalidation 2 alleged by the demandant is as follows: The patent inventions 1, 2, and 9 are inventions that are described in the Description, the scope of claims, or the drawings originally attached to the application of Japanese Patent Application No. 2011-41436 (Japanese Unexamined Patent Application Publication No. 2012-178945) which was filed prior to filing of the application for the Patent by Makita Corporation and laid open after the filing of the application for the Patent of the case. Accordingly, the patent for the patent inventions 1, 2, and 9 has been granted in violation of the provision of Article 29-2 of the Patent Act, and should therefore be invalidated as falling under Article 123(1)(ii) of the same Act.

(1) Descriptions of the Description, the scope of claims, or the drawings of an earlier-filed application and individual publications

A. Descriptions of Evidence A No. 7 and the invention of Evidence A No. 7

The Description, the scope of claims, or the drawings originally attached to the application of Japanese Patent Application No. 2011-41436 (Japanese Unexamined Patent Application Publication No. 2012-178945) (hereinafter referred to as "Evidence A No. 7") contains the following descriptions. It should be noted that the underlines are given by the body.

(A) "[Technical Field]
[0001]

The present invention relates to a cutting tool whose driving source is an electric motor that is generally called an outer rotor type electric motor.

[Background Art]
(Omitted)
[Technical Problem]
[0004]

Further high power is sought for in the cutting tool in the commercial scene. However, since the load current of a cutting tool is large relative to a screw-fastening tool, a motor easily generates heat, making it necessary to cool it.

An object of the present invention is to incorporate a cooling fan in addition to an outer rotor type brushless motor and achieve both increase in the output power and improvement in the durability of the motor."

(B) "[0007]

Next, the embodiment of the present invention is described on the basis of FIGS. 1 to 6. FIGS. 1 to 3 illustrate the cutting tool 1 of this embodiment. This cutting tool 1 is what is called a portable circular saw, and is provided with a base 2 with a flat plate shape which is adapted to abut on the top surface of the cutting sections W and a tool body 10 supported by the upper part of the base 2.

The tool body 10 includes an electric motor 11 as a driving source, and a rotary blade tool 12 directly attached to an output shaft 11d of the electric motor 11. The lower part side of the rotary blade tool 12 is projected from the lower surface of the base 2, and this projected portion is deeply cut by the cutting section W and subjected to the cutting processing. In each figure, the rotary blade tool 12 is deeply cut by the cutting section by moving the cutting tool 1 in the cutting moving direction indicated by a white arrow. In the following descriptions, with regard to the forward/rearward direction of members or components, the cutting moving directions being regarded as

a front side or a front part, and the opposite side thereof as the backside or a rear part. However, with regard to the electric motor 11, the rotary blade tool 12 side with respect to the direction of the motor's axis line j is regarded as a front side or a front part, and the opposite side thereof as the backside or a rear part.

As shown in FIG. 3, a so-called outer rotor type electric motor, which is a brushless motor, is used as the electric motor 11. This electric motor 11 is provided with the rotator (rotor) 11c supported rotatably at the periphery side of the stator 11b fixed in the motor case 11a. This rotor 11c has a cup shape having a U-shaped cross section, and is arranged such that the bottom part 11k thereof is on the rear part side and the opening side on the front side. The rotor 11c is integrated to the output shaft 11d via this bottom part 11k.

[0008]

The cooling fan 11e for motor cooling is attached to the rear part of the output shaft 11d. The cooling fan 11e is integral with the output shaft 11d along with the rear-face side of this bottom part 11k. A plurality of vents 11m-11m are provided in the bottom part 11k of the rotor 11c. Vents 11n to 11n are provided at the stator 11b side as well. The cooling air which flows into the rotor 11c through the vents 11n-11n on the motor front part side by virtue of rotation of the cooling fan 11e is passed through these vents 11m-11m at the rear part side of the motor case 11a.

Many exhaust holes (ventilating windows) 11h-11h are provided around the cooling fan 11e and on the rear side periphery surface (side part) of the motor case 11a. As shown in FIG. 4, in the case of this embodiment, a plurality of exhaust holes 11i-11i are provided on the rear face of the motor case 11a as well. Meanwhile, a plurality of suction holes 14c to 14c are provided in the motor mount seat 14b provided on the back side of the blade case 14 as shown in FIG. 2. When the cooling fan 11e rotates by activation of the electric motor 11, the open air will be introduced in the motor case 11a through these suction holes 14c to 14c. The introduced open air (cooling air) flows into the rear part side by rotation of the cooling fan 11e, and cooling of the stator 11b and the rotor 11c is carried out. The motor cooling air which flowed into the rear part side of the motor case 11a is exhausted outside through the above-mentioned exhaust holes 11h-11h and 11i-11i. Cooling air is efficiently exhausted by rotation of the cooling fan 11e out of the motor case 11a through the exhaust holes 11i-11i in this rear-face side, and the above surrounding exhaust holes 11h-11h.

... (Omitted)"

(C) "[0010]

A handle part 30 is provided on the upper part of the electric motor 11. As shown in FIG. 4, this handle part 30 has a mountain-shaped loop shape from the upper part of the electric motor 11 to a rear part thereof, and has a rising part 31 that extends upward from the upper part of the electric motor 11, a main grip part 32 that extends in the direction downward and rearward from the upper part of the rising part 31, and a coupling section 33 that couples the rear part of the main grip part 32 to the rear part of the electric motor 11. The main grip part 32 is a portion which a user grasps by one hand, and a switch lever 35 is arranged at the lower surface side thereof. There is provided a front grip part 34 at the upper part of the rising part 31. The front grip part 34 is adapted to be grasped by the other hand of the user and is provided such that it projects frontward.

... (Omitted) ...

As shown in FIG. 4, the circuit board 40 for operation control of the electric motor 11 is internally provided in the into the coupling section 33 of the handle part 30. According to this embodiment, the circuit board for operation control in a flat plate shape is internally provided as the circuit board 40. Since this coupling section 33 is not a part which the user grasps, it has a flat shape whose width is larger than that of the main grip part 32, and can accommodate the circuit board 40 having the flat plate shape therein.

Also, as shown in FIG. 4, a plurality of suction holes 41-41 are provided in both of the side parts of the coupling section 33. The inside of the coupling section 33 is in communication with the inside of the motor case 11a through the ventilation path. For this reason, when the cooling fan 11e rotates by the activated motor as described above, the open air will be introduced also from the suction holes 41-41 on this coupling section 33 side in addition to the suction holes 14c-14c of the motor mount seat 14b. The open air is introduced via the suction holes 41-41, and is passed into the motor case 11a through the above-mentioned ventilation path, and then exhausted from the rear part of the motor case 11a, so that cooling of the circuit board 40 is also performed in addition to the stator 11b and the rotor 11c.

... (Omitted)"

(D) "[0012]

Modifications may be made to the above-described first embodiment. For example, the cutting tool 1 of the second embodiment is shown in FIG. 5. According to this second embodiment, the direction of the rotor 11c and the position of the

cooling fan 11j differ from those of the above-mentioned first embodiment. The same or similar signs are assigned to the same or similar same members and components as those of the first embodiment, the description of which is omitted.

In the case of the second embodiment, the rotor 11c is supported in an inverted direction with respect to the direction of a motor shaft line direction of the first embodiment. For this reason, the bottom part 11k of the rotor 11c is placed at the front side, and that opening side is at the backside. The cooling fan 11j is attached to the output shaft 11d along with the bottom part 11k which is placed at a front side. The rotor 11c and the cooling fan 11j are fixed to the output shaft 11d, and respectively rotate with the output shaft 11d. A plurality of vents 11m-11m are provided as in the first embodiment in the bottom part 11k of the rotor 11c.

