

Examiners' Report Paper C 2011

General Comments

1. All relevant facts and arguments relating to the grounds of opposition should appear in the notice of opposition, since the notice of opposition is the document filed with the EPO.
2. Marks are awarded for identifying relevant information, such as claim features, technical effects, problems and hints in the prior art, and using that information in an appropriate way. The specific reference in the relevant document (e.g. paragraph, figure, reference number) has to be cited.
3. When comparing a claim with a prior art document, it may not be sufficient to simply repeat the wording of the claim and refer to the relevant passage in the prior art document. If a feature in the claim uses a different terminology, it should be explained why it has the same meaning, on the basis of the information provided in the annexes, where possible.
4. The problem-solution approach requires identification of the closest prior art for each inventive step attack. A reasoning for the choice of the closest prior art taking into account the context of the selected document is expected. The feature(s) distinguishing the claim from the closest prior art should be identified. The technical effect(s) associated with that/those feature(s) has/have to be identified from the patent to be opposed and the appropriate basis must be cited. This applies to independent and dependent claims. The objective technical problem to be solved has to be established based on the technical effect. Further, the reasons from the Annexes why the skilled person would combine documents have to be identified. In addition to the attacks set out in the "possible solution", marks were awarded for other plausible, well-reasoned attacks.
5. As set out in the instructions to candidates, it is advisable to use Form 2300 in order to make sure that all information needed for an admissible opposition is given (Rule 77 EPC). For the opposition to be admissible it is required that the patent to be opposed as well as the opponent are identified. Payment of the opposition fee should be indicated. Failure to indicate these aspects resulted in marks being deducted. It should be borne in mind that the opponent is generally the company and not the person signing the client's letter.
6. All pages of the answer paper should be numbered consecutively. The Annexes provided should not be renumbered. Legible handwriting is advisable.

Specific Comments

Client's Letter

Clear answers to the client's letter giving a conclusion were expected. Answers which did not cite the correct legal basis, when possible, were not awarded full marks. For those issues

which it was necessary to include in the notice of opposition, a reference to the notice of opposition in the client's letter was sufficient.

Application originally filed in Spanish:

It was usually well-recognized that replacing the word "magnesium" used in the English translation by the word "manganese" used in the original Spanish text does not constitute added subject-matter. The ground of opposition under Art. 100(c) EPC was hence not appropriate for this feature.

Annex 5:

It was generally recognized that Annex 5 is potentially prior art according to Art. 54(3) EPC and that hence the information of the abstract cannot be taken into account (Art. 85 EPC). Nevertheless it was often overlooked that an international application for which the EPO has been designated is equivalent to a regular European application if the conditions laid down in Art. 153(5) EPC are met and the filing fee under Rule 159(1) has been paid (Rule 165 EPC). It was expected that the Art. 54(3) document would be used with the assumption that these conditions had been met. Sometimes it was overlooked that the last paragraph of the description of Annex 5 is not entitled to the priority date of Annex 5 and that therefore this paragraph cannot be used to attack the claims of the patent which are entitled to priority.

Video conference:

It was not always recognized that there is no legal provision allowing video conference before an opposition division.

Notice of Opposition

Added subject-matter (Art. 100(c) EPC)

An objection of added subject-matter for the first alternative (2 g/m^2) of claim 6 was expected. It was sometimes not recognized that paragraph 0007 of Annex 1 provides basis for the specific value of 4 g/m^2 , but not for the specific value of 2 g/m^2 .

Claim 1:

An inventive step attack was expected, based on the combination of Annex 6 and Annex 2. Although the correct closest prior art was usually chosen for the inventive step attack, the reasoning of the choice of Annex 6 was not well-argued. It was expected not only to mention that Annex 6 discloses a process of manufacturing a fin, which is also the case for Annex 3, but to provide some additional arguments, for example, that the fin obtained by the method of Annex 6 is suitable for brazing under atmospheric conditions.

