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**Datasheet for the decision  
of 29 March 2021**

**Case Number:** T 2396/17 - 3.5.02

**Application Number:** 10837111.3

**Publication Number:** 2514072

**IPC:** H02K3/04, H02K15/04

**Language of the proceedings:** EN

**Title of invention:**

Method for manufacturing winding coil of electric machine

**Patent Proprietor:**

ABB Schweiz AG

**Opponent:**

Siemens Aktiengesellschaft

**Relevant legal provisions:**

EPC Art. 100(a), 100(b)  
RPBA Art. 12(2), 12(4)  
RPBA 2020 Art. 13(1)

**Keyword:**

Grounds for opposition - insufficiency of disclosure (no) -  
lack of patentability (no)  
Reply to appeal - Reference to earlier submissions  
Amendment after communication - taken into account (no)



**Beschwerdekammern**

**Boards of Appeal**

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Case Number: T 2396/17 - 3.5.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.02**  
**of 29 March 2021**

**Appellant:**  
(Patent Proprietor)

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**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted on 25 August 2017  
revoking European patent No. 2514072 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman** R. Lord  
**Members:** C.D. Vassoille  
W. Ungler

## Summary of Facts and Submissions

- I. This is an appeal of the patent proprietor (appellant) against the decision of the opposition division to revoke European patent no. 2 514 072.
- II. In the decision under appeal, the opposition division came to the conclusion *inter alia* that the subject-matter of claim 1 of the patent as granted was not new (Articles 100(a) and 54 EPC).
- III. The following documents are relevant for the present decision:
- E1: DE 10 2006 009 250 A1  
E4: US 6,836,204 B2  
E6: DE 741 003 C  
E7: US 2008/0010812 A1  
E9: JP 62260548 A1
- IV. The appellant requested in writing that the decision under appeal be set aside and that the patent be maintained as granted (main request) or, if this was not possible, that the patent be maintained in amended form according to either of auxiliary requests 1 and 2, both filed with the statement setting out the grounds of appeal on 21 December 2017.
- The opponent (respondent) requested in writing that the appeal be dismissed.
- V. In a communication dated 21 October 2020, the board set out their preliminary observations on the appeal, concluding *inter alia* that the subject-matter of claim 1 of the main request seemed to be new in view of E1

and that the board provisionally intended to accede to the appellant's main request.

- VI. With letter received at the EPO on 19 February 2021, the respondent filed further observations in response to the board's communication.
- VII. Given that the respondent did not request oral proceedings and further considering the board's provisional opinion on the case, which was in favour of the appellant, the present decision can be issued in writing.
- VIII. Claim 1 of the main request has the following wording:

"Method for manufacturing a winding coil (6) of an electric machine from flat cable (2), which coil (6) comprises the coil sides (8,10) to be fitted to the groove of an electric machine and the end sections (14,16) which are left outside the groove and form the coil end, wherein the method comprises the following phases:

- flat cable (2) is used for winding a semi-finished spool in which the coil rounds are in the same winding plane and in which there are two parallel straight coil sides (8,10) on opposite sides,
- the semi-finished spool is wound so that the flat cable (2) is bent around its wider face (24), whereby the wider faces (24) of the flat cable (2) lay against each other when the cables (2) are on top of each other in the semi-finished spool, and
- the parallel straight coil sides (8,10) are bent towards each other essentially at a right angle in comparison to the winding plane."

Claims 2 to 6 are dependent on claim 1.

IX. Independent claim 7 of the main request has the following wording:

"An electric machine comprising the coils to be fitted to the grooves of the electric machine, **characterized in that** at least one of its coils is manufactured according to the method of Claims 1 - 6."