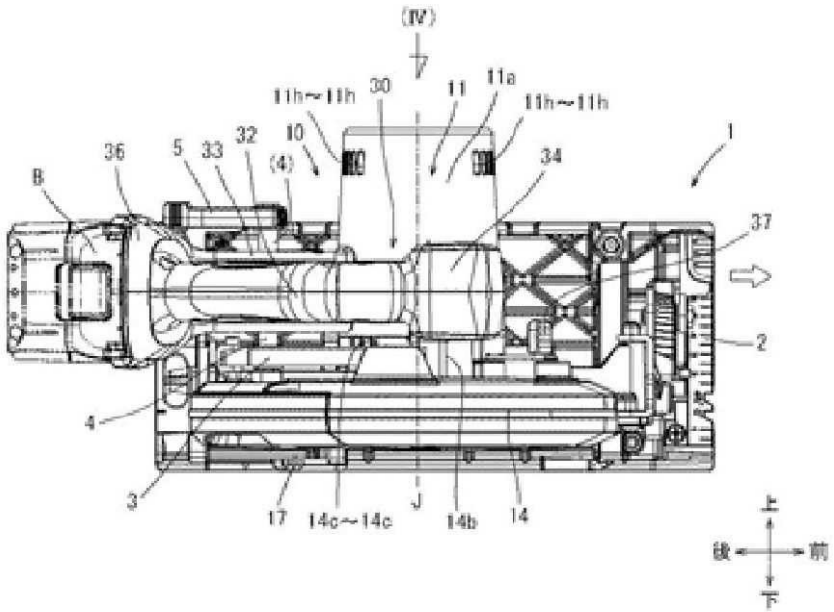
According to the second embodiment constructed in this manner, the exhaust holes 11h-11h, 11i-11i provided at the rear part of the motor case 11a in the first embodiment function as suction holes, and the suction holes 14c-14c in the first embodiment function as exhaust holes. In the second embodiment, they are hereinafter referred to as the suction hole 11i and the exhaust hole 14c, respectively. The suction holes 41-41 provided in the coupling section 33 of the handle part 30 function as a suction hole in the same manner as in the first embodiment. In FIG. 5, illustration of the suction hole 11i, the exhaust hole 14c, and the suction hole 41 is omitted.

By arranging the cooling fan 11j at the front part of the electric motor 11, the exhaust holes 14c-14c are placed around the cooling fan 11j. For this reason, rotation of the cooling fan 11j will introduce the open air through the suction holes 11h-11h, 11i-11i of the motor rear part. After the introduced open air (cooling wind) cools the stator 11b and the rotor 11c, it is exhausted outside through the exhaust holes 14c-14c of the motor mount seat 14b. Also, when the cooling fan 11j rotates, the open air will be introduced also via the suction holes 41-41 provided in the coupling section 33 of the handle part 30, and cooling of the circuit board 40 will be carried out. The cooling air which cooled the circuit board 40 is also exhausted outside from the exhaust holes 14c-14c through a ventilation path.

... (Omitted)"

(E) FIG. 2

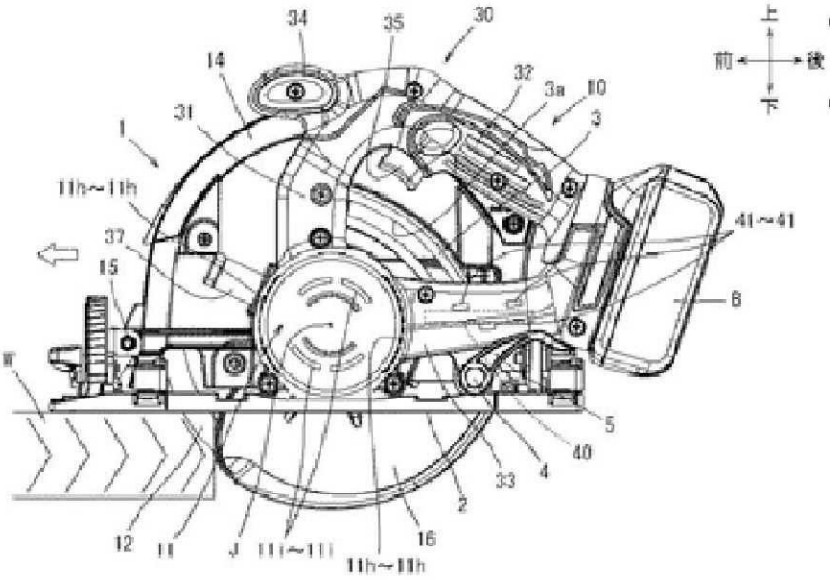
FIG. 2 provides graphical illustration of the coupling section 33 of the handle part 30 and the main grip part 32.



上 Up
下 Down
前 Front
後 Back

(F) FIG. 4

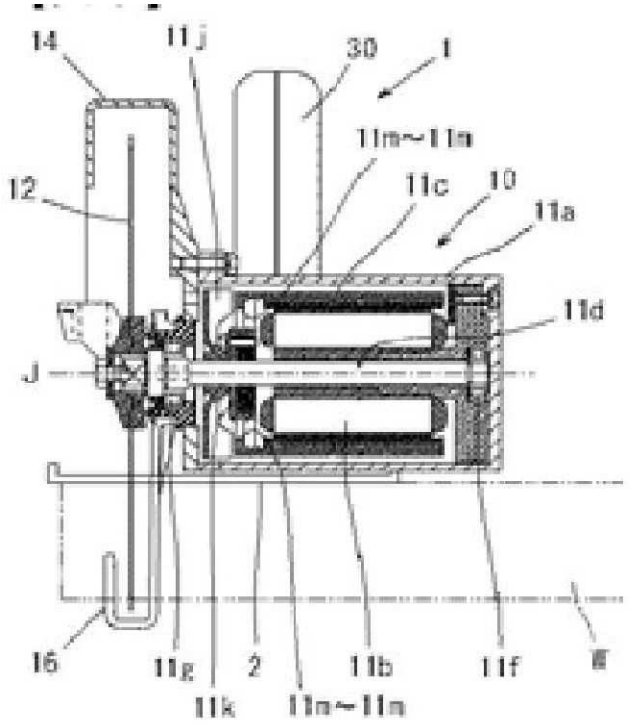
FIG. 4 provides graphical illustration of the state where the coupling section 33 of the handle part 30 is coupled to the motor case 11a and the circuit board 40 is arranged inside of the coupling section 33, and suction holes 41 are provided in the rear face side of the coupling section 33 (the front side in FIG. 4).



上 Up
下 Down
前 Front
後 Back

(G) FIG. 5

FIG. 5 provides graphical illustration of the state where the cooling fan 11j is arranged between the electric motor 11 and the rotary cutter 12 and the cooling fan 11j is provided inside of the motor case 11a.



(H) Invention of Evidence A No. 7

In view of the description of the above-identified subsection (B) "the base 2 of the flat plate shape which makes the top surface of the sections W abut," it is clear that the lower face of the base 2 is slid on the cutting section W.

Also, the above subsection (D) states in the context of the second embodiment "arranging the cooling fan 11j at the front part of the electric motor 11." In view of the description of above-identified subsection (B); i.e., "with regard to the electric motor 11, the rotary blade tool 12 side with respect to the direction of the motor's axis line j is regarded as a front side or a front part, and the opposite side thereof as the backside or a rear part," it is clear that "the front part" as discussed in the above-identified subsection (D) refers to "the rotary cutter 12 side." Also, it is stated in the above-identified subsection (D) that the direction of the rotor 11c and the position of the cooling fan 11j of the second embodiment differ from those of the above-mentioned first embodiment, and that the same or similar signs are assigned to the same or similar same members and components as those of the first embodiment, the description of which is omitted. As such, the matters described in the above-identified subsections (A) to (C), the graphical illustration of the above-identified subsection (E) and (F) in the context of the first embodiment, and the matters described in the above-identified subsection (D) and the graphical illustration of the above-identified

subsection (G) in the context of the second embodiment are summarized with focus given to the second embodiment in light of the common technical knowledge, it is recognized that the following invention is described in Evidence A No. 7 (hereinafter referred to as "the invention of Evidence A No. 7").

"A portable circular saw including an electric motor 11, the portable circular saw comprising:

a motor case 11a accommodating the electric motor 11 and a coupling section 33 coupled to the motor case 11a and in communication with the inside of the motor case 11a via a ventilation path;

a base 2 supporting thereon a tool body 10 including a rotary cutter 12 rotated by the electric motor 11, the motor case 11a, the coupling section 33, etc., the base having the lower face that is slid on the cutting section W, wherein the rotary cutter 12 projects from the lower face;

a cooling fan 11j provided on the electric motor for cooling of the motor and a circuit board 40 for operation control of the electric motor 11,

wherein a suction hole 11i is provided on the rear face of the motor case 11a and a plurality of suction holes 41 are provided in the rear face of the coupling section 33,

the circuit board 40 is arranged inside of the coupling section 33, the circuit board 40 is cooled by open air introduced via the suction holes 41 provided in the rear face of the coupling section 33, and

the electric motor 11 is a brushless motor."

B. Descriptions of Evidence A No. 9

Evidence A No. 9, which is a publication distributed prior to filing of the application for the Patent, contains the following descriptions. It should be noted that the underlines are given by the body.