Although the equivalence of teeth versus protrusions and sinusoidal versus corrugated was generally well-explained, this was not the case for desired length and the drying step of fixing the flux to the surface.

The effect provided by the distinguishing feature of immersing the plate into a bath is to coat the corrugated plate (Annex 1, paragraph 0014). This was often overlooked.

Claim 2:

An inventive step attack was expected, based on the combination of Annex 6, Annex 2 and Annex 3.

Claim 2 has two distinguishing features over Annex 6. These can either be identified explicitly under claim 2 or a reference to the first difference can be made in respect to claim 1 and the additional feature (changing the pitch) being dealt with fully.

The combination of three documents was usually well-argued.

Inventive step attacks starting from Annex 3 as closest prior art were found to be less convincing. Although the convection plate disclosed in Annex 3 can be considered as a fin in the sense of Annex 1, this convection plate is used in a steel heat exchanger joined by welding (see paragraph 0002 of Annex 3). Moreover, its corrugations are produced by stamping (see e.g. paragraph 0008 of Annex 3).

Claim 3:

A novelty attack using Annex 6 was expected. It was generally not well-argued why the product obtained by the method of Annex 6 is indistinguishable from the product obtained by a method according to claim 1 of Annex 1.

Sometimes it was considered that the only technical feature of the fin according to claim 3 was that it is corrugated, without recognizing that the process of claim 1 implies additional product features. This led to incorrect novelty attacks.

In particular, novelty attacks using Annex 5 were incorrect, since the flux in Annex 5 is applied electrostatically as dry powder (see paragraph 0008), which according to Annex 2 leads to a flux layer less uniform than the one obtained by applying the flux by spraying or dipping in an aqueous solution of flux. Novelty attacks using Annex 3 were also incorrect since no flux is fixed to the corrugated fin.

Claim 4:

Both novelty attacks using Annex 5 and Annex 6 were generally well-done.

It was sometimes not recognized that Annex 6 discloses tubes suitable for the flow of a first fluid and that the sinusoidal fins between the tubes are suitable for the flow of a second fluid. This led to unnecessary inventive step attacks.

Claim 5:

An inventive step attack based on the combination of Annex 6 and Annex 4 was expected. Novelty attacks based on Annex 5 using paragraph 0009 were incorrect, since this paragraph is not prior art.

Claim 6:

An inventive step attack based on the combination of Annex 6 and Annex 4 was expected. It was sometimes overlooked that an aluminium zinc alloy providing 4 g/m^2 provides a technical effect (obtaining the best results, see Annex 1, paragraph 0007) and that an objective technical problem can be formulated from this technical effect. It was also not well-recognized that the solution to such a problem could be found in Annex 4, paragraph 0006.

An inventive step attack for the first alternative (2 g/m^2) was not expected.

Claim 7:

Novelty attacks based on each of Annex 5 and Annex 6 were often not recognized. It was in particular overlooked that the heat exchanger disclosed in Annex 5 or Annex 6 is suitable for the claimed intended use.

Claim 8:

The inventive step attack based on the combination of Annex 4 and Annex 3 was usually well-recognized.

Well-argued inventive step attacks based on Annex 4 and the general knowledge given in Annex 3, paragraph 0003, last sentence, were considered equally valid.

It was sometimes overlooked that the expression "tube for a heat exchanger according to claim 4" means a tube suitable for that purpose and that the tube of Annex 4 is suitable for a heat exchanger according to claim 4, since the tube comprises an aluminium alloy which can be joined by brazing to another component of the heat exchanger without requiring a vacuum (see Annex 4, paragraph 0005). The channels of Annex 3 are not suitable for the heat exchanger of claim 4.

Sometimes it was wrongly considered that claim 8 is dependent on claim 4. This led to inventive step attacks using Annex 6 as closest prior art and combining it with Annex 3 and Annex 4.

Attacks on claim 8 starting from Annex 6 are weaker than the expected one, since they require the combination of three documents.

