Appeal Decision

Appeal No. 2020-8907

Appellant ABB Schweiz AG

Patent Attorney FUKAMI PATENT OFFICE, P. C.

The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2019-529586, entitled "SEMI-HYBRID TRANSFORMER CORE" [International Publication No. WO2018/099737 published on June 7, 2018, National Publication of International Patent Application No. 2020-501365 published on January 16, 2020] has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

No. 1 History of the procedures

The present application was filed on November 17, 2017 as an International Patent Application (priority claim under the Paris Convention: December 2, 2016 European Patent Office (EP)). A notice of reasons for refusal was issued on October 4, 2019. A written opinion and a written amendment were submitted on December 27, 2019. An examiners' decision of refusal was issued on March 2, 2020 (date of delivery: March 10, 2020). An appeal against the examiner's decision of refusal was requested on June 26, 2020.

No. 2 The Invention

The inventions according to Claims 1 to 15 of the present application are recognized as specified by the matters recited in Claims 1 to 15 of the scope of claims amended by the written amendment submitted on December 27, 2019. The invention according to Claim 1 (hereinafter referred to as "Invention 1") is as follows.

"[Claim 1]

A transformer core (1a, 1b, 1c), comprising:

a first yoke (2a) and a second yoke (2b) facing the first yoke (2a); and

at least two limbs (3a, 3b, 3c, 3d) each having first ends (4a, 4b) and second ends

(6a, 6b), the first ends (4a, 4b) each being coupled to a first surface (5a) of the first yoke (2a), the first surface (5a) facing the second yoke (2b), the second ends (6a, 6b) each being coupled to a second surface (5b) of the second yoke (2b), the second surface (5b) facing the first yoke (2a),

wherein the first yoke (2a) is of grain-oriented steel, and at least one of the second yoke (2b) and one of the at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel."

No. 3 Outline of the reasons for the examiner's decision of refusal

The outline of the examiner's decision is as follows.

Reason

The inventions according to the following claims of this application could have been easily made by a person ordinarily skilled in the art of the invention before the filing of the application, on the basis of an invention described in the following publication distributed or an invention that was made publicly available through an electric telecommunication line, in Japan or a foreign country prior to the filing of the application. Thus, the Appellant should not be granted a patent for the inventions under the provisions of Article 29(2) of the Patent Act.

Note (See below regarding Cited Documents, etc.)

. Claims 1, 3-5, 8, 10-15

. Cited Documents, etc. 1, 4-7

. Claims 2, 6-7, 9

. Cited Documents, etc. 1-7

<List of Cited Documents, etc.>

1. Japanese Unexamined Patent Application Publication No. 2013-48138

2. Microfilm of Japanese Utility Model Application No. S56-152571 (Japanese Unexamined Utility Model Application Publication No. S58-56422)

3. Japanese Unexamined Patent Application Publication No. S62-222614

4. Microfilm of Japanese Utility Model Application No. S60-116722 (Japanese Unexamined Utility Model Application Publication No. S62-26013) (Document newly cited; Document describing well-known arts)

5. Microfilm of Japanese Utility Model Application No. S48-99550 (Japanese

Unexamined Utility Model Application Publication No. S50-44615) (Document newly cited; Document describing well-known arts)
6. Registered Utility Model Publication No. 3189478
(Document newly cited; Document describing well-known arts)
7. Specification of European Patent Application Publication No. 2685477
(Document newly cited; Document describing well-known arts)

No. 4 Cited Invention, Cited Documents, and the like
1 Cited Document 1

Cited Document 1 (Japanese Unexamined Patent Application Publication No. 2013-48138) cited in the reasons for refusal stated in the examiner's decision describes the following matters with drawings.
(1) Matters described in Cited Document 1
A "[Technical field]
[0001] This invention relates to a laminated core for a stationary induction apparatus such as a transformer or a reactor, especially to a laminated core for a stationary induction apparatus having low-loss characteristics and high reliability."

B "[0009]

The object of the invention is to provide a laminated core for a stationary induction apparatus, having low-loss characteristics and high reliability, and capable of being produced economically."