X. The arguments of the appellant as far as they are relevant for the present decision are as follows:

*Sufficiency of disclosure*

It was immediately clear in view of the disclosure of the opposed patent that the figures 4 and 5 of the patent under appeal were erroneous. In these figures, the resulting coil formed after the last bending step of claim 1 was not depicted correctly. However, the skilled person would have immediately recognised this error in view of figure 1, which showed the semi-finished spool prior to the bending step and the respective discussion in the description (see column 2, lines 42 to 44): "The dotted lines 26 illustrate the points from which the semi-finished spool is bent in the second phase of the manufacturing." Therefore, the skilled person would have had no problem with carrying out the step of [bending] the parallel straight coil sides towards each other essentially at a right angle in comparison to the winding plane. The skilled person would have needed no additional information for implementing this step. Therefore, the subject-matter of the granted claims was sufficiently disclosed in the patent under appeal.

*Novelty*

The subject-matter of claim 1 was new in view of document E1. E1 did not disclose parallel straight coil sides which are bent towards each other essentially at a right angle in comparison to the winding plane. E1 rather described saddle shaped coils which were formed over the surface of a cylinder. The fact that the coil extended over the surface of a half-cylinder did not imply that the straight coil sides were bent at a right angle compared to the winding plane of the semi-finished spool. As was evident from figure 3 of E1, the stack of flat cables (see reference numeral 5) in the saddle shaped coil were adapted to the curved surface of the half-cylinder. The different flat cable layers of the spool therefore came to rest at different angles compared to the winding plane of the semi-finished spool, which were not 90°. Therefore, the saddle shaped coil of E1 was at least not processed according to the last step recited in claim 1 of the patent under appeal. This was also clear in view of figure 10 of E1, which illustrated how another type of coil was formed according to E1. As could be seen, different portions of the semi-finished spool (reference numeral 2') were bent at different angles compared to the winding plane.

E1 further did not disclose that the coils discussed above had "coil sides (8,10) to be fitted to the groove of an electric machine". As shown in figures 3 and 10 of E1, the coils were formed over the surface of a cylinder and the coils of E1 thus had a curved profile mirroring the curved shape of the cylinder. Such coils were neither designed nor suitable to be fitted into the groove of an electric machine. Similar arguments applied to the independent claim 7. In addition, independent apparatus claim 7 referred to an electric

machine in which the coils were included. This meant that the straight coil sides were fitted into the grooves of the machine, which was not feasible with the coils of E1.

The subject-matter of claims 1 and 7 was new in view of document E6, since it did not disclose a flat cable for winding a semi-finished spool and it further did not disclose winding of the semi-finished spool so that the flat cable is bent around its wider face, whereby the wider faces of the flat cable lay against each other when the cables are on top of each other in the semi-finished spool.

*Inventive step*

The subject-matter of claims 1 and 7 involved an inventive step in view of document E6. The objective technical problem could be considered to be that of how to provide a simplified manufacturing process of a winding coil. Starting from E6 the skilled person had no motivation to modify the teaching of E6 so as to arrive at the claimed invention. An essential feature of the method disclosed in this document was to loosely stack the wires on top of each other in a non-overlapping manner (see E6 in figure 8) such that the wires could move with respect to each other during the bending step (see E6 in figure 9). Document E6 thus provided no hint towards the claimed invention, but instead implicitly taught away from it. The other cited references except E4 did not address a simplified manufacturing process by way of using a coil consisting of multiple flat cables, which are formed in the final coil shape by bending. The skilled person therefore would not have considered these documents when confronted with the objective technical problem. E1

referred to the use of superconducting coils, which required a different handling than normal coils. The skilled person consequently would not combine documents E6 and E1. In E4, the wires were bent around their narrower sides and the subject-matter of claims 1 and 7 therefore was not rendered obvious from a combination of E6 with E4 either.