Possible Solution - Paper C 2011

Response to the client's letter

No, replacing the word “magnesium” used in the English translation by the word “manganese” used in the original Spanish text cannot be used to attack the patent. The content of the application as originally filed is the text in the original language. Throughout the proceedings, the English translation may be brought into conformity with the application as filed in the original language (Guidelines A-VIII, 6.2, Art. 14(2) EPC, Art. 70 (2) EPC).

No. Annex 5 is potentially prior art according to Art. 54(3) EPC. The information in the abstract cannot be taken into account for applying Art. 54(3) EPC (Art. 85 EPC, Guidelines C-IV, 7.1, G11/91).

No. The last paragraph of the description was not included in the priority document of Annex 5 and is hence not entitled to the priority date claimed for Annex 5. Accordingly, the technical features of the last paragraph of the description are entitled to the filing date of Annex 5, 03.01.08. Since the filing date of Annex 5 is after the effective date of claims 1 to 5, claim 6 (second alternative) and claims 7 and 8 of the patent to be opposed, i.e. the 09.02.07, the information of the last paragraph of Annex 5 cannot be used to attack these claims.

No, there is no legal provision allowing video-conferences before an opposition division.

{Legal marks awarded: 7}

Notice of opposition

{Total marks for Use of Information: 39 / Total marks for Argumentation: 54}

General:

Annex 5 was filed on the 03.01.08, after the priority date of Annex 1 (09.02.07) and claims a priority of 05.01.07, i.e. before the priority date of Annex 1. To the extent that the subject-matter of Annex 5 is entitled to priority, it is citable under Art. 54(3) EPC.

Annex 5 is an international application for which the EPO has been designated. Such an international application is equivalent to a regular European application (Art. 153(2) EPC) if the conditions laid down in Art. 153 (5) EPC are met and the filing fee under Rule 159(1) (c) has been paid (Rule 165 EPC or Guidelines C-IV, 7.2). It is assumed that these conditions are met and evidence will be provided later on.

Since claims 1 to 5, 7 and 8 were already contained in the priority application, the effective date of these claims is the priority date, i.e. 09.02.07. The basis for the features of claim 6, alternative 2, i.e. 4 g/m² of zinc, can be found in Annex 1 paragraph [0007] as end point of the given range. The effective date of this alternative of claim 6 is also the priority date.

{Marks for Use of Information: 5}

Objections under Art. 100(c)

Claim 6, alternative 1, claims a value of 2 g/m² of zinc. The original description discloses in Annex 1 paragraph [0007] the range 1 g/m² to 4 g/m² of zinc, which does not provide a basis for the specific value of 2 g/m² of zinc. Hence, the first alternative of claim 6 does not meet the requirements of Art. 100(c) or 123(2) EPC.

{Marks for Use of Information: 2 / Marks for Argumentation: 2}

Lack of inventive step (Art. 56 EPC) of claim 1 over Annex 6 in combination with Annex 2

Annex 6 is the closest prior art since it discloses a process of manufacturing a fin in which the fin is covered by flux so that it can be brazed under a controlled atmosphere containing oxygen.

Annex 6 discloses in its third paragraph feeding a plate-shaped material to a pair of rotating rollers provided with teeth, thereby obtaining a sinusoidal plate, i.e. the first step of claim 1; spraying the sinusoidal plate with a mixture of water and flux, drying the plate, and cutting it into fins, i.e. the last two steps of claim 1. The teeth in the rollers of Annex 6 can be considered as protrusions. It is implicit that the drying step in Annex 6 fixes the flux to the surface of the plate. In the present context, the feature of "cutting the plate to the desired length" is disclosed implicitly in Annex 6. A sinusoidal plate is a corrugated plate, i.e. having parallel ridges and valleys (see Annex 1 paragraph [0006]).

The method of claim 1 is distinguished from the method of Annex 6 in that the corrugated plate is immersed into a bath containing flux and water. The effect of this distinguishing feature is to coat the corrugated plate with a flux (Annex 1 paragraph [0014]). Since Annex 6 already discloses a method of coating a fin, the objective technical problem to be solved is to find an alternative method of coating the plate.