C "[0013]

After winding a winding wire on a U-shaped laminated core formed of iron core legs made of amorphous alloy thin bands and a lower part yoke, a silicon steel plate having rigidity higher than that of the amorphous alloy thin bands is inserted for forming an upper part yoke, thereby improving manufacturing work efficiency, resulting in economical production, while reducing shards which are likely to be generated in the amorphous alloy thin bands when inserting the silicon steel plate, thereby improving reliability of a stationary induction apparatus."

D "[Description of Embodiments]
[0015]

The laminated core for a stationary induction apparatus in the invention comprises at least two iron core legs formed by winding a winding wire, and upper part

and lower part yokes which magnetically couple between the iron core legs. A laminate body unit formed by laminating a predetermined number of amorphous alloy thin bands is used for lamination. At least the upper part yoke among the upper part and lower part yokes is formed by laminating silicon steel plates.

[Embodiment 1]

[0016]

The laminated core for a stationary induction apparatus in the invention is described below with reference to a transformer core shown in FIG. 1 to Fig. 4. The single-phase 2-leg transformer laminated core 10 shown in FIG. 1 to which the invention is applied constitutes a closed magnetic circuit, as usual, with two iron core legs 11, 12 and an upper part yoke 13 and a lower part yoke 14 which magnetically couple between the iron core legs 11, 12. The iron core legs 11, 12 and the lower part yoke 14 are formed by, as described later, laminating strip amorphous alloy bands, and the upper part yoke 13 is formed by laminating strip silicon steel plates.

[0017]

A plate thickness of a silicon steel plate is generally 300 or 350 μm. For one piece of silicon steel plate, one laminate body is formed by laminating a predetermined number of amorphous alloy thin bands of about 25 μm in thickness; for example, a set of 12 to 14 amorphous alloy thin bands is combined as a laminate body unit.

[0018]

The single-phase 2-leg transformer laminated core 10 shown in FIG. 1 is constituted by laminating two kinds of laminate units shown in FIG. 2 (a) and (b). Specifically, as shown in FIG. 2 (a), the first laminate unit 10A is formed by arranging amorphous alloy thin bands 11A, 12A, and 14A, as a laminate body unit, to be used for forming the iron core legs 11 and 12 and the lower part yoke 14, and a silicon steel plate 13A to be used for forming the upper part yoke 13 with their joint parts positioned clockwise. On the other hand, as shown in FIG. 2 (b), the second laminate unit 10B is formed by arranging amorphous alloy thin bands 11b, 12B, and 14B and a silicon steel plate 13B, which are constituent members similarly, inversely with their joint parts positioned counterclockwise. The transformer laminated core 10 shown in FIG. 1 is formed by alternately laminating the odd-numbered laminate unit 10A and the even-numbered laminate unit 10B.

[0019]

In the transformer laminated core 10, the amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and the amorphous alloy thin bands 14A, 14B which form the lower part yoke 14 are alternately laminated. Lower laminate joint

parts between them form alternate lamination indicated by solid lines and dashed lines in FIG. 1. The amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and the silicon steel plates 13A, 13B which form the upper part yoke 13 are also alternately laminated. Upper laminate joint parts between them form alternate lamination as indicated by solid lines and dashed lines in FIG. 1 as well.

[0020]