XI. The arguments of the respondent as far as they are relevant for the present decision are as follows:

*Sufficiency of disclosure*

The invention was not sufficiently disclosed. It was clear that in figure 4 of the patent under appeal the long straight coil sides were not bent in accordance with the claimed subject-matter. According to the corrected figure 4 submitted with the grounds of appeal, the coil was bent by means of a cylinder, which thus seemed to be essential to the invention. This cylinder was however nowhere described in the patent und appeal. This new way of bending contradicted the teaching of figure 1 of the patent under appeal, where two bending lines were shown (see reference sign 26) and described in column 2, line 42. Furthermore, it was described in column 2, line 36 of the patent under appeal that the length of the coil sides corresponded to the length of the groove in the electric machine. Taking into account this teaching and further the alleged obvious bending according to figure 1, it was not comprehensible to the skilled person how to implement the invention. Rather, only a portion of the coil sides were arranged in the groove in the electric machine. In the corrected figure 4, the coil was bent around a shaft and no bend lines were present in this case.



*Inadmissible amendment*

The corrected figure 4 submitted with the grounds of appeal added subject-matter to the patent under appeal which was not originally disclosed in the application as filed. Replacement of the original figure 4 by the corrected figure 4 thus contravened Article 123(2) EPC.

*Novelty*

Document E1 disclosed all features of claims 1 and 7 of the patent under appeal. E1 in particular disclosed parallel straight coil sides "**essentially** at a right angle in comparison to the winding plane" (emphasis added by the board). The resulting angle merely depended on the thickness of the coil. Reference was made to E1 in paragraphs [0024], [0060] (points 2 and 3), [0043] and figure 10. Furthermore, as could be seen from the corrected figure 4 submitted by the appellant with the grounds of appeal, the invention provided a similar way to bend the parallel straight coil sides, namely by bending the coil around a bending cylinder.

Furthermore, the coil sides 3a, 3d in E1 were to be fitted to the groove of an electric machine (see figures 3 and 4). Reference was made to paragraph [0042] of E1, reciting that the coils could be used for a rotor of an electric machine and thus, also for a stator. It was evident that coils were to be arranged in grooves of an electric machine, since there was no other possibility to fix the coils in an electric machine. As could also be seen from document E9, last sentence of the abstract, saddle shaped coils could be arranged in grooves in an electric machine.

The subject-matter of claims 1 and 7 was also not new in view of document E6. Figure 1 of document E6 illustrated flat wires. A flat wire could therefore also be a wire having a rectangular cross-section. Document E7 in paragraph [0002] disclosed a coil with several insulated conductors. Document E9 also disclosed a "flat type coil" of parallel-formed wires bent by 90°.

#### *Inventive step*

Document E1 was concerned with a racetrack semi-finished spool like the present invention. Document E7 disclosed the objective technical problem as formulated by the appellant. Increasing the fill-factor of the coil in the groove was a well known objective of the skilled person. Isolating a flat coil was known from E4 (see column 1, lines 30 ff, figures 3A, 3B, column 4, lines 5 ff). Document E7 also disclosed flat cables (see paragraphs [0002] and [0026]).

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Main request - Sufficiency of disclosure (Article 100(b) EPC)*
  - 2.1 The respondent's main argument as regards the ground for opposition under Article 100(b) EPC concerns the fact that figures 4 and 5 of the patent under appeal do not illustrate a coil which is bent in accordance with the last step of method claim 1:

"the parallel straight coil sides (8,10) are bent towards each other essentially at a right angle in comparison to the winding plane."

2.2 The respondent acknowledged that the description of the contested patent in column 2, lines 42 to 44 disclosed the use of two "bend lines" (dotted lines 26 illustrated in figure 1), from which the semi-finished spool is bent in the second phase of manufacturing. However, taking the erroneous figure 4 into consideration, the skilled person, in the opinion of the respondent, would not be able to implement the invention as defined in claim 1.

2.3 The board agrees with the appellant that a person skilled in the art understands from the teaching of figure 1 in connection with the corresponding description, in particular in column 2, lines 42 to 44, how the bending step of claim 1 is to be performed: "The dotted lines 26 illustrate the points from which the semi-finished spool is bent in the second phase of the manufacturing". Figure 1 in connection with column 2, lines 42 to 44 thus provides a clear teaching of how to bend the semi-finished spool in order to implement the claimed method step: "the parallel straight coil sides (8,10) are bent towards each other essentially at a right angle in comparison to the winding plane". Therefore, there cannot be any doubt that a skilled person would have immediately realised that figures 4 and 5 do not illustrate a coil, which was bent in accordance with the overall teaching of the patent under appeal.