(A) "[0002]

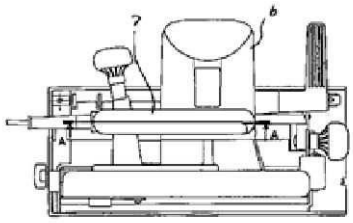
[Background Art] An example of the conventional power tool is described with reference to FIGS. 1 and 4. FIG. 4 is a cross-sectional view of the enlarged principal part of FIG. 1. As illustrated in the figures, a motor 2, a fan 3 attached to the rotation shaft 2a of the motor 2, and a fan guide 4 positioned between the fan 3 and the motor 2 are accommodated in the housing 6. As illustrated in the figures, a ventilator hole 10 is provided in the housing 6 such that it communicates with the handle part 7, and a ventilator hole 9 is provided in the handle part 7. Moreover, the power element 1 is positioned between the ventilator hole 9 and the ventilator hole 10. By virtue of such a configuration, the fan 3 that rotates with the motor 2 causes the cooling air to flow

through the ventilator window 9 and the ventilator window 10, and thereby the power element 1 is cooled."

(B) "[0005]
[Description of Embodiments] An embodiment of the power tool of the present invention is described with reference to FIGS. 1 to 3. FIG. 2 is an enlarged view of the principal part of the cross section taken along the line A-A of FIG. 1 which illustrates one embodiment of the present invention, and FIG. 3 is a cross-sectional view of the enlarged principal part of one embodiment of the power tool of the present invention. As illustrated in the figures, two ventilator windows are provided in a handle part 7. Also, the housing 6 has been hitherto provided with a groove 8 for passing therein an electrical wire 5 electrically connecting a not-shown driving switch provided on the handle part 7 to the motor, the electrical wire 5 extending from the housing 6 to the handle part 7. A power element 1 is positioned between the ventilator window 9 and the groove 8 of the housing 6. By virtue of such a configuration, when the motor 2 and the fan 3 rotate, as illustrated in FIG. 3, the cooling air flows through the ventilator window 9 and the groove 8 of the housing 6, and thereby the power element 1 is allowed to be cooled... (Omitted)"

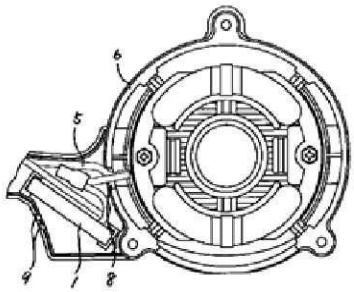
(C) FIG. 1

FIG. 1 provides graphical illustration of the top view of the power tool that has the handle part 7.



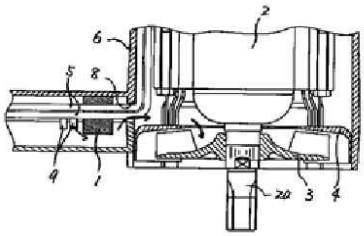
(D) FIG. 2

FIG. 2 provides graphical illustration of the cross section taken along line A-A of FIG. 1.



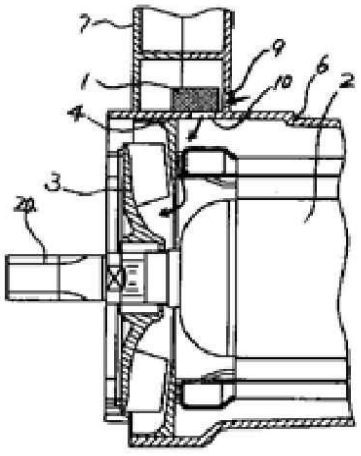
(E) FIG. 3

FIG. 3 provides graphical illustration of the state where the handle part 7 is provided radially outer side of the fan 3 and the power element 1 is provided inside of the handle part 7.



(F) FIG. 4

FIG. 4 provides graphical illustration, with regard to a state of the prior art power tool, of the state where the handle part 7 is provided radially outer side of the fan 3 and the power element 1 is provided inside of the handle part 7.



C. Descriptions of Evidence A No. 12

"Motor Pocket Book for Practical Use: Home Appliance Motor and Inverter

Technology," ed. Kazuo Nagatake (April 28, 2000; first edition, first printing by Nikkan Kogyo Shimbun, Ltd.) (hereinafter referred to as "Evidence A No. 12"), which is a publication distributed prior to filing of the application for the Patent, contains the following descriptions.

(A) Page 34, Line 4 from the bottom to Page 36, Line 4 (except for FIG. 2.25)
"(2) Principle of Driving

A conventional brush DC motor uses a brush and a commutator to define the field and the position of the armature and switches the currents so that torque is continuously generated. In contrast, a brushless DC motor, in place of a brush and a commutator, uses a Hall sensor or the like to detect the position of the (field) rotor and, on the basis of the position information, determines the armature winding generating the torque, turns on and off the semi-conductor switch to switch the currents flowing in the winding wire, and thus continuously generates the torque."

(B) Page 164, Lines 1 to 7
"(3) Motor Speed Control

In order to control the speed of the motor, it is necessary to change the voltage applied to the motor. As the methodology therefor, the PWM (pulse width modulation) scheme and the PAM (pulse amplitude modulation) scheme are mentioned. The PWM scheme adjusts the average voltage of the output by turning on and off at a high speed the output voltage with the frequency in the order of several kHz and adjusting the proportion of the ON period relative to the OFF period. The PAM scheme uses a boost chopper circuit to adjust the output voltage."

(C) Page 165, FIG. 4.52

FIG. 4.52 illustrates the state where, with regard to the PWM-base driving circuit, there exist a control circuit and a switching circuit, rotor position detection signals are input to the control circuit, and the signal from the control circuit is input via the driver into the switching circuit.

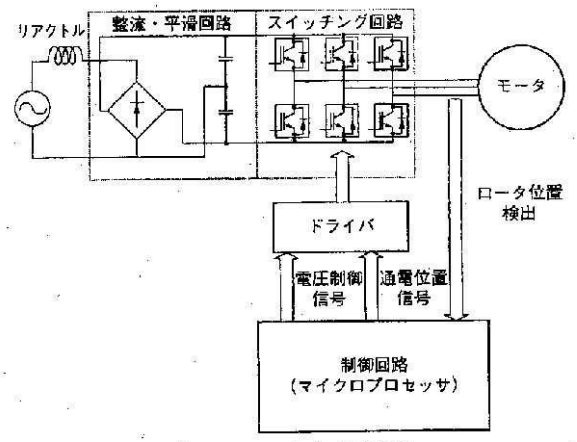


図 4.52 PWM 方式の駆動回路

リアクトル Reactor
整流・平滑回路 Rectifying and smoothing circuit
スイッチング回路 Switching circuit
モータ Motor
ロータ位置検出 Rotor position detection
ドライバ Driver
電圧制御信号 Voltage control signal
通電位置信号 Energization position signal
制御回路（マイクロプロセッサ） Control circuit (microprocessor)
図４．５２ ＰWM方式の駆動回路 FIG. 4.52 PWM-based driving circuit

(D) Page 165, FIG. 4.53

FIG. 4.53 illustrates the state where, in the context of a PAM-based driving circuit, a control circuit and a switching circuit exist, a rotor position detection signal is input to the control circuit, and a signal from the control circuit is input via a driver to the switching circuit.

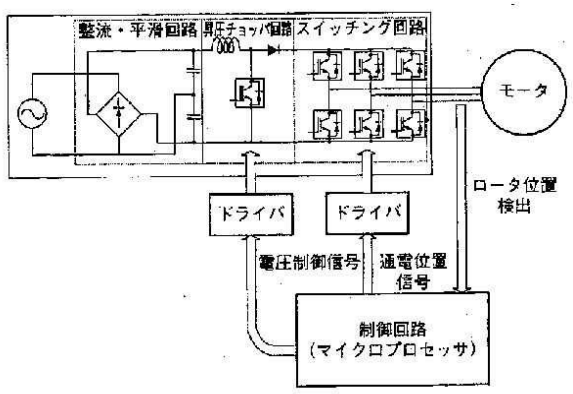


図 4.53 PAM 方式の駆動回路

整流・平滑回路 Rectifying and smoothing circuit
昇圧チョッパ回路 boost chopper circuit
スイッチング回路 Switching circuit
モータ Motor
ロータ位置検出 Rotor position detection
ドライバ Driver
電圧制御信号 Voltage control signal
通電位置信号 Energization position signal
制御回路（マイクロプロセッサ） Control circuit (microprocessor)
図４．５３ ＰAM方式の駆動回路 FIG. 4.53 PAM-based driving circuit

(E) Page 38, Line 4 from the bottom to Page 40, Line 1 (except for FIGS. 2.27 to 2.30)

"(3) Position detection

In order to continue the rotation of the brushless DC motor, it is necessary to detect the rotation position of the rotor and make the current flow in a predetermined armature winding and switch the phase sequence. Although various position detection units may be contemplated, the currently prevalent approach is to use a Hall element.

○ Operation of Hall element

FIG. 2.28 is a schematic diagram of the structure of the Hall element. Under the condition where the bias current IH is given, it is possible to detect the magnitude of the magnetic flux ϕ and the polarity discrimination of the magnetic pole."