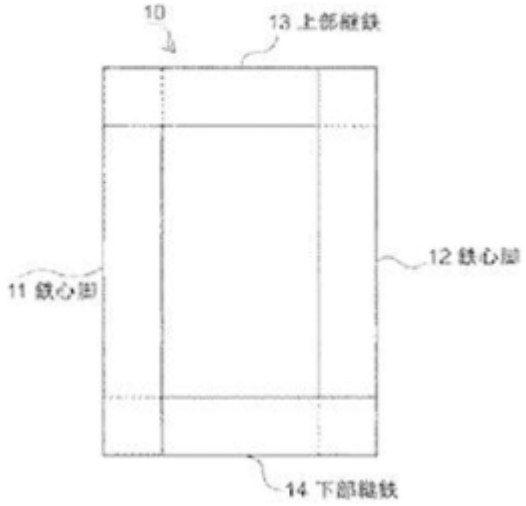
As described above, the transformer laminated core 10 shown in FIG. 1 formed by laminating combination of amorphous alloy thin bands and silicon steel plates is subjected to strain relief annealing under the condition of annealing temperature of 400°C for 10 minutes to 2 hours in a non-oxidizing atmosphere in the laminated state, to remove strain of the amorphous alloy thin bands, thereby improving iron loss or magnetic characteristics. After the strain relief annealing, an iron core backing plate and an iron core fastening tool (not shown) are arranged to erect the whole of the transformer laminated core 10. Thereafter, as shown in FIG. 3, the silicon steel plates 13A and 13B which form the upper part yoke 13 are removed, winding wires 15, 16 are wound on the iron core legs 11, 12, and the silicon steel plates 13A and 13B are inserted to form the upper part yoke 13, thereby forming the body of the transformer.

[0021]

The above configuration can reduce shards of the amorphous alloy thin bands which are generated when inserting the silicon steel plates, since the silicon steel plates having higher rigidity than the amorphous alloy thin bands are inserted for forming the upper part yoke 3 after setting the winding wires 15, 16. The transformer laminated core 10 has higher reliability, accordingly."

【図１】

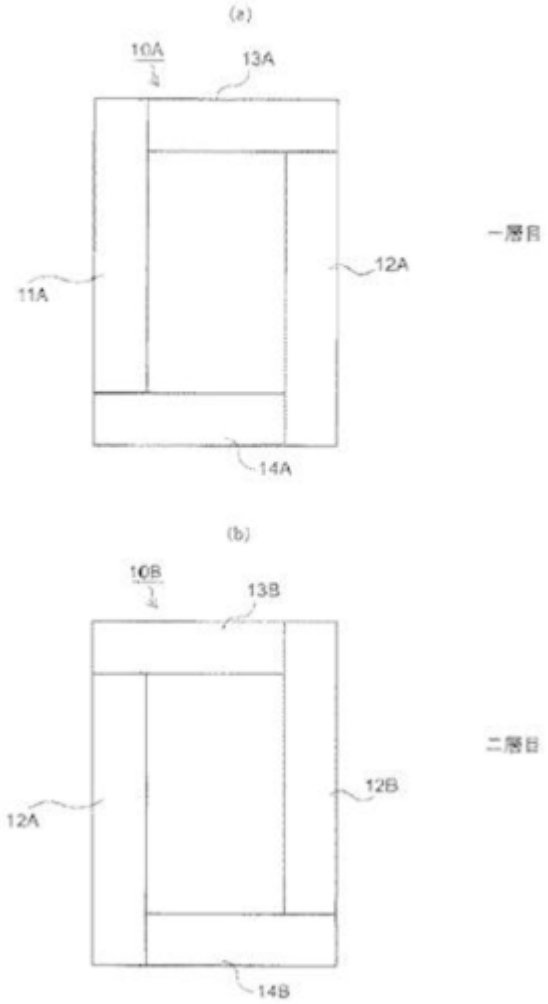
図　1



【図１】　[FIG. 1]
上部継鉄　Upper part yoke
鉄心脚　Iron core leg
下部継鉄　Lower part yoke

【図２】

図　2



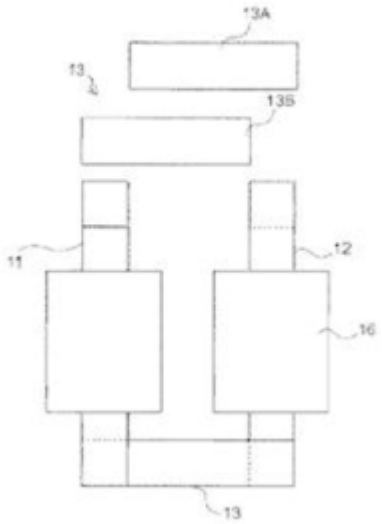
【図２】　[FIG. 2]

一層目　The first layer

二層目　The second layer

【図３】

図 3



【図３】 [FIG. 3]

E "[0023]

The above example shows the transformer laminated core 10 having the upper part yoke 13 formed of the silicon steel plates 13A and 13B. If the lower part yoke 14 is also formed by silicon steel plates having higher rigidity than the amorphous alloy thin bands, a strength sufficient to support the weight of the iron core legs 11, 12 and the upper part yoke 13 can be obtained."