Annex 2, a document related to the brazing of aluminium alloys, teaches that flux can be applied using different techniques, such as dipping or spraying (see page 2, line 12, paragraph (i)). This document explains that dipping is carried out by immersing the parts to be brazed in a bath of water and flux, and that the same results can be obtained by spraying an aqueous solution of flux (see page 2, line 14, paragraph (i)). The skilled person would combine Annex 2 and Annex 6, since Annex 2 describes the brazing of aluminium alloys in an atmosphere containing air or oxygen (see paragraph (i) of Annex 2) as required in Annex 6 (see second and last paragraphs of Annex 6).

Therefore the subject-matter of claim 1 lacks an inventive step over Annex 6 combined with Annex 2.

{Marks for Use of Information: 6 / Marks for Argumentation: 9}

Lack of inventive step (Art. 56 EPC) of claim 2 over Annex 6 in combination with Annex 2 and Annex 3

Annex 6 is the closest prior art for the same reasons as given above for independent claim 1.

The method of claim 2 differs from the method of Annex 6 in that i) the corrugated plate is immersed into a bath containing flux and water; and ii) the pitch of the corrugated plate is changed after its formation.

For the problem and solution of feature i), see above the arguments given for claim 1.

Feature ii) has the effect of obtaining a fin having a particular pitch without having to change the first pair of rollers (see Annex 1 paragraph [0013]).

Features i) and ii) do not mutually influence each other and have no synergistic effect. They solve two separate partial problems and can be treated separately, Guidelines, C, IV, 11.5.2 and 11.7.

The partial problem to be solved by feature ii) can be considered as how to obtain a method which provides a fin with any particular pitch.

A3 addresses this problem of selecting the distance between two corresponding portions of adjacent corrugations as required (Annex 3 paragraph [0004]) or (Annex 3 paragraph [0005]). The convection plate of Annex 3 can be considered a fin in the sense of Annex 1 since it is a corrugated plate which is used to improve the efficiency of a radiator by increasing the surface area with which the air comes into contact (Annex 3 paragraph [0002], Annex 1 paragraph [0006]). Annex 3 paragraph [0008], claim 1 and fig. 3 and 4 disclose that the distance between two corresponding portions of adjacent corrugations, i.e. the pitch, is reduced by compressing the corrugated plate using means 13. The means disclosed in Annex 3 are suitable to compress the corrugated plate of Annex 6, since according to Annex 3 paragraph [0008] the process of Annex 3 can be used for any type of metal plate. In addition, Annex 6 explains that the heat exchange efficiency is optimized by choosing a particular periodicity of the sinusoidal fin (see Annex 6, lines 6 and 7).

Therefore, the method of claim 2 is rendered obvious by the application of the teachings of Annex 2 and Annex 3 to the method of Annex 6.

{Marks for Use of Information: 4 / Marks for Argumentation: 8}

Lack of novelty (Art. 54(2) EPC) of claim 3 over Annex 6

Claim 3 is a product-by-process claim (Guidelines C-III, 4.12, T150/82). The product is not rendered novel merely by the fact that it is produced by means of a new process.

Annex 6 discloses the process steps of claim 1 except for the step of immersing the corrugated plate into a bath containing flux and water (see claim 1 above). This difference in the process does not lead to a difference in the product obtained thereby. Evidence for this can be found in Annex 2 (see paragraph (i) "the same results are achieved by spraying an aqueous solution of flux as by immersing the parts into a bath of water and flux"). Therefore, the product obtained by the process of claim 1 is indistinguishable from the one obtained by the process of A6.