2.4 Moreover, the board considers the corrected figure 4 as submitted by the appellant with the grounds of appeal to be irrelevant for the assessment of compliance with

Article 100(b) EPC. Article 100(b) EPC is concerned with the disclosure of the claimed invention in the description and the figures of the patent. Corrected figure 4 however neither forms part of the patent nor has the appellant requested that this corrected figure 4 shall be used to replace figure 4 of the granted patent. It is rather clear that the only purpose of providing the corrected figure 4 with the grounds of appeal was to illustrate what the skilled person would in fact understand when reading claim 1, in particular the last method step of it, in connection with figure 1 and the description in column 2, lines 42 to 44. The board therefore sees no reason to further address the respondent's arguments regarding the corrected figure 4, in particular as far as a cylinder illustrated in this figure is concerned, since it is of no relevance for the question of whether the patent discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2.5 In conclusion, neither in the reply to the appeal nor in the letter received on 19 February 2021, did the respondent present convincing arguments as to why a skilled person, contrary to the appellant's argument, would not recognise that figures 4 and 5 are erroneous or why they could not implement the invention despite the teaching of figure 1 in conjunction with the description in column 2, lines 42 to 44.

2.6 The board is also not convinced by the respondent's further argument that the length of the parallel straight coil sides cannot correspond to the length of the groove in the electrical machine as disclosed in column 2, line 36 of the patent under appeal, because only a part of the parallel straight coil side is

ultimately arranged in the grooves of the electrical machine. In particular, the respondent did not explain why he considers only a portion of the parallel straight sides of the coil to be arranged in the grooves of the electric machine and how this would hinder the skilled person from implementing the invention. Consequently, in the light of the brief argumentation presented by the respondent in this respect, the board is not in a position to see in what way a portion of the parallel straight coil sides would ultimately lie outside of the grooves in the electric machine and thus, to what extent the disclosure in column 2, line 36 could hinder a skilled person from putting the invention into practice.

Given that the respondent's objection in this respect does not in any case convince the board, the question of whether this new objection was to be admitted into the appeal procedure or not could be left unanswered.

2.7 With letter received on 19 February 2021, the respondent in response to the board's communication seems to have submitted a new objection under Article 100(b) EPC (see the last two paragraphs on page 5). The objection refers to the alleged fact that the grooves, except in the case of linear motors, could not be parallel because they were arranged radially in the stator. A right angled arrangement of the coil sides would only be possible for a specific type of toothed coil.

According to Article 13(1) RPBA 2020, applicable under Article 25(1) RPBA 2020, any amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of

the board. Furthermore, the party shall provide reasons for submitting the amendment at this stage of the appeal proceedings.

In the present case, the board considers the new objection to be an amendment of the respondent's appeal case, which could and should already have been submitted with the reply to the appeal. Furthermore, the respondent, contrary to the requirements of Article 13(1) RPBA 2020, did not provide any reasons justifying the submitting of this new objection under Article 100(b) EPC only with the letter received on 19 February 2021, and thus, more than three years after the appeal was filed.

The board has therefore exercised their discretion under Article 13(1) RPBA 2020 not to take into account the respondent's new objection under Article 100(b) EPC.

2.8 The board has therefore come to the conclusion that the patent under appeal discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. The ground for opposition under Article 100(b) EPC therefore does not prejudice the maintenance of the patent as granted.

3. *Objection under Articles 123(2) and (3) EPC*

3.1 The respondent's argument that the corrected figure 4 submitted with the grounds of appeal does not comply with the requirements of Article 123(2) EPC and further extends the scope of protection (Article 123(3) EPC) does not convince the board.