F "[0027]

In the above embodiments, single-phase 2-leg and three-phase 3-leg transformer laminated cores are used for describing this invention. However, this invention can be applied to single-phase 3-leg or three-phase 5-leg transformer laminated cores, and a reactor as well, and a similar effect can be achieved."

(2) Technical matters described in Cited Document 1

Cited Document 1 describes the following technical matters.

A The technique described in Cited Document 1 relates to "a laminated core for a stationary induction apparatus such as a transformer or a reactor" ([0001]), and the object of the invention is to "provide a laminated core for a stationary induction apparatus, having low-loss characteristics and high reliability, and capable of being

produced economically" ([0009]).

B "The single-phase 2-leg transformer laminated core 10" "constitutes a closed magnetic circuit with two iron core legs 11, 12 and an upper part yoke 13 and a lower part yoke 14 which magnetically couple between the iron core legs 11, 12." "The iron core legs 11, 12 and the lower part yoke 14 are formed by laminating strip amorphous alloy bands, and the upper part yoke 13 is formed by laminating strip silicon steel plates." ([0016])

C "In the transformer laminated core 10, the amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and the amorphous alloy thin bands 14A, 14B which form the lower part yoke 14 are alternately laminated." "Lower laminate joint parts between them form alternate lamination." "The amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and the silicon steel plates 13A, 13B which form the upper part yoke 13 are also alternately laminated." "Upper laminate joint parts between them form alternate lamination as well." ([0019])

D "If the lower part yoke 14 is also formed by silicon steel plates having higher rigidity than the amorphous alloy thin bands, a strength sufficient to support the weight of the iron core legs 11, 12 and the upper part yoke 13 can be obtained." ([0023])

(3) Cited Invention

According to (2) B, C, and D, it is recognized that Cited Document 1 describes the following invention (hereinafter referred to as "Cited Invention").

"A single-phase 2-leg transformer laminated core 10 which constitutes a closed magnetic circuit with two iron core legs 11, 12 and an upper part yoke 13 and a lower part yoke 14 which magnetically couple between the iron core legs 11, 12, wherein the iron core legs 11, 12 and the lower part yoke 14 are formed by laminating strip amorphous alloy bands, and the upper part yoke 13 is formed by laminating strip silicon steel plates, amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and amorphous alloy thin bands 14A, 14B which form the lower part yoke 14 are alternately laminated, lower laminate joint parts between them form alternate lamination, the amorphous alloy thin bands 11A, 12A which form the iron core legs 11 and 12 and the silicon steel plates 13A, 13B which form the upper part yoke 13 are also alternately laminated, upper laminate joint parts between them form alternate lamination as well, if the lower part yoke 14 is also formed by silicon steel plates having higher rigidity than

the amorphous alloy thin bands, a strength sufficient to support the weight of the iron core legs 11, 12 and the upper part yoke 13 can be obtained."

No. 5 Comparison / Judgment

1 Comparison

Invention 1 and the Cited Invention are compared below.

A The "upper part yoke 13" and the "lower part yoke 14" in the Cited Invention are arranged to face each other across the "iron core legs" so as to "constitute a closed magnetic circuit". According to the recitation in Claim 8 of the present application "The transformer core (1a, 1b, 1c) of Claim 1, wherein the first yoke (2a) is an upper part yoke", the "upper part yoke 13" in the Cited Invention corresponds to the "first yoke (2a)" in Invention 1, and the "lower part yoke 14" in the Cited Invention corresponds to the "second yoke (2b) facing the first yoke (2a)" in Invention 1.