D. Descriptions of Evidence A No. 13

Japanese Unexamined Patent Application Publication No. 2010-201516

(hereinafter referred to as "Evidence A No. 13"), which is a publication distributed prior to filing of the application for the Patent, contains the following descriptions.

(A) "[0040]

The circular saw body 20 forms its outline by its housing 21 and saw cover 22, and is provided with the saw blade 23. The saw blade 23 corresponds to a driven component. The housing 21 is placed at the side of the one side face of the saw blade 23, and the housing 21 accommodates therein a motor 24 (FIG. 2, etc.) that drives and rotates the saw blade 23 about the circular-saw axis 23A as the rotation axis, and is constituted by a motor housing 21A having an air inlet port 21a formed in the opposite side of the saw blade 23 side, an air outlet port 21b formed in the saw blade 23 side, and a gear case 21B that stores a not-shown power transmission device adapted to transmit the rotation of the motor 24 to the saw blade 23, and is placed between the motor housing 21A and the saw cover 22. Also, a brake mechanism for stopping the drive of the motor 24 for a short time when power supply is turned off by an operator is incorporated in the housing 21. The housing 21 corresponds to the body. The motor 24 specifically is a brushless motor and includes a rotor 24A therein, and the rotation axis of the rotor 24A constitutes the output shaft 24B of the motor 24... (Omitted) ...

[0041]

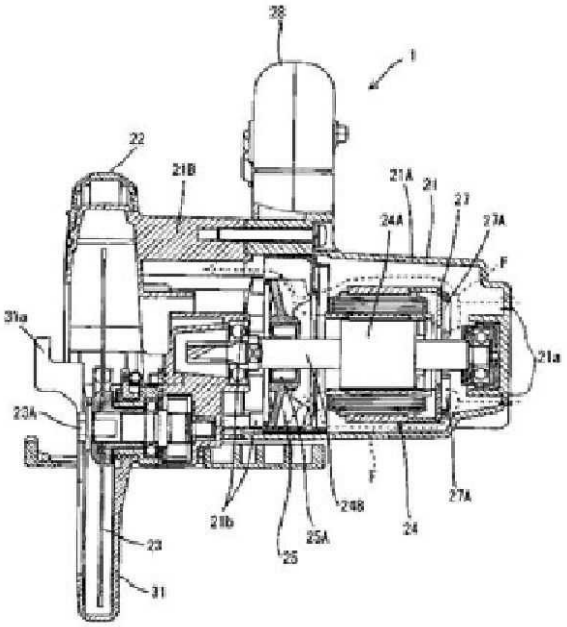
A handle 28 is provided at the top of the housing 21... (Omitted)

[0043]

Between the housing 21 and the motor 24, there is defined and provided an air flow path F which extends in the direction of the saw cover 22 as shown by the arrow of a dashed line in FIG. 6. More specifically, the air flow path F is formed such that air flows from the right-hand side to the left-hand side of the figure mainly along the side surface of the motor 24 between the housing 21 and the side surface of the motor 24, and flows into the inside of the motor 24 and through the inside from the right-hand side to the left-hand side of the figure. The fan 25 introduces air into the housing 21 from the air inlet port 21a formed in the side opposite the saw blade side of the housing 21 by the rotation of the fan 25, and passes the air in the air flow path F and cools the circuit board 27 having the control circuit 41 and the motor 24, and the air can be discharged from the air outlet 21b formed in the saw blade side of the housing 21 out of the housing 21."

(B) FIG. 6

FIG. 6 provides graphical illustration of the state where the handle 28 is provided on the radially outer side of the fan 25.



(2) Comparison of the patent invention 1 with the invention of Evidence A No. 7

When the patent invention 1 is compared with the invention of Evidence A No. 7, it is clear that the "electric motor 11" of the invention of Evidence A No. 7 corresponds to the "motor" of the patent invention 1. Likewise, the "portable circular saw" corresponds to the "portable electric cutter," the "motor case 11a and the coupling section 33 that is coupled to the motor case 11a and in communication with the inside of the motor case 11a via the ventilation path" corresponds to the "housing," and the "rotary cutter 12" corresponds to the "saw blade."

Also, as mentioned above, since the "motor case 11a and the coupling section 33 that is coupled to the motor case 11a and is in communication with the inside of the motor case 11a via the ventilation path" corresponds to the "housing," the "supporting thereon a tool body 10 including the motor case 11a, the coupling section 33, etc." in the invention of Evidence A No. 7 corresponds to "coupled to the housing" in the patent invention 1, and the feature "having the lower face that is slid on the cutting section W, wherein the rotary cutter 12 projects from the lower face" in the invention of Evidence A No. 7 corresponds to the feature "having a bottom surface slidable on a material to be cut, and having an opening through which the saw blade can protrude downward from the bottom surface" in the patent invention 1. Hence, the "base 2" of the invention of Evidence A No. 7 corresponds to the 'base" of the patent invention 1.

Also, it is clear that "a cooling fan 11j provided on the electric motor for cooling of the motor" of the invention of Evidence A No. 7 corresponds to "a fan driven to rotate by the motor and cooling the motor by fan air generated by the rotation" of the patent invention 1.

In addition, the feature "comprising a circuit board 40 for operation control of the electric motor 11" in the invention of Evidence A No. 7 and "a driving circuit including switching elements for switching power supplied to the motor; a control circuit for controlling the driving circuit; a circuit board on which one or both of the driving circuit and the control circuit is mounted" in the patent invention 1 have the common feature that "there is provided a circuit board for controlling the operation of the motor."

Also, "the rear face of the motor case 11a" and "the rear face of the coupling section 33" in the invention of Evidence A No. 7 correspond to "the housing's side opposite to the saw blade" in the patent invention 1. Accordingly, "a suction hole 11i is provided in the rear face of the motor case 11a and a plurality of suction holes 41 are provided in the rear face of the coupling section 33" in the invention of Evidence A No. 7 and the "motor cooling air vents are provided in the housing on a side opposite to the saw blade, and circuit board cooling air vents are provided in the housing on the side opposite to the saw blade," in the patent invention 1 have the common feature that "there are provided motor cooling air vents and a circuit board cooling ventilator window in the housing on a side opposite to the saw blade."

Further, the feature "the circuit board 40 is arranged inside of the coupling section 33, the circuit board 40 is cooled by open air introduced via the suction holes 41 provided in the rear face of the coupling section 33" in the invention of Evidence A No. 7 and the feature "at least a part of the circuit board is disposed in a flow path of the fan air" in the patent invention 1 have the common feature that "at least part of the circuit board is arranged in the flow path of the fan air."

In addition, it is clear that the "brushless motor" of the invention of Evidence A No. 7 corresponds to the "brushless motor" of the patent invention 1.

In view of the above, the patent invention 1 and the invention of Evidence A No. 7 are prima facie different from or identical to each other in the following features.

<Corresponding features>

"A portable electric cutter having a motor, the portable electric cutter comprising:

a housing in which the motor is accommodated;

a saw blade driven to rotate by the motor;

a base coupled to the housing, having a bottom surface slidable on a material to be cut, and having an opening through which the saw blade can protrude downward from the bottom surface;

a fan driven to rotate by the motor and cooling the motor by fan air generated by the rotation; and

a circuit board for controlling the operation of the motor,

wherein motor cooling air vents and ventilator windows for cooling the circuit board are provided in the housing on a side opposite to the saw blade, at least part of the circuit board is arranged inside of the passage of the fan air, and

the motor is a brushless motor."

<Prima facie different feature 1>

In the patent invention 1, the circuit board is "a driving circuit including switching elements for switching power supplied to the motor; a control circuit for controlling the driving circuit; a circuit board on which one or both of the driving circuit and the control circuit is mounted," and "the portable electric cutter further comprises a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor; and the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for controlling the drive of the motor to the driving circuit." In contrast, in the invention of Evidence A No. 7, the circuit board is a "circuit board 40 for operation control of the electric motor 11."

<Prima facie different feature 2>

With regard to the arrangement of the circuit board, in the patent invention 1, "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction." In contrast, in the invention of Evidence A No. 7, it is not identified whether or not the "circuit board 40" is so arranged.

(3) Determination regarding the prima facie different features

A. With regard to the prima facie different feature 1

Referring to the above subsection (1) C. (A), we can understand the technical matters (hereinafter referred to as "the technical matter 1 described in Evidence A No. 12") to the effect that the brushless DC motor is configured to detect the position of

the rotor by a Hall sensor, etc., determine the armature winding for generating the torque based on the position information, turn on and off the semiconductor switch to switch the currents flowing in the winding, and generate the torque continuously.