Therefore, the product of claim 3 is not novel over Annex 6 (Art. 54(2) EPC).`

{Marks for Use of Information: 2 / Marks for Argumentation: 3}

Lack of novelty (Art. 54(3) EPC) of claim 4 over Annex 5

Annex 5 discloses an aluminium heat exchanger (paragraph [0008], first and second lines) comprising two headers, tubes extending between the tanks for the flow of a first fluid, corrugated fins between the tubes providing channels for the flow of a second fluid (see fig. 1 or paragraph [0006] and/or paragraph [0007]). The expression “for the flow...” means “suitable for” that purpose (Guidelines C-III, 4.13 or C-IV, 9.7). Annex 5 paragraph [0006] discloses the use of water and air as first and second fluids, respectively. Headers can be considered as tanks (Annex 5 paragraph [0002]). The fins are sinusoidal (Annex 5 paragraph [0007] or Fig.1). The sinusoidal fins are corrugated fins, i.e. having parallel ridges and valleys (Annex1 paragraph [0006]). The heat exchanger assembly is brazed with a brazing alloy using flux in a furnace under a controlled atmosphere (Annex 5 paragraph [0008]).

Therefore, the subject-matter of claim 4 lacks novelty over Annex 5 (Art. 54(3) EPC).

{Marks for Use of Information: 5 / Marks for Argumentation: 2}

Lack of novelty (Art. 54(2) EPC) of claim 4 over Annex 6

Annex 6 discloses an aluminium heat exchanger (last paragraph) comprising two headers (first and third paragraphs), tubes extending between the headers for the flow of a first fluid (first paragraph), sinusoidal fins (first paragraph) between the tubes providing channels for the flow of a second fluid. The expression “for the flow...” means “suitable for” that purpose (Guidelines C-III, 4.13 or C-IV, 9.7). The tubes of Annex 6 are suitable for the flow of a first fluid and the sinusoidal fins between the tubes are suitable for the flow of a second fluid, which is inherent in a tube/fin heat exchanger. Annex 6 also discloses that the heat exchanger is brazed with a brazing alloy and a flux (according to Annex 6, third paragraph, the headers and the tubes are coated with a brazing alloy; the sinusoidal plate, the coated tubes and headers are sprayed with a mixture of water and flux and then dried; after cutting the plate into fins, the dried components are assembled and introduced into the oven for brazing). Headers can be considered as tanks, as explained in Annex 5 paragraph [0002]. The sinusoidal fins are equivalent to corrugated fins, i.e. having parallel ridges and valleys (Annex 1 paragraph [0006]).

Therefore, the subject-matter of claim 4 lacks novelty over Annex 6.

{Marks for Use of Information: 4 / Marks for Argumentation: 2}

Lack of inventive step (Art. 56 EPC) of claim 5 over Annex 6 in combination with Annex 4

Annex 6 is the closest prior art since it discloses an aluminium heat exchanger with tanks, tubes and fins brazed in the presence of flux, thereby allowing brazing to be carried out in an atmosphere containing traces of air or oxygen (second paragraph of Annex 6).

Claim 5 is dependent on claim 4, the features of which are known from Annex 6.

The subject matter of claim 5 is distinguished from Annex 6 in that the tubes are pre-coated with an aluminium zinc alloy.

This distinguishing feature has the technical effect of avoiding the formation of holes in the tubes by corrosion in applications in which the second fluid is very corrosive (Annex 1 paragraph [0007]). The objective technical problem to be solved can be considered to provide a heat exchanger in which the formation of holes by corrosion is avoided.

Annex 4 paragraph [0006] solves this problem since it discloses that a sacrificial layer of an aluminium zinc alloy can be provided inside or outside of a tube made of an aluminium alloy in order to avoid the formation of holes in the tube. The skilled person would consider Annex 4 to solve the problem mentioned above since this document relates to an aluminium tube for a heat exchanger (see e.g. title or claim 1). The aluminium zinc layer of Annex 4 (Annex 4 paragraph [0005] or paragraph [0006]) is mentioned in conjunction with brazing. Therefore, it can be used in the heat exchanger of Annex 6.

Hence, the subject-matter of claim 5 lacks inventive step over Annex 6 and Annex 4.