The "upper part yoke 13" and the "lower part yoke 14" in the Cited Invention are arranged to face each other across the "iron core legs" as described above. Thus, it is obvious that a lower surface of the "upper part yoke 13" and an upper surface of the "lower part yoke 14" face each other. This fact corresponds to the following matter in Invention 1: "a first surface (5a) of the first yoke (2a)" "facing the second yoke (2b)", "a second surface (5b) of the second yoke (2b)" "facing the first yoke (2a)".

B According to the recitation in Claim 13 of the present application "The transformer core (1a, 1b, 1c) of Claim 1, wherein all limbs (3a, 3b, 3c, 3d) are attached to at least one of the yokes using a step lap joint", and the recitation in Claim 14 "The transformer core (1a, 1b, 1c) of Claim 1, wherein all limbs (3a, 3b, 3c, 3d) are attached to at least one of the yokes using a butt lap joint", the "joint" between the "first ends (4a, 4b) of the "limbs" and "a first surface (5a) of the first yoke (2a) and the "coupling" between the "second ends (6a, 6b)" of the "limbs" and "a second surface (5b) of the second yoke (2b)" in Invention 1 are considered to include not only a flat joint but also a "lap joint" (even if an obvious "end" or "surface" is apparently not included); i.e., a joint using alternate lamination of steel plates of the limbs and steel plates of the yokes.

Accordingly, the "two iron core legs 11, 12" in the Cited Invention, which are configured so that the "upper laminate joint parts" with the "upper part yoke 13" form "alternate lamination" and the "lower laminate joint parts" with the "lower part yoke 14" form "alternate lamination", are considered to correspond to the following matters in Invention 1: "at least two limbs (3a, 3b, 3c, 3d) each having first ends (4a, 4b) and second ends (6a, 6b), the first ends (4a, 4b) each being coupled to a first surface (5a) of

the first yoke (2a)", "the second ends (6a, 6b) each being coupled to a second surface (5b) of the second yoke (2b)", "at least two limbs (3a, 3b, 3c, 3d) each having first ends (4a, 4b) and second ends (6a, 6b)".

C The "transformer laminated core" in the Cited Invention corresponds to the "transformer core (1a, 1b, 1c)" in Invention 1.

D The "upper part yoke 13" in the Cited Invention which is formed by "laminating" the "silicon steel plates 13A and 13B" and the matter in Invention 1 that "the first yoke (2a) is of grain-oriented steel" are identical in that the "first yoke (2a) is of magnetic steel". However, Invention 1 specifies "oriented", while the Cited Invention does not specify the matter, which is a difference between them.

E According to the specification in Invention 1 "the first yoke (2a) is of grain-oriented steel", the matter in Invention 1 "at least one of the second yoke (2b) and one of the at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel" means including all combinations except "the case in which all of 'the second yoke (2b)' and 'at least two limbs (3a, 3b, 3c, 3d)' are not of 'amorphous steel'".

Therefore, the configuration in the Cited Invention where the "lower part yoke 14" is formed of "amorphous alloy thin bands 14A, 14B" or "silicon steel plates" and the "iron core legs 11 and 12" are formed of "amorphous alloy thin bands 11A, 12A" corresponds to the matter in Invention 1 "at least one of the second yoke (2b) and one of the at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel".

In light of A to E, Invention 1 and the Cited invention have the following corresponding feature and different feature.

(Corresponding Feature)

"A transformer core (1a, 1b, 1c), comprising:

a first yoke (2a) and a second yoke (2b) facing the first yoke (2a); and

at least two limbs (3a, 3b, 3c, 3d) each having first ends (4a, 4b) and second ends (6a, 6b), the first ends (4a, 4b) each being coupled to a first surface (5a) of the first yoke (2a), the first surface (5a) facing the second yoke (2b), the second ends (6a, 6b) each being coupled to a second surface (5b) of the second yoke (2b), the second surface (5b) facing the first yoke (2a),

wherein the first yoke (2a) is of magnetic steel, and at least one of the second yoke (2b) and one of the at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel."