Also, referring to the above subsections (1) C. (B) to (D), there are two modes of speed control for the brushless DC motor; i.e., the PWM-based scheme and the PAM-based scheme. Given either scheme, we can understand the technical matter (hereinafter referred to as "the technical matter 2 described in Evidence A No. 12") that the driving circuit has the control circuit and the switching circuit, the rotor position detection signal is input to the control circuit, and the signal from the control circuit is input to the switching circuit.

Evidence A No. 12 is a document that explains the principle and the structure of the motor for use in home appliances, and it can be said that this document was distributed on April 28, 2000 at the latest; i.e., ten or more years earlier than the filing date of the application for the Patent. Accordingly, the technical matters 1 and 2 described in Evidence A No. 12 are merely matters that fall within the common technical knowledge for a person skilled in the art who uses the brushless DC motor.

In addition, since the invention of Evidence A No. 7 uses a brushless motor, it is clear that, according to the technical matter 1 described in Evidence A No. 12, it is configured to detect the position of the rotor by a Hall sensor, etc.

Also, the "circuit board 40" of the invention of Evidence A No. 7 is configured to "carry out operation control for the electric motor 11." Since the "electric motor 11" is a brushless motor, it can be said that, according to the technical matter 2 described in Evidence A No. 12, regardless of the operation control being carried out in accordance with the PWM-based scheme or the PAM-based scheme, the driving circuit has the control circuit and the switching circuit, the rotor position detection signal is input to the control circuit, and the signal from the control circuit is input to the switching circuit.

When the common technical knowledge as indicated by the technical matters 1 and 2 of Evidence A No. 12 is taken into account, it can be said that the "circuit board 40" of the invention of Evidence A No. 7 is "a driving circuit including switching elements for switching power supplied to the motor, a control circuit for controlling the driving circuit, and a circuit board that includes either or both of the driving circuit and the control circuit." It can also be said that the invention of Evidence A No. 7 "further comprises a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor and the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for

controlling the drive of the motor to the driving circuit." Hence, it cannot be said that above prima facie different feature 1 is a substantial difference.

B. With regard to the prima facie different feature 2

It is a traditionally well-known technical matter in (the field of) the portable electric cutter to arrange the handle of the portable electric cutter at the position radially outer side of the fan when a fan that cools the motor is arranged between the saw blade and the motor, as indicated in the above (1) D. (B) as well as the above subsections (1) B. (A) to (F).

It can be said that the position of the handle of the portable electric cutter is determined by taking into account the operability and the like, as well as the position of the center of mass of the portable electric cutter and other relevant elements. Since it is a traditionally well-known technical matter to arrange the handle at the position radially outer side of the fan, it is merely a very minor difference in embodied means to solve the problem in the invention of Evidence A No. 7 to arrange the position of the handle of the portable electric cutter at the position radially outer side of the fan.

In addition, when the position of the handle in the invention of Evidence A No. 7 is arranged at the position radially outer side of the fan, then the coupling section 33 will also be arranged on the radially outer side of the fan, and the circuit board 40 arranged inside of the coupling section 33 will also be arranged at the radially outer side of the fan; i.e., "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction."

In view of the foregoing, it is a very minor difference in embodied means to solve the problem to arrange the position of the handle of the portable electric cutter in the invention of Evidence A No. 7 at the position on a radially outer side of the fan, as a result of which at least a part of the circuit board 40 of the invention of Evidence A No. 7 will be disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction. Accordingly, it cannot be said that the above prima facie different feature 2 is a substantial difference.

C. Closing regarding the patent invention 1

As discussed in the above sections A and B, since there are no substantial differences between the patent invention 1 and the invention of Evidence A No. 7, these inventions are identical to each other.

(4) Comparison of the patent invention 2 with the invention of Evidence A No. 7

When the patent invention 2 is compared with the invention of Evidence A No. 7, "a coupling section 33 coupled to the motor case 11a and in communication with the inside of the motor case 11a via a ventilation path" and "the circuit board 40 is arranged inside of the coupling section 33" in the invention of Evidence A No. 7 mean that the inside of the coupling section 33 for arranging the circuit board and the inside of the motor case 11a are in communication with each other via the ventilation path, and accordingly correspond to "an inside of the housing in which the circuit board is accommodated is in communication with the motor casing" in the patent invention 2.

Also, the feature "the circuit board 40 is arranged inside of the coupling section 33, the circuit board 40 is cooled by open air introduced via the suction holes 41 provided in the rear face of the coupling section 33" and "a coupling section 33 coupled to the motor case 11a and in communication with the inside of the motor case 11a via a ventilation path" in the invention of Evidence A No. 7 mean that the circuit board 40 is arranged between the suction holes 41 provided in the coupling section 33 and the motor case 11a. Accordingly, it corresponds to "the circuit board is disposed between the circuit board cooling air vents provided in the housing and the motor casing" in the patent invention 2.

As such, the patent invention 2 and the invention of Evidence A No. 7 are identical to each other in the corresponding features as ascertained in the above (2) whilst they are different from each other in the prima facie different features 1 and 2, in addition to which they are prima facie different from each other in the following feature.

<Prima facie different feature 3>

The patent invention 2 is configured such that "the fan is accommodated in a motor casing in the housing along with the motor." In contrast, it is not unidentified whether or not the invention of Evidence A No. 7 has such a configuration.

(5) Determination regarding the prima facie different feature 3

Referring to the above subsection (1)A. (G), it is indicated in FIG. 5 of Evidence A No. 7 that the cooling fan 11j is provided inside of the motor case 11a; i.e., that the fan is accommodated along with the motor in the motor casing inside of the housing.

Accordingly, it cannot be said that the above prima facie different feature 3 is a substantial difference, and the patent invention 2 is identical to the invention of

Evidence A No. 7.

(6) Comparison of the patent invention 9 with the invention of Evidence A No. 7

When the patent invention 9 is compared with the invention of Evidence A No. 7, they are identical to each other in the corresponding features as ascertained in the above (2) whilst they are different from each other in the prima facie different features 1 and 2 and the prima facie different feature 3 as ascertained in the above (4), in addition to which they are prima facie different from each other in the following feature.

<Prima facie different feature 4>

The patent invention 9 is configured such that "the rotation state detection unit is accommodated in the motor casing, a sensor magnet is rotated by the motor, a sensor board is disposed so as to be near and opposed to the sensor magnet, and rotation position detection elements are disposed on the sensor board." In contrast, it is not identified whether or not the invention of Evidence A No. 7 has such a configuration.

(7) Determination regarding the prima facie different feature 4

Referring to the above subsection (1) C. (E), we can understand the technical matters that it is necessary to detect the rotation position of the rotor in order to rotate the brushless DC motor, and the currently prevalent approach to the position detection is to use a Hall element. Meanwhile, the Hall element is capable of detecting the magnitude of the magnetic flux and the polarity discrimination of the magnetic pole (hereinafter referred to as "the technical matter 3 described in Evidence A No. 12").

In the same manner as the technical matters 1 and 2 described in Evidence A No. 12 and discussed in the above section (3) A, the technical matter 3 described in Evidence A No. 12 is merely a matter that falls within the common technical knowledge for a person skilled in the art who uses a brushless DC motor, and providing a sensor magnet in the rotor is so well-known a technical matter that no example thereof needs to be discussed.

In addition, since the invention of Evidence A No. 7 uses the brushless motor, it is clear, according to the technical matter 3 described in Evidence A No. 12, that it is necessary in the invention of Evidence A No. 7 to use the Hall element and detect the rotation position of the rotor. Meanwhile, it can be said that it should be done as a matter of course to arrange the Hall element on the circuit board for the sensor, provide a sensor magnet in the rotor, and arrange the sensor magnet and the circuit

board for the sensor such that they are opposed to and close to each other.

Accordingly, it cannot be said that the above prima facie different feature 4 is a substantial difference, and the patent invention 9 and the invention of Evidence A No. 7 are identical to each other.

(8) The demandee's allegation

A. The demandee argues that Evidence A No. 7 fails to disclose the constituent component C-2 of the patent invention 1 (see subsections [Demandee] (2) and (4) of the above section No. 4. 2).

With regard to factual findings that provide the basis for the determination of the above section (3), the body just recognized that Evidence A No. 7 graphically illustrates the state where the cooling fan 11j is arranged between the electric motor 11 and the rotary cutter 12 (see the above subsection (1) A. (G)), and did not recognize that it is described therein that "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction."

Accordingly, the argument at issue of the demandee is without merit and cannot be accepted.