3.2 From the grounds of appeal it is clear that the appellant did not request replacement of the original figure 4 with the corrected figure 4. It is instead evident from section A.1 of the grounds of appeal that the submission of corrected figure 4 served the purpose of illustrating the final product of the bending process as claimed, in order to demonstrate what the skilled person would understand from the overall teaching of the patent under appeal, despite the erroneous figures 4 and 5.

3.3 Given that the appellant at no point in time requested that the original figure 4 be replaced by the corrected figure 4, no subject-matter has been added to the patent under appeal and the respondent's objections under Articles 123(2) and (3) EPC are consequently irrelevant and must be rejected.

4. *Main request - Novelty (Articles 100(a) and 54 EPC)*

4.1 *Novelty in view of E1*

4.1.1 The subject-matter of claims 1 and 7 is new over document E1, since it does not disclose at least the following feature

- the parallel straight coil sides are bent towards each other essentially at a right angle in comparison to the winding plane.

4.1.2 In the respondent's opinion the term "essentially" has to be interpreted broadly and thus included a bent coil as illustrated in figures 2 to 4 of E1. Reference was in particular made to the disclosure in paragraphs [0020], [0024], [0043] and [0060] in connection with figures 3, 4 and 10 of E1.

4.1.3 As was submitted by the appellant, document E1 discloses saddle shaped coils which are formed over the surface of a cylinder. The board acknowledges that E1 in paragraph [0043], in connection with the embodiment illustrated in figures 3 and 4, might disclose that the lowest coil element is essentially arranged at a right angle in comparison to the winding plane. However, the board agrees with the appellant that this does not correspond to the claimed feature, according to which the parallel straight coil sides, i.e. all coil sides of the semi-finished spool, are bent towards each other essentially at a right angle in comparison to the winding plane.

To the contrary, as can be seen from E1, in particular from figures 3 and 4, the majority of coil sides clearly are not arranged essentially at a right angle in comparison to the winding plane as a result of bending the semi-finished spool over the surface of the half-cylinder. Thus, the different flat cable layers are arranged at many different angles compared to the winding plane. The coil disclosed by E1 therefore cannot be considered to be manufactured according to claim 1 and in particular not to fall within the last step of claim 1 reciting that the parallel straight coil sides (of the semi-finished spool) "are bent towards each other essentially at a right angle in comparison to the winding plane".

Furthermore, the board notes that the patent under appeal does not provide a justification for a broader than usual interpretation of the wording "essentially at a right angle" and the respondent did not provide any convincing argument in this respect. The board therefore cannot see on what basis the coil of E1



having a large number of different angles, most of which deviate significantly from "essentially at a right angle in comparison to the winding plane", could fall within the wording of claim 1.

The argument of the respondent that the resulting angle merely depended on the thickness of the coil, does not convince the board either. The question to be answered in the assessment of novelty does not include hypothetical considerations. It is in the present case rather concerned with the question of whether the method of manufacturing a winding coil disclosed in E1 discloses all features of claim 1 and an electric machine according to claim 7, respectively. The same applies to an alleged similarity between corrected figure 4 submitted by the appellant with the grounds of appeal and figure 2 of E1, which is therefore also considered by the board to be an irrelevant argument in the assessment of novelty.

The board also does not see how the respondent's argument that parallel straight coil sides required parallel grooves which can be applied only in the context of a specific type of toothed coil (see the last two paragraphs on page 5 of the letter received on 19 February 2021), is in any way relevant for the question of novelty. In so far as the respondent raised this argument in the context of sufficiency of disclosure (Article 100(b) EPC), the board refers to their remarks under point 2.7 above.

- 4.1.4 The board has therefore come to the conclusion that the subject-matter of claim 1 is new in view of document E1. The same applies to independent claim 7.