(Different Feature)

In Invention 1, the magnetic steel of the first yoke (2a) is "grain-oriented", while the Cited Invention does not specify the above matter.

2 Judgment

Examining the above different feature, the technique to use a "grain-oriented silicon steel plate" which has excellent magnetic characteristics, as a "silicon steel plate" to be used for a core of a transformer, is a well-known technique as described in the microfilm of Cited Document 4 (Japanese Utility Model Application No. S60-116722 (Japanese Unexamined Utility Model Application Publication No. S62-26013) as follows: "In the grain-oriented silicon steel plate, grains are well developed, and a crystalline system excellent in magnetic characteristics is well developed in a rolling direction" (Specification p. 5 l. 13-l. 15).

A person skilled in the art is motivated to employ, as a "silicon steel plate", a material having excellent magnetic characteristics also in the Cited Invention. Thus, a person skilled in the art could have easily implemented a configuration relating to the above different feature by employing a "grain-oriented silicon steel plate" having excellent magnetic characteristics, as a "silicon steel plate" for forming the "upper part yoke 13" (or the "upper part yoke 13" and the "lower part yoke 14") in the Cited Invention.

3 Summary

As above, Invention 1 could have been easily made by a person skilled in the art on the basis of the invention described in Cited Document 1 and well-known arts.

No. 6 Appellant's allegation

1 Regarding the Appellant's allegation in the written appeal

(1) The Appellant alleges in the written appeal submitted on June 26, 2020 as follows: "The Invention according to Claim 1 is characterized in that 'the first yoke (2a) is of grain-oriented steel, and at least one of the second yoke (2b) and one of the at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel'. In other words, as long as one of 'the second yoke (2b)' and 'one of the at least two limbs (3a, 3b, 3c, 3d)' is of amorphous steel, the other one may be of grain-oriented steel.

Therefore,

A The Invention may be configured so that both the first yoke (2a) and the second

yoke (2b) are of grain-oriented steel, and that one of at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel. Alternatively,

B the Invention may be configured so that the second yoke (2b) is of amorphous steel, and that one of at least two limbs (3a, 3b, 3c, 3d) is of grain-oriented steel. Alternatively,

C the Invention may be configured so that one of at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel, and that the other one of the at least two limbs (3a, 3b, 3c, 3d) is of grain-oriented steel. For example, as described in [0035] of the specification of the present application,

D a limb on which a winding wire is wound may be of grain-oriented steel and a non-wound limb may be of amorphous steel." (The indexes A to D were added by the body for convenience.)

The Appellant alleges that even if the configurations of the inventions of Cited Documents 1 to 7 are combined, a person skilled in the art cannot derive the configuration of the invention according to Claim 1 of the present application.

(2) Judgment by the body

A However, the configurations in "(1)" "A" to "D" alleged by the Appellant constitute only one of the variations included in Invention 1. As indicated in "No. 5" "1" "E", Invention 1 cannot be limitedly interpreted only to the configurations in "(1)" "A" to "D".

B Just to be certain, the configurations in "(1)" "A" to "D" are examined as to whether or not an inventive step is involved.

(A) Regarding the configuration in "(1)" "A", the Cited Invention describes that, as well as the "upper part yoke 13", "if the lower part yoke 14 is also formed by silicon steel plates having higher rigidity than the amorphous alloy thin bands, a strength sufficient to support the weight of the iron core legs 11, 12 and the upper part yoke 13 can be obtained". Accordingly, the Cited Invention describes the configuration alleged by the Appellant that both the first yoke (2a) and the second yoke (2b) are of grain-oriented steel and that one of at least two limbs (3a, 3b, 3c, 3d) is of amorphous steel.

Therefore, a person skilled in the art could have easily employed the configuration in "(1)" "A".