If something should be mentioned about FIG. 5 of Evidence A No. 7 for the record, Paragraph [0012], which explains FIG. 5 of Evidence A No. 7, reads as follows: "In FIG. 5, illustration of the suction hole 11i, the exhaust hole 14c, and the suction hole 41 is omitted" (see the above subsection (1) A. (D)). Also, when FIG. 5 directed to the second embodiment is compared with FIG. 3 directed to the first embodiment, it is clear that the "battery pack B" described in FIG. 3 is not described in FIG. 5, in addition to which the sizes and dimensions and the like of the "handle part 30" and the "blade case 14" are described in detail in FIG. 3 while FIG. 5 describes them only briefly. Also, Evidence A No. 7, Page 8, Line 6 states that "the position of the center of mass is positioned below the handle part 30" in contrast to which FIG. 5 describes nothing about the "position of the center of mass" at issue of the same description. When these descriptions are taken into account, it is reasonable to understand that FIG. 5 focuses on the fact that the orientation of the rotor 11c and the position of the cooling fan 11j in the second embodiment are different from those in the first embodiment and provides its graphical representation solely such that the focused fact is elucidated, and it describes only abstractly and briefly the matters that are less relevant to the focused feature. Accordingly, for example, with regard to the

position of the "handle part 30" which is less relevant to the above focused feature, it is not appropriate to solely rely on the illustration of FIG. 5 and thereby recognize the disputed proximity to the "cooling fan 11j."

B. The demandee argues that even if Evidence A No. 12 is a document that indicates the well-known art, it does not mention the specific circuit board configuration, and, it is undefined what kind of circuit is incorporated in the circuit boards 40, 42 of Evidence A No. 7 (see the subsection [Demandee] (1) and (3) of the above section No. 4. 2).

However, as recognized in the above subsections (1) C. (C) and (D), Evidence A No. 12 indicates that, regardless of the driving circuit being based on either the PWM-based scheme or the PAM-based scheme, the driving circuit has the control circuit and the switching circuit, and the circuit board 40 of Evidence A No. 7 is a "circuit board 40 for operation control of the electric motor 11" (see the above (1)A. (C)), so that the circuit board 40 of Evidence A No. 7 must have at least either one of the control circuit and the switching circuit.

Also, as has been found in the above subsection (1) C. (E), Evidence A No. 12 discloses the Hall element and, when the fact is taken into account that providing a sensor magnet in the rotor is so well-known a technical matter that no example thereof needs to be discussed, the determination of the above (7) is not erroneous.

Accordingly, the argument at issue of the demandee cannot be accepted.

(9) Closing regarding the reason for invalidation 2

As discussed in the foregoing, the patent inventions 1, 2, and 9 are identical to the invention of Evidence A No. 7, and the patent for the patent inventions 1, 2, and 9 has been granted in violation of the provision of Article 29-2 of the Patent Act, and should be invalidated as falling under Article 123(1)(ii) of the same Act.

5. With regard to the reason for invalidation 3 (inventive step)

According to the subsections [Demandant] (1) to (5) of the above No. 4. 3, the reason for invalidation 3 alleged by the demandant is as follows: The patent invention 1, the patent invention 2, and the patent invention 9 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 8 and the matters described in Evidence A No. 9, and the patent inventions 3 to 8 and the patent invention 10 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 8, the matters described in

Evidence A No. 9, and the matters described in Evidence A No. 11, so that the patent for the patent inventions 1 to 10 has been granted in violation of the provision of Article 29(2) of the Patent Act, and the patent for the patent inventions 1 to 10 should be invalidated as being granted in violation of Article 29(2) of the Patent Act and thus falling under Article 123(1)(ii) of the same Act.

(1) Descriptions of the publications

A. Descriptions of Evidence A No. 8 and the invention of Evidence A No. 8

Japanese Unexamined Patent Application Publication No. 2012-000735 (hereinafter referred to as "Evidence A No. 8"), which is a publication distributed prior to filing of the application for the Patent, contains the following descriptions. It should be noted that the underlines are given by the body.

(A) "[0020]

A portable cutter 1 according to the first embodiment of the present invention is described based on FIGS. 1 to 6. The portable cutter 1 comprises a housing 2, a brushless motor 3, a rotation transmission mechanism 4, a saw blade 5, a handle 6, and a base 7.

[0021]

The housing 2 forms the outline of the portable cutter 1, and mainly comprises a motor housing 21, a gear case 22, and a saw cover 23. As shown in FIG. 1, the motor housing 21 is connected to the gear case 22. The saw cover 23 is placed at the side of the motor housing 21 opposite to the gear case 22, and is connected to the gear case 22. Hereinafter, the direction which the gear case 22 is connected to the motor housing 21 is defined as the left direction, and an opposite side is defined as the right direction. The handle 6 is extended from the gear case 22. In the state shown in FIG. 1, the direction in which the housing 2 is placed with respect to the base 7 is defined as the upward direction, and an opposite side is defined as the downward direction. Also, the near side on the paper of FIG. 1 is defined as the front direction, and an opposite side is defined as the rear direction.

[0022]

The motor housing 21 mainly builds in the brushless motor 3 and the control board 31. The brushless motor 3 has an output shaft 32 extended to right and left directions, and the output shaft 32 is supported movably by a bearing 33 that is pivotable at the motor housing 21. The output shaft 32 includes a cooling fan 34 that is pivotable coaxially with the output shaft 32. As shown in FIG. 4, a plurality of inlet

ports 21a are formed in the motor housing 21, and the cooling fan 34 takes in the open air via the inlet port 21a, and cools the brushless motor 3. A pinion gear 35 is provided at the right end section of the output shaft 32.

[0023]

As shown in FIG. 4, the brushless motor 3 comprises a rotor 36 fixed to the output shaft 32, and a stator 37 arranged to surround the rotor 36. As shown in FIG. 5, the rotor 36 is provided with four magnetic bodies 38, and a magnet for acquiring magnetism required for driving is built in the magnetic body 38. As shown in FIG. 4, the stator 37 has a plurality of coils 39, and rotates the rotor 36 by sending current through the coil 39 in a proper order to form a magnetic field.

[0024]

The control board 31 has an approximately disc-like shape and is arranged such that it extends between the brushless motor 3 and the saw blade 5, or more specifically between the brushless motor 3 and the cooling fan 34. As shown in FIG. 6, a through-hole 31a is formed in the center portion of the control board 31, and an output shaft 32 is inserted in the through-hole 31a. On the control board 31, a plurality of sensors 31A are provided, and the sensor 31A detects change in the magnetic field of the magnetic body 38. By virtue of this, the control board 31 controls the angle of rotation and the rotation direction of the rotor 36. For this reason, it is necessary to arrange the sensor 31A near the magnetic body 38. According to the first embodiment, as a result of arranging the control board 31 between the rotor 36 and the cooling fan 34, the control board 31 is allowed to be placed at a position near the center of mass line where the sensor 31A can detect the magnetic body 38. By virtue of this, the center of mass of the portable cutter 1 is shifted to the right side, so that it becomes possible to arrange the center of gravity pf the portable cutter to move to right-hand side, and to arrange the center of mass of the portable as a whole generally at the center in the right and left directions."

(B) "[0028]

The base 7 is constituted by a plate material of an approximately rectangular shape and is placed under the housing 2. The base 7 is arranged so that a longitudinal direction may correspond with the forward/rearward direction, and a not-shown opening is formed generally at the center thereof, the opening having an elongated hole extending in the longitudinal direction. The saw blade 5 and the safety cover 51 are inserted in this not-shown opening. ... (Omitted) ... "

(C) "[0032]

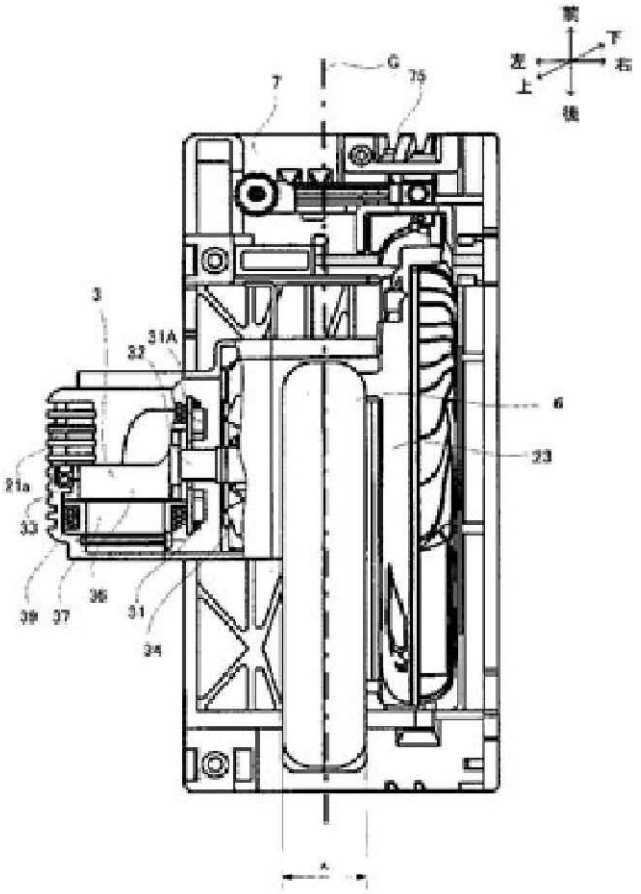
Next, the operation of the portable cutter 1 is described. An operator makes the brushless motor 3 drive by pulling the trigger 61 in a state where the off-lock switch 62 is pressed. Rotation of the output shaft 32 is transmitted to the saw blade 5 via the pinion gear 35 and the gear 41.