{Marks for Use of Information: 3 / Marks for Argumentation: 7}

Lack of inventive step (Art. 56 EPC) of claim 6 (Alternative 2) over Annex 6 in combination with Annex 4

Annex 6 is the closest prior art for the same reasons as given above for dependent claim 5.

The subject-matter of claim 6, alternative 2, is distinguished from Annex 6 by two features: i) the tubes are pre-coated with an aluminium zinc alloy and ii) the aluminium zinc alloy provides 4 g/m² of zinc.

For the problem and solution of feature i), see above the arguments given for claim 5.

Feature ii) has the effect of obtaining the best results in avoiding holes caused by corrosion (Annex 1 paragraph [0007]). The problem to be solved by feature ii) can be considered as how to further improve the corrosion resistance of the heat exchanger.

The solution to this additional problem can be found in Annex 4 paragraph [0006]. This document explains that providing 40 g/m² of an aluminium zinc alloy as a sacrificial layer having 10% by weight of zinc gives optimum results. 10% by weight of zinc in 40 g/m² of alloy means that the alloy provides 4 g/m² of zinc.

Hence, the subject-matter of claim 6 lacks inventive step over Annex 6 and Annex 4.

{Marks for Use of Information: 2 / Marks for Argumentation: 7}

Lack of novelty (Art. 54(2) and Art. 54(3) EPC) of claim 7 over each of Annex 5 and Annex 6

Each of Annex 5 and Annex 6 discloses all the technical features of claim 4, on which claim 7 depends. The heat exchangers of Annex 5 and Annex 6 are suitable for use with oil as a first fluid and air as a second fluid (Guidelines C-III, 4.13), since the heat exchangers of Annex 5 and Annex 6 have the same structure and are made of aluminium as the heat exchanger of claim 7. The subject-matter of claim 7 lacks novelty over each of Annex 5 and Annex 6.

{Mark of Use of Information:1 / Marks for Argumentation: 5)

Lack of inventive step (Art. 56 EPC) of claim 8 over Annex 4 combined with Annex 3

Annex 4 is the closest prior art since it discloses a tube of aluminium alloy including manganese for a heat exchanger.

The tube of Annex 4 is suitable for a heat exchanger according to claim 4 since it comprises an aluminium alloy which can be joined by brazing using flux to another component of the heat exchanger without requiring a vacuum (see Annex 4 paragraph [0005]).

The tube is made of an aluminium alloy containing manganese (Annex 4 paragraph [0004] or claim 1).

The subject-matter of claim 8 differs from Annex 4 in that the tube has a planar surface.

This distinguishing feature has the effect of facilitating the fixing of the fin and the tubes (Annex 1 paragraph [0009]). The problem to be solved can be considered as facilitating the joint between the fin and the tubes.

Annex 3 paragraph [0003] discloses that the vertical channels in the panel are provided with a planar surface in order to provide a large contact area between the channels and the convection plate, thereby facilitating the joining of both pieces. The skilled person would consult Annex 3 since this document relates to the joining of a convection plate, which is a corrugated plate like a fin, to the channels formed in the panel. The skilled person would use the teaching concerning the planar surface of Annex 3 for the tube described in Annex 4, since Annex 3 paragraph [0003] discloses that this feature can also be used for other types of heat exchangers.

Therefore, the subject-matter of claim 8 lacks an inventive step.

{Marks for Use of Information:5 / Marks for argumentation: 9}

EXAMINATION COMMITTEE II

Candidate No.

Paper C 2011 - Marking Sheet

Category	Maximum possible	Marks awarded	
		Marker	Marker
Use of information	39		
Argumentation	54		
Legal aspects	7		
Total	100		

Examination Committee II agrees on marks and recommends the following grade to the Examination Board:

☐

PASS
(50-100)

☐

COMPENSABLE FAIL
(45-49)

☐

FAIL
(0-44)

29 June 2011

Chairman of Examination Committee II