(B) Examining the configurations in "(1)" "B" to "D", for example, Cited Document 3 (Japanese Unexamined Patent Application Publication No. S62-222614) describes as

follows: "While the transformer cores have been disclosed herein as having yokes built up exclusively of amorphous steel laminations, ... It will be appreciated that the present invention is equally applicable to power transformer cores having only a single winding leg, such as is the case in shell-type transformer cores. The non-winding leg or legs of these cores are considered as extensions of the yokes and are typically referred to as flux return legs. Preferably these flux return legs would, along with the yokes, be built up from amorphous steel laminations if space allows. If not, the winding leg and the flux return legs would be built from silicon steel laminations." (p. 6 upper left column l. 7 to upper right column l. 3, the underlines were added by the body.)

As above, Cited Document 3 describes a technique of using silicon steel laminations only for the winding legs and using amorphous steel laminations for flux return legs in shell-type transformer cores.

As indicated in "No. 4" "1" "(1)" "F", the Cited Invention "can be applied to" "single-phase 3-leg or three-phase 5-leg transformer laminated cores". Thus, a person skilled in the art also could have easily implemented the configurations described in "(1)" "B" to "D" by applying the Cited Invention to "single-phase 3-leg or three-phase 5-leg transformer laminated cores", or to shell-type transformer cores, to use silicon steel laminations only for the winding legs and using amorphous steel laminations for flux return legs by employing the technique described in Cited Document 3.

(C) Therefore, a person skilled in the art could have easily employed the configurations in "(1)" "A" to "D" alleged by the Appellant.

2 Regarding the Appellant's allegation in the written opinion submitted on December 27, 2019

(1) The Appellant's allegation

The Appellant alleges in the written opinion submitted on December 27, 2019 that "In the core relating to Invention 1, the yokes and the limbs are not formed by alternate lamination as shown in FIG. 1". The Appellant also alleges as follows: After interpreting that the joint between the "limbs" and "yokes" in Invention 1 is a "flat joint" as illustrated in FIG. 1, none of the Cited documents discloses or indicates comprising the following matter, which is one of the characteristics of Invention 1: "at least two limbs (3a, 3b, 3c, 3d) each having first ends (4a, 4b) and second ends (6a, 6b), the first ends (4a, 4b) each being coupled to a first surface (5a) of the first yoke (2a), the first surface (5a) facing the second yoke (2b), the second ends (6a, 6b) each being coupled to

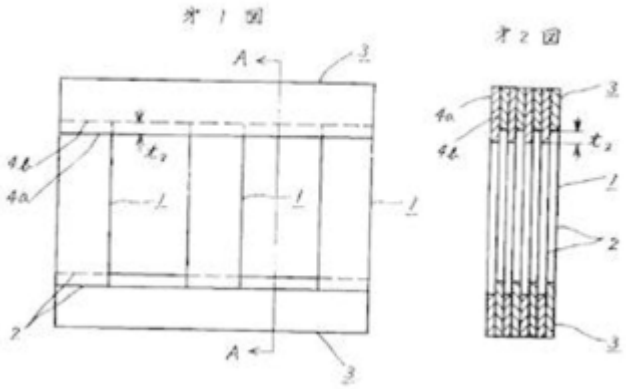
a second surface (5b) of the second yoke (2b), the second surface (5b) facing the first yoke (2a)".

(2) Judgment by the body

A However, the "joint" between the "ends" of the "limbs" and the "surfaces" of the "yokes" in Invention 1 is considered to include not only a "flat joint" but also a "lap joint", or a joint formed by alternate lamination of steel plates of the limbs and steel plates of the yokes, as indicated in "No. 5" "1" "B".

B Just to be certain, even if the "lap joint" recited in Claims 13 and 14 is understood to mean a "lap joint" between the "ends" (including margins) of the "limbs" and the "surfaces" of the "yokes" (including margins), such a "lap joint" is a well-known art as described in Cited Document 5 (see especially the specification p. 2 l. 6-l. 18, FIGS. 1-2) and Cited Document 6 (see especially paragraphs [0009] to [0021], FIGS. 1-5).