4.2 *Novelty in view of E6*

4.2.1 The respondent has essentially argued that the subject-matter of claim 1 is not new in view of document E6, because the patent under appeal did not contain a definition of a "flat cable" and since a "Vierkantdraht" (square/rectangular wire) disclosed in E6 comprised four corners and four edges, it corresponded to a flat cable in the sense of claim 1.

4.2.2 The board agrees with the appellant that the skilled person when reading the claim under consideration in a reasonable manner would readily understand that a flat cable does not correspond to a "Vierkantdraht" disclosed in E6 (see page 1, line 13). It is also not possible to directly and unambiguously identify flat cables in figure 9 of E6, given the schematic nature of this figure. The corresponding feature is therefore not disclosed by document E6.

4.2.3 The board further agrees with the appellant that document E6 does not disclose the step of the flat cable being bent around its wider face, whereby the wider faces of the flat cable lay against each other when the cables are on top of each other in the semi-finished spool. However, even if figure 9 were to be considered to disclose a flat cable, the flat cable is in any case not bent around its wider face as defined in claim 1 (see figures 8 and 9 of E6).

4.2.4 The board has therefore come to the conclusion that the subject-matter of claim 1 is new in view of document E6. The same applies to independent claim 7.

4.3 *Novelty in view of E7 and E9*

- 4.3.1 As regards document E7, the respondent made reference to paragraph [0002] disclosing a plurality of isolated conductors. No further arguments were presented by the respondent supporting the alleged lack of novelty of the subject-matter of claim 1 in view of document E7.

The board does not see how the presence of a plurality of isolated conductors anticipates the specific teaching of claim 1, in particular that according to which a flat cable is used for winding a semi-finished spool and winding the semi-finished spool such that the flat cable is bent around its wider face, whereby the wider faces of the flat cable lay against each other when the cables are on top of each other in the semi-finished spool. From paragraph [0002] in connection with figures 1 and 2, it is rather clear that the coil windings do not lay against each other. Rather, they are spaced from each other so that they can be installed individually in respective stator grooves.

- 4.3.2 With respect to document E9, the respondent essentially argued that this document in the last sentence of the abstract disclosed a flat type coil, which was bent at a right angle. No further arguments were presented by the respondent supporting the alleged lack of novelty of the subject-matter of claim 1 in view of document E9.

- 4.3.3 The board agrees with the appellant that document E9 does not disclose the steps of claim 1 of using a flat cable for winding a semi-finished spool and winding the semi-finished spool such that the flat cable is bent around its wider face, whereby the wider faces of the

flat cable lay against each other when the cables are on top of each other in the semi-finished spool. Rather, the coils of E9 consist of a set of cables stacked on top of each other (see for example figure 9).

4.3.4 Consequently, neither of documents E7 and E9 discloses all the features of claim 1 and the board has therefore come to the conclusion that the subject-matter of claim 1 is new in view of these documents. The same applies to the independent claim 7.

4.3.5 Given that the board in any case considers that neither of documents E7 and E9 anticipates the subject-matter of claims 1 or 7, the question of whether the respondent's corresponding observations were sufficiently substantiated in the sense of Article 12(4) and (2) RPBA 2007 could remain unanswered.

#### 4.4 *Summary on novelty*

The board has therefore come to the overall conclusion that the ground for opposition under Article 100(a) EPC in connection with Article 54 EPC does not prejudice the maintenance of the patent as granted.

#### 5. *Main request - Inventive step (Articles 100(a) and 56 EPC)*

5.1 As regards inventive step of the subject-matter of claims 1 and 7 of the main request, the respondent in the reply to the appeal, in substance only referred to the statement setting out the grounds for opposition of 17 March 2016 and the further submission in the course of the proceedings before the opposition division.

It follows from Article 12(4) RPBA 2007 that anything presented by the parties in the reply to the appeal shall be taken into account by the board, if the requirements of Article 12(2) RPBA 2007 are met.