[0033]

Cutting operation is started by making a workpiece abut on the base 7 and bringing the saw blade 5 into contact with the workpiece. The safety cover 51 is accommodated in the saw cover 23 by the front of the safety cover being brought into abutment on the workpiece. After the cutting operation is completed, the safety cover 51 will be in the state shows in FIG. 2 according to the energization force of a not-shown spring."

(D) FIG. 4

FIG. 4 provides graphical illustration of the state where a plurality of suction holes 21a are provided in the motor housing's side opposite to the saw blade (left side), and where a dot-and-dash line which indicates the center of gravity G coincides with the handle 6 and the cooling fan 34 resides on the motor housing's side opposite to the saw blade (left side) relative to the dot-and-dash line.



上 Up
下 Down
前 Front
後 Rear
右 Right
左 Left

(E) "[Technical Problem]
[0005]

In the above-mentioned portable cutter 101, since the commutator motor 103 is adopted, the size of the tool body in the axial direction of the commutator motor 103 and the weight of the entire tool body have been problematic. Further, because of the imbalance between the weight of the commutator motor residing on one side and the weight of the saw blade and the saw cover residing on the other side, where the commutator motor 103 and the saw blade and the saw cover reside on both sides with the handle in between reside on one side of the commutator motor 103 with respect to

the commutator motor and the saw cover resides on the other side thereof, the tool becomes inclined as the operator grasps the handle to proceed with his/her work. As a result, operability at the time of operation is undermined. In view of this, an object of the present invention is to provide a small and lightweight portable cutter with reduced size in its right and left direction allowing for improved operability.

[Solution to Problem]

[0006]

In order to solve the above problem, the present invention provides a portable cutter that includes a housing, a brushless motor accommodated in the housing and having an output shaft extended in one direction, a cutting blade driven and rotated by the brushless motor and adapted to cut a workpiece, a saw cover provided on the housing and covering substantially half of the outer circumference of the cutting blade, a base rotatably supporting the saw cover or the housing and abutting on the workpiece and having an opening part formed so as to allow the cutting blade to protrude therefrom, and a handle provided on the housing, the handle being provided between the brushless motor and the cutter such that the center of mass resides below the handle in the one direction."

(F) Invention of Evidence A No. 8

In view of the description of the above subsection (C) which reads "Cutting operation is started by making a workpiece abut on the base 7 and bringing the saw blade 5 into contact with the workpiece," it is clear that the base 7 has a bottom surface slidable on the workpiece.

Also, in view of the descriptions of the above subsection (A) which reads "On the control board 31, a plurality of sensors 31A are provided, and the sensor 31A detects change in the magnetic field of the magnetic body 38. By virtue of this, the control board 31 controls the angle of rotation and the rotation direction of the rotor 36," it is clear that the control board 31 receives the detection signal of the sensor 31A and controls the angle of rotation and the rotation direction of the rotor 36.

In addition, when the described matters identified in the above (A) to (D) and graphical illustrations are summarized in light of the common technical knowledge, it can be said that the following invention is described in Evidence A No. 8 (hereinafter referred to as "the invention of Evidence A No. 8").

"A portable cutter 1 including a brushless motor 3, the portable cutter 1 comprising:

a housing 2 that includes the motor housing 21 adapted to accommodate therein the brushless motor 3, a gear case 22, and a saw cover 23;

a handle 6 provided on a gear case 22 interconnecting the motor housing 21 and the saw cover 23;

a saw blade 5 driven and rotated by the brushless motor 3;

a base 7 residing below the housing 2 and having a bottom surface slidable on a workpiece and having an opening part formed so that the saw blade 5 is inserted therethrough;

a cooling fan 34 provided on an output shaft 32 of the brushless motor 3 and adapted to cool the brushless motor 3; and

a control board 31,

wherein a plurality of suction holes 21a are provided on the side of the motor housing 21 opposite to the saw blade so as to take in the outer air for cooling the brushless motor 3,

a plurality of sensors 31A are provided on the control board 31 that detect change in the magnetic field of the magnetic body 38 included in the rotor 36 of the brushless motor 3, and

the control board 31 is configured to receive the detection signal of the sensor 31A and control the angle of rotation and the rotation direction of the rotor 36."

B. Descriptions of Evidence A No. 9

The descriptions of Evidence A No. 9 are as described in the above subsections No. 4. (1) B. (A) to (F).

C. Descriptions of Evidence A No. 12

The descriptions of Evidence A No. 12 are as described in the above subsections No. 4. (1) C. (A) to (E).

(2) Comparison of the patent invention 1 with the invention of Evidence A No. 8

When the patent invention 1 is compared with the invention of Evidence A No. 8, it is clear that the "brushless motor 3" of the invention of Evidence A No. 8 corresponds to the "motor" and the "brushless motor" of the patent invention 1. In the same manner, "portable cutter 1" corresponds to the "portable electric cutter," the "housing 2 that includes the motor housing 21, the gear case 22, and the saw cover 23" corresponds to the "housing," and the "saw blade 5" corresponds to the "saw blade."

Also, the feature "being positioned below the housing 2" in the invention of Evidence A No. 8 corresponds to the feature "being coupled to the housing" in the

patent invention 1; the feature "having a bottom surface slidable on the workpiece" corresponds to the feature "having a bottom surface slidable on a material to be cut;" and "an opening section being formed in which the saw blade 5 is inserted and passed" corresponds to the feature "having an opening through which the saw blade can protrude downward from the bottom surface." Accordingly, "the base 7" of the invention of Evidence A No. 8 corresponds to the "base" of the patent invention 1.

Also, it is clear that "a cooling fan 34 provided on an output shaft 32 of the brushless motor 3 and adapted to cool the brushless motor 3" of the invention of Evidence A No. 8 corresponds to "a fan driven to rotate by the motor and cooling the motor by fan air generated by the rotation" of the patent invention 1.

Also, the "control board 31" of the invention of Evidence A No. 8 and "a driving circuit including switching elements for switching power supplied to the motor; a control circuit for controlling the driving circuit; a circuit board on which one or both of the driving circuit and the control circuit is mounted" of the patent invention 1 have the common feature that they are "a circuit board for controlling the driving of the motor."

In addition, the feature "a plurality of suction holes 21a are provided on the side of the motor housing 21 opposite to the saw blade so as to take in the outer air for cooling the brushless motor 3" in the invention of Evidence A No. 8 and the feature "the motor cooling air vents and the circuit board cooling air vents are provided on a side opposite to the saw blade" in the patent invention 1 have the common feature as long as they have "motor cooling air vents are provided on a side opposite to the saw blade."

Also, it is clear that "a plurality of sensors 31A that detect change in the magnetic field of the magnetic body 38 included in the rotor 36 of the brushless motor 3" of the invention of Evidence A No. 8 correspond to "a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor" of the patent invention 1.

In addition, the feature "the control board 31 is configured to receive the detection signal of the sensor 31A and control the angle of rotation and the rotation direction of the rotor 36" in the invention of Evidence A No. 8 and the feature "the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for controlling the drive of the motor to the driving circuit" in the patent invention 1 have the same feature that "the circuit of the circuit board for controlling the driving of the motor is configured to receive the signal of the rotation state detection unit and transmit the signal for controlling the driving of the motor."

As such, the patent invention 1 and the invention of Evidence A No. 8 are identical to and different from each other in the following features.

<Corresponding features>
"A portable electric cutter having a motor, the portable electric cutter comprising:
a housing in which the motor is accommodated;
a saw blade driven to rotate by the motor;
a base coupled to the housing, having a bottom surface slidable on a material to be cut, and having an opening through which the saw blade can protrude downward from the bottom surface;
a fan driven to rotate by the motor and cooling the motor by fan air generated by the rotation; and
a circuit board for controlling the driving of the motor is provided,
wherein motor cooling air vents are provided on a side opposite to the saw blade,
the portable electric cutter further comprises the motor, which is a brushless motor,
a rotation state detection unit configured to generate a signal in accordance with a rotation position of the motor, and
the circuit of the circuit board for controlling the driving of the motor is configured to receive the signal of the rotation state detection unit and transmit the signal for controlling the driving of the motor."

<The different feature 1>
The circuit and the circuit board of the patent invention 1 are "a driving circuit including switching elements for switching power supplied to the motor; a control circuit for controlling the driving circuit and a circuit board on which one or both of the driving circuit and the control circuit is mounted" and "the control circuit is configured to receive the signal of the rotation state detection unit and transmit a signal for controlling the drive of the motor to the driving circuit." In contrast, the circuit board of the invention of Evidence A No. 8 is a "control board 31" and "the control board 31 is configured to receive the detection signal of the sensor 31A and control the angle of rotation and the rotation direction of the rotor 36."

<The different feature 2>
The patent invention 1 is configured such that "at least a part of the circuit board is disposed on a radially outer side of the fan when a direction orthogonal to a rotation axis of the fan is defined as a radial direction, and the at least a part of the circuit

board is disposed in a flow path of the fan air." In contrast, the invention of Evidence A No. 8 does not have such a configuration.

(3) Determination regarding the different features

In view of the nature of the case, we examine the different feature 2 first.

Referring to the above subsections 4. (1) B. (A) to (F), it can be said that Evidence A No. 9 describes the technical matter that the handle part 7 is provided in the radially outer side of the fan 3, the power element 1 is provided inside of the handle part 7, and by virtue of the fan 3 that cools the motor 2, the cooling air flows from the ventilator window 9 provided in the handle part 7 into the inside of the handle part 7 and thus the power element 1 is cooled (hereinafter referred to as "the technical matter described in Evidence A No. 9").

In view of the above, as we examine whether or not it would have been easily conceived by a person skilled in the art to apply the technical matter described in Evidence A No. 9 as a means for cooling the control board 31 of the invention of Evidence A No. 8, the control board 31 of the invention of Evidence A No. 8 includes a plurality of sensors 31A that detect the change in the magnetic field of the magnetic body 38 of the rotor 36, and, in view of the description in Paragraph [0024] as identified in the above subsection (1) A. (A) which reads "it is necessary to arrange the sensor 31A near the magnetic body 38," it is clear that it is necessary to arrange the control board 31 including the sensor 31A near the magnetic body 38 as well.

When the technical matter described in Evidence A No. 9 is applied as the means for cooling the control board 31 of the invention of Evidence A No. 8, the control board 31 of the invention of Evidence A No. 8 will be provided inside of the handle 6 of the invention of Evidence A No. 8. If this is so, the control board 31 will be arranged at a position away from the magnetic body 38, making it impossible to detect the change in the magnetic field of the magnetic body 38 by the sensor 31A, which in turn makes it impossible to control the brushless motor. Accordingly, a person skilled in the art would never attempt to apply the technical matter described in Evidence A No. 9 as the means for cooling the control board 31 of the invention of Evidence A No. 8.

Further, it is clear that the handle 6 of the invention of Evidence A No. 8 needs to be provided radially outer side of the cooling fan 34 of the invention of Evidence A No. 8 in order to apply the technical matter described in Evidence A No. 9 as the means for cooling the control board 31 of the invention of Evidence A No. 8. However, as identified in the above subsection (1) A. (E), Evidence A No. 8 identifies

the technical problem to be solved; i.e., the imbalance between the weight of the commutator motor residing on one side and the weight of the saw blade and the saw cover residing on the other side, where the commutator motor and the saw blade and the saw cover reside on opposite sides with the handle in between, and provides a solution to the technical problem; i.e., arrangement of the center of mass below the handle. If the handle 6 of the invention of Evidence A No. 8 is provided on the radially outer side of the cooling fan 34 of the invention of Evidence A No. 8, then, in view of the graphical illustration of FIG. 4 as identified in the above subsection (1) A. (D), the handle 6 will reside on the opposite side of the saw blade with respect to the position of the center of mass (G), which makes it impossible to solve the above technical problem. Accordingly, a person skilled in the art would never attempt to apply the technical matter described in Evidence A No. 9 as the means for cooling the control board 31 of the invention of Evidence A No. 8.

Also, even when the remaining items of Evidence A and Evidence B are consulted, the feature regarding the above different feature 2 is not described or suggested, so that it cannot be said that it could have been easily conceived by a person skilled in the art in the context of the invention of Evidence A No. 8 to include the feature regarding the above different feature 2.

(4) Closing regarding the patent invention 1

Since it cannot be said that the feature regarding the above different feature 2 could have been easily conceived by a person skilled in the art, it cannot be said that the patent invention 1 could have been easily conceived by a person skilled in the art on the basis of the invention of Evidence A No. 8, the technical matter described in Evidence A No. 9, the technical matters 1 to 3 described in Evidence A No. 12, in relation to which the different feature 1 does not need to be examined.

(5) With regard to the patent inventions 2 to 10

The patent inventions 2 to 10 are the inventions that directly or indirectly depend from the patent invention 1. Since it cannot be said that the patent invention 1 could have been easily conceived by a person skilled in the art on the basis of the invention of Evidence A No. 8, the technical matter described in Evidence A No. 9, and the technical matters 1 to 3 described in Evidence A No. 12, it cannot be said either that the patent inventions 2 to 10 which include all the constituent components of the patent invention 1 could have been easily conceived by a person skilled in the art on the basis of the invention of Evidence A No. 8, the technical matter described in

Evidence A No. 9, and the technical matters 1 to 3 described in Evidence A No. 12 and the technical matters described in Evidence A No. 11.

(6) Demandant's allegation

A. The demandant argues that since the driving circuit and the control circuit of the brushless motor need to be cooled and the circuit of the invention of Evidence A No. 8 also requires cooling, there is no difficulty in applying the technical matter described in Evidence A No. 9 to the invention of Evidence A No. 8, arranging the circuit board that controls the brushless motor inside of the handle, and generating the cooling air that passes the circuit board by the cooling fan that cools the motor (see subsection [Demandant] (3) of the above section No. 4. 3). However, as discussed in the above section (3), the control board 31 of the invention of Evidence A No. 8 is one that includes the sensor 31A and has to be arranged near the magnetic body 38 of the rotor 36. As such, a person skilled in the art would never attempt to apply the technical matter described in Evidence A No. 9 to the invention of Evidence A No. 8.

B. Also, the demandant argues that, when there are several problems associated with the design of a product in normal cases, it is commonly practiced to compromise on some problems to solve a particular problem or problems, so that with the main purpose of cooling the circuit board of the brushless motor, when applying the technical matter described in Evidence A No. 9 to the invention of Evidence A No. 8, it is merely a matter that could have been easily arrived at by a person skilled in the art to define the positional relationship between the handle and the cooling fan as described in Evidence A No. 9 (see the subsection [Demandant] (5) C of the above No. 4. 3). However, as long as Evidence A No. 8 explicitly identifies the problem of the imbalance in the weights of the two side with the handle in between, it cannot be possible that a person skilled in the art who has the common technical knowledge and has the descriptions of the Evidence A No. 8 at hand would attempt to choose to not solve the problem at issue but rather apply the technical matters that cause deterioration of the imbalance to the invention of Evidence A No. 8.

Accordingly, the argument by the demandant cannot be accepted.

C. Further, in the determination of the above section (3), it is found that the control board 31 of the invention of Evidence A No. 8 includes the sensor 31A, and it is determined by mentioning the position of the handle of the invention of Evidence A No. 8 that the invention of Evidence A No. 9 cannot be applied to the invention of Evidence A No. 8. The demandant argues that the finding and the determination are erroneous (see the subsection [Demandant] (6) of the above No. 4. 3). However, the

argument at issue cannot be accepted, because it does not specifically point out the errors in the finding and the determination at issue.

(7) Closing regarding the reason for invalidation 3

As discussed in the foregoing, it cannot be said that the patent for the patent inventions 1 to 10 has been granted in violation of the provision of Article 29(2) of the Patent Act, and accordingly the patent of the case, which does not fall under Article 123(1)(ii) of the same Act, cannot be invalidated.

No. 6. Closing

For the foregoing reasons, the patent for the patent inventions 1, 2, and 9 has been granted in violation of the provision of Article 29-2 of the Patent Act and should be invalidated as falling under Article 123(1)(ii) of the same Act.

Meanwhile, the patent for the patent inventions 3 to 8 and 10 cannot be invalidated for the arguments and means of proof of the demandant.

With regard to the costs in connection with the trial, seven-tenths thereof shall be borne by the demandant and the remaining costs shall be borne by the demandee in accordance with the provision of Article 61 of the Code of the Civil Procedure as applied mutatis mutandis under Article 169(2) of the Patent Act.

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

January 29, 2016

Chief administrative judge:	KUBO, Katsuhiko
Administrative judge:	KARIMA, Hironobu
Administrative judge:	HIRAIWA, Shoichi