<Cited Document 5>

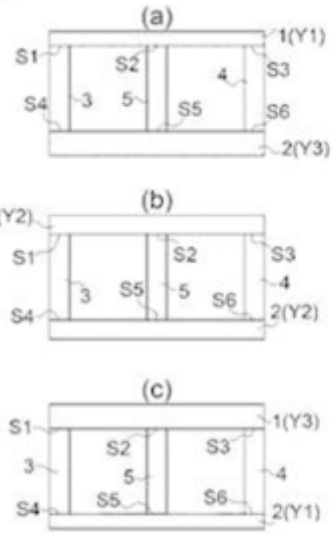


第１図　FIG. 1

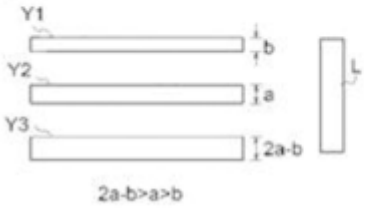
第２図　FIG. 2

<Cited Document 6>

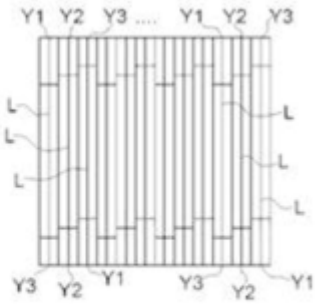
【図１】



【図２】

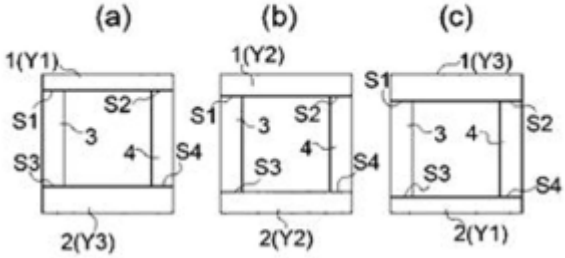


【図３】



【図４】

【図５】



【図１】 [FIG. 1]
【図２】 [FIG. 2]
【図３】 [FIG. 3]
【図４】 [FIG. 4]
【図５】 [FIG. 5]

The "flat joint" between the "limbs" and the "yokes" as illustrated in FIG. 1 of the present application is also a well-known art as described in Cited Document 7 [0032], FIG. 1, "... Preferably the yokes 2a, 2b are glued to the flat ends of the limbs 3a, 3b. Hence there is no longer any reason to have a 45 degrees connection, a step-lap

connection, or a non-step-lap connection between the yokes 2a, 2b and the limbs 3a, 3b. ..." (The underlines were added by the body.)

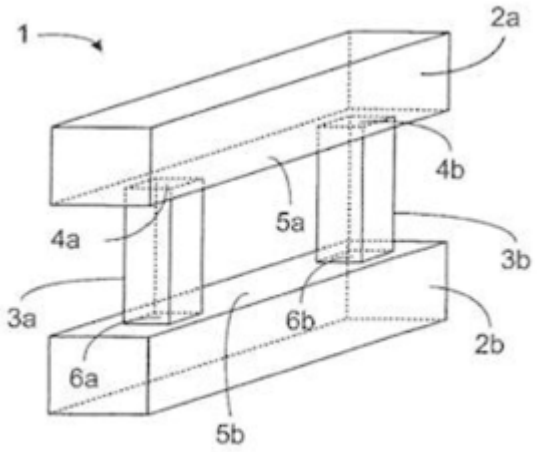


Fig. 1

C Therefore, a person skilled in the art could have easily conceived of coupling between yokes and limbs not by alternate "lamination" but by a "lap joint" between the "ends" of the "limbs" and the "surfaces" of the "yokes", or gluing the "yokes" to the "flat ends of the limbs" for a "flat joint".

3 Summary regarding the Appellant's allegation

As above, any of the Appellant's allegations cannot be accepted.

No. 7 Closing

As above, the Invention according to Claim 1 of the present application could have been easily made by a person skilled in the art on the basis of the invention described in Cited Document 1 and well-known arts. Thus, the Appellant should not be granted a patent for the invention under the provisions of Article 29(2) of the Patent Act.

The present application should be rejected without examining other claims.

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

February 10, 2021

Chief administrative judge: SAKAI, Tomohiro

Administrative judge: SHIMIZU, Minoru

Administrative judge: AKAHO, Yoshiki