According to Article 12(2) RPBA 2007, the statement setting out the grounds of appeal and the reply shall contain a party's complete appeal case and should specify expressly all the facts, arguments and evidence relied on. These requirements are not met by a mere reference to a party's earlier submissions, as is presently the case (see Case Law of the Boards of Appeal, 9th edition 2019, V.A.2.6.4). Regarding the applicability of Article 12(4) RPBA 2007, reference is made to the transitional provisions laid down in Article 25(2) RPBA 2020.

Given that the respondent did not provide any argument on this issue, the board exercises their discretion under Article 12(4) RPBA 2007 not to take into account the respondent's references made to their earlier submissions in the first instance proceedings.

5.2 While the respondent in the reply to the appeal as well as in the letter received on 19 February 2021, referred to the reasoning of the decision under appeal as regards the assessment of inventive step, the board notes that the decision under appeal did not address the issue of inventive step of the subject-matter of claims 1 and 7 of the main request. The grounds for the decision under appeal therefore do not provide a basis for a discussion of inventive step regarding the main request.

5.3 Under point A.III of the reply to the appeal, the respondent has further claimed to refer to the core

theses ("Kernthesen") provided in the grounds of appeal. The board assumes that the respondent referred here to the observations provided by the appellant in section A.III ("Inventive Step") of the grounds of appeal, which thus form the basis of the following discussion of inventive step.

- 5.4 The appellant seems to have considered document E6 as the closest prior art document and the respondent did not contest this finding.
- 5.5 As set out under point 4.2 above, the board agrees with the appellant that document E6 does not directly and unambiguously disclose the use of a flat cable and further the step of the flat cable being bent around its wider face, whereby the wider faces of the flat cable lay against each other when the cables are on top of each other in the semi-finished spool.
- 5.6 In view of these distinguishing features the board is of the opinion that the objective technical problem formulated by the appellant, namely to simplify the manufacturing process of a coil, is appropriate. The respondent did not object to the objective technical problem as formulated by the appellant.
- 5.7 The subject-matter of claim 1 when starting from E6 and taking into account the objective technical problem is not rendered obvious to the person skilled in the art.

The board agrees with the appellant that document E6 discloses a special type of manufacturing method of a winding coil, where the wires are set on top of each other in a loose and non-overlapping manner in the horizontal plane (see E6 in particular in figure 8 and the corresponding description). As was submitted by the

appellant, when the intermediate spool of figure 8 is bent into the configuration shown in figure 9 of E6, the adjacent layers of the wire are supposed to move with respect to each other, which is an essential feature of the manufacturing process disclosed by document E6.

The board thus agrees with the appellant that it would not have been easily possible to modify the method of document E6 such as to arrive at the claimed invention and to attain the associated advantages. Therefore, it is not apparent to the board what would have motivated the person skilled in the art to modify the method taught by E6 according to the method as defined in claim 1, and the respondent did not provide any convincing argument in this respect. Therefore, E6 in the board's opinion does not provide any motivation to the skilled person to modify the described method in such a manner as to arrive at the subject-matter of claim 1 of the main request.

Apart from the argument that individual features of claim 1 were disclosed in documents E1, E4 and E7, the respondent has not presented any substantial argument in the appeal proceedings as to why these documents would have motivated the skilled person to modify the fundamentally different method disclosed by document E6 in order to arrive at the subject-matter of claim 1.

Since a corresponding motivation for the skilled person is not apparent to the board, the subject-matter of claim 1 is to be considered as not being rendered obvious by document E6 in combination with any of documents E1, E4 or E7. The same applies to independent claim 7.

5.8 The subject-matter of claims 1 and 7 consequently involves an inventive step and thus, the ground for opposition under Articles 100(a) and 56 EPC does not prejudice the maintenance of the patent as granted.

6. *Final remarks*

Given that the grounds for opposition under Article 100(a) in connection with Articles 54 and 56 EPC and under Article 100(b) EPC do not prejudice the maintenance of the patent as granted, the board had to accede to the appellant's main request.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated