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**Datasheet for the decision  
of 24 September 2021**

**Case Number:** T 2870/18 - 3.2.01

**Application Number:** 07873670.9

**Publication Number:** 2099680

**IPC:** B64D45/02

**Language of the proceedings:** EN

**Title of invention:**

LARGE AREA CIRCUITRY USING APPLIQUES

**Patent Proprietor:**

The Boeing Company

**Opponents:**

AIRBUS (SAS) (FR)/AIRBUS Opérations (FR) /  
AIRBUS Operations Limited (GB)/Airbus Operations  
GmbH (DE)/ AIRBUS Operations S.L (ES)

**Headword:**

**Relevant legal provisions:**

EPC Art. 54(1), 56

**Keyword:**

Novelty - main request (yes)

Inventive step - main request (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

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**Case Number: T 2870/18 - 3.2.01**

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.01**  
**of 24 September 2021**

**Appellant:**

(Patent Proprietor)

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**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted on 5 October 2018  
revoking European patent No. 2099680 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman**            H. Geuss  
**Members:**            W. Marx  
                              A. Jimenez

## **Summary of Facts and Submissions**

- I. The appellant (patent proprietor) lodged an appeal against the decision of the opposition division revoking European patent No. 2 099 680.

The opposition had been filed against the patent as a whole and was based on Article 100(c) EPC and on Article 100(a) EPC together with Articles 54(1), 56 EPC.

- II. The appeal follows a previous appeal in the present case on which decision **T 859/14** has been taken, in which the Board in a different composition decided to set aside a first decision of the opposition division revoking the patent as granted on the ground of added subject-matter. The case was remitted to the opposition division for further prosecution.

- III. In its decision leading to the present appeal, the opposition division held that the subject-matter of the product claim 1 and of method claim 7 of the patent as granted (main request) was not new over the teaching of document **D2 (US 5,925,275)**. With similar reasoning the first to fourth auxiliary requests were found not allowable. Concerning the interpretation of the term "appliqué", it was also referred to further documents **D1 (US 5,344,696)** and **D3 (WO 2005/032812 A2)**.

The subject-matter of claim 1 according to the fifth auxiliary request was found novel but not inventive over the disclosure of D2 combined with the general knowledge of the skilled person.

- IV. Oral proceedings before the Board took place on 24 September 2021, in the absence of the opponents as announced with their letter dated 24 March 2021.
- The appellant (patent proprietor)** requested that the decision under appeal be set aside and that the patent be maintained as granted, or in the alternative, that the patent be maintained in amended form according to one of the auxiliary requests 1 to 5 considered by the opposition division.
- The respondents (opponents)** requested in writing that the appeal be dismissed.
- V. Claims 1 and 7 as granted read as follows:
- "1. An appliqué comprising:  
a sectioned metal foil (20) comprising a gap (60) in a metal layer that separates the metal layer into adjacent sections; and  
a dielectric layer (30) underlying the sectioned metal foil (20);  
wherein the sectioned metal foil (20) further comprises an electrical supply electrically connected to the adjacent foil sections of the sectioned metal foil (20) to form a circuit; and  
an electrical device (80) connected to adjacent sections of the sectioned metal foil (20) so as to complete the circuit:"
- "7. A method of forming an appliqué comprising  
providing a foil;  
sectioning the foil by creating a gap in the foil that separates the foil into adjacent sections to form a sectioned metal foil (20);  
providing a dielectric layer (30) underlying the foil;  
providing an electrical supply electrically connected to the adjacent foil sections of the sectioned metal foil (20) to form a circuit; and

connecting an electrical device (80) to adjacent sections of the sectioned metal foil (20) so as to complete the circuit."

VI. The appellant's arguments may be summarised as follows:

Applying a technical interpretation (and not, as in the contested decision, a linguistic interpretation) the subject-matter of claims 1 and 7 was novel over D1 and D2 because of three features:

(i) the technical meaning implied by "appliqué":

The opposition division erred in arguing (item 1.5 of the contested decision) that the Board in decision T 859/14 gave a definition of "appliqué" by stating on page 7, last three lines: "*A sectioned metal foil being used as an appliqué (covering part of an external surface of an aircraft) constitutes a large planar material ...*". The Board referred to an appliqué only in the context of using it in an aircraft as a "*large planar material*", which was suitable for use in covering an external surface of an aircraft. The opposition division then arrived at an even far to broad interpretation of "appliqué" (see item 1.5: "*any object suitable for covering a part of an external surface of an aircraft*").

An English person would understand a specific meaning when reading in an English patent the French word "appliqué". It had a particular technical meaning in the aircraft industry, meaning more than "laminate", namely: a fully formed integer applied to a substrate; a sheet-like coating used as a simple and low cost replacement for paint; comprising a pressure-sensitive adhesive, easily applied or removed from the surface of

an aircraft, which included compound-contoured regions; conforming to the shape of the skin of the aircraft by virtue of its flexibility; providing the benefits of a reduction in the need for aircraft maintenance and an increase in service life. This interpretation of "appliqué" was supported by the description of the patent (paragraphs [0031], [0002], [0003], [0015], [0060], [0074], [0080], [0081], [0083]) and also confirmed by document D3 (paragraphs [0006], [0007], [0009], [0017], [0063], [0069], [0070], [0071]). Thus, D3 as well as the patent showed an appliqué as a paint replacement technology and a distinct integer separate from the aircraft, which was thin, light and flexible to conform to complex contoured surfaces, applied wet or dry by a simple process (using a roller or a squeegee), but not formed *in situ*. While an appliqué was a laminate, not all laminates were appliqués.

Neither D1 nor D2 used the word "appliqué", nor included any disclosure of devices that were to be applied as a single part and removable.

- The laminate in D1 (see col. 8, line 54 to col. 9, line 6; also claim 1) was a laminate formed *in situ* and not an appliqué, i.e. not an independent part or fabricated article (which were applied to the surface of an aircraft in form of a wall paper). As explicitly set out, the separate plies of the laminate were individually bonded to the aircraft. Thus, the laminate was not a unitary body that was easily applied to, or removed from, an aircraft.
- D2 disclosed (see col. 9, lines 58-60) a "*fully laminated and cured heating assembly 20*" that was formed independently and then "*attached to a structural element of an aircraft*", comprising a heater subassembly 40 that was embedded in a carrier laminate 50 (col. 7, line 54), including



layers of epoxy film adhesive (col. 9, lines 16, 42, 44, 46). Some of the individual subcomponents were described as flexible (during the layering process), but were impregnated with an epoxy resin and then cured. So once manufactured, the integral heater assembly could not be conformed to a surface of an aircraft or used for different surfaces. D2 implied that the heater assembly was manufactured to fit to a particular structure of the aircraft. After curing it was rigid/stiff and not flexible in the sense of an appliqué, although D2 (see col. 9, lines 51-54) made reference to "*rigid but flexible characteristics*". The use of the term "rigid" precluded the sort of flexibility required of an appliqué that was provided on a roll and applied to an arbitrary aircraft component. Since an epoxy resin - a thermoset resin - was used to penetrate the fibers (see col. 6, lines 42-47) and then cured, a fibre-reinforced composite resulted which could not be reshaped. Moreover, the heater assembly of D2 was 10X thicker than the appliqué of the invention (see D2, col. 9, line 53, and patent, paragraph [0078]: 0.035 to 0.038 inches as compared to less than 0.004 inches) and hence not suitable as a paint replacement.

(ii) the meaning of the word "adjacent":

There was a question as to the precise scope of the term "adjacent", but it could not be disregarded in the way the opposition division construed the claims. The foil was for lightning protection, so it was of importance that the gap was small such that the foil sections were adjacent (see also patent, Fig. 1, or paragraph [0062] referring to gaps of 0.0127 mm).

According to the Cambridge Dictionary, "adjacent" was defined as "very near, next to, or touching".

- Although D1 disclosed two edge busses 106 that might be a layer of copper foil, the edge busses were deliberately spaced apart at opposite ends of the laminate (see col. 8, lines 6-7; also col. 9, lines 11-15), i.e. as far away from each other as possibly could be. Thus, you were told the opposite of what "adjacent" meant.
- The first and second strips 28 in D2 were not near each other, as only one strip was shown in Figs. 1 and 4. As in D1, the strips were attached along the opposite edges of the heater layer (see col. 5, lines 60-63), separated by the heater element.

(iii) "sectioned metal foil"; "sectioning the foil":

The opposition division disregarded the technical guidance derivable from the claim language "*a sectioned metal foil composing a gap in a metal layer that separates the metal layer into adjacent sections*", i.e. to form a foil of large area that was substantially continuous but then "sectioned" by forming a gap that was narrow so that the sections of foil were adjacent. It did not consider what meaning the term "metal layer" imparted to the skilled person. A layer of an article must take up some significant proportion of the area of the article and was not present if two separate and spaced apart components did not form an appreciable proportion of a surface.

The opposition division acknowledged (point 2.1.2 in the contested decision) that D2 failed to disclose the step of "sectioning the foil" of claim 7. However, this was considered implicit. This was not in line with the Case Law of the Boards of Appeal on implicit features (edition 2019, I.C.4.3: "*immediately apparent to the*

*skilled person that nothing other than the alleged implicit feature forms part of the subject-matter disclosed*"). It was not appropriate to assume the presence of a feature (in particular not "beyond any doubt", as suggested by the opposition division), when the skilled person could envisage other alternatives, such as strips made from cast, from different rolls, or deposited. The sectioning feature was clearly novel.

- The edge busses in D1 did not together form a metal layer in which a gap was formed, as D1 merely suggested (see col. 8 to 9) that the edge bus 106 was pressed into the edges of the electrically conductive ply. If the edge busses of D1 were formed by sectioning a metal foil, then 84% of the foil would be removed (see dimensions mentioned), which was not realistic. There was no suggestion in D1 of sectioning a foil to form the edge busses.
- D2 did not mention sectioning of a foil and so did not disclose a sectioned metal foil. The composite heater of D2, like D1, included two separate, spaced apart strips of conductive material 28, between which substantially the whole area of the conductive heater extended (generating heat by its resistance between the edges). These strips did not define a gap in a metal layer and were not formed by a sectioning operation, but were simply independent strips of metal that were adhered to opposing ends of the resistive heater element 22.

Moreover, there was no disclosure in D1 of a dielectric layer. The resilient/insulating ply of D1 (see col. 6, lines 28-30 and lines 34-42) was nothing more than a layer of electrical and thermal insulation. It was unreasonable that it was implicitly dielectric. There was also no disclosure that the insulating plies

underlay the edge bus 106. For that reason, the opposition division only ruled on novelty over D2.

The opponents argued lack of inventive step over D1 or D2 in view of the common general knowledge, which had to be exemplified. No indication was given in this respect. The problem starting from D1 or D2 was to provide an appliqué (as defined above). This was technically impossible in D1, which was made *in situ*. D2 disclosed a thermoset laminate, and it was not obvious to make it 10X thinner and substantially more flexible. Moreover, both documents required a resistive heater over a large area, so it was not obvious to provide adjacent sections of a metal foil. D1 or D2 did not provide any incentive to section a metal foil, leading (according to the patent) to a contoured gap and matching sections in shape. The Board in T 859/14 already accepted that a sectioned metal foil meant a "large area surface", which in combination with a small gap (or adjacent sections) had the advantage of protecting against lightning strikes by covering a large area.

D3, which undisputedly represented the closest prior art, disclosed an appliqué including a metal foil. However, D3 failed to suggest using the metal foil to form a circuit connecting an electrical supply to an electrical device. The novel features solved the objective technical problem of how to connect electrical devices on the surface of an aircraft. The cited prior art did not motivate the skilled person to depart from the conventional approach of hardwiring devices using narrow wires or bundles of wires. The skilled person would not find in either of documents D1 or D2 the features of a sectioned metal foil composing a gap in a metal layer (or a layer with adjacent

sections defined by a gap) of claim 1. For the same reasons, claim 7 involved an inventive step.

VII. The respondents' arguments regarding the present decision, based on their written submissions, may be summarised as follows:

In the contested decision lack of novelty over D2 was discussed in detail, but in a symmetrical manner also the teachings of D1 and D2 (see points 2.5 to 2.7). Moreover, it was confirmed (see point 7.1) that the features of claim 7 as granted were known from the disclosure of D1 or D2.

The appellant's interpretation of certain features of claims 1 and 7 were not followed:

(i) definition of "appliqué":

A general definition of "appliqué" was already given in decision T 859/14 of the present Board (page 7, last line: "*covering part of an external surface of an aircraft*") and had been taken into account by the opposition division, which did not consider a laminate built *in situ* to be different from an appliqué (see contested decision, point 1.5).

In its general meaning, an "appliqué" was a multilayer structure comprising *a minima* a metal foil and an insulating film, suitable for covering a surface of an aircraft. Most of the passages in the patent allegedly supporting the appellant's limited interpretation used terms such as "may" or "should", thus presenting only optional features.

The notion of an "appliqué" being an pre-existing independent part of an aircraft was in contradiction with claim 2 of the patent, since electrically positive

and negative sections were only realised *in situ* when connected to an electric supply. Therefore, the subject-matter of claim 1 covered a laminate or multilayer structure formed *in situ*. The presence of a pressure-sensitive adhesive was optional and only specified in dependent claim 6 (see also D3, paragraph [0018]). Moreover, claim 1 was silent with regard to the surface of the aircraft to which the appliqué was adapted and applied, i.e. it comprised plane portions which did not require a deformation of the laminate.

(ii) "sectioned metal foil comprising a gap":

The subject-matter of claim 1 was not distinguished from a final product having two metallic strips separated by a gap. There was nothing in the description to define the dimensions of the gap and the sectioned foils in a relative manner. The dimensions of the gap were dependent on the electrical device (see patent, paragraph [0034]: e.g. antennas, communication devices, ...) connected to adjacent sections of the metal foil. In this respect, the patent indicated that the gap might be formed of any width as desired for a particular application (paragraph [0064], lines 33-34).

(iii) metal layer separated in adjacent sections:

The appellant assumed a limited definition of the term "adjacent", arguing that the gap had to be narrow in view of the protection against lightning strikes. However, the function of lightning protection was only an example mentioned among a wide range of functions for an appliqué (see paragraphs [0014] ff.). Moreover, the appellant was inconsistent later when justifying an inventive step over D3 in view of the new functions

provided by the appliqué of claim 1 and a gap sufficiently large to incorporate electric devices.

D2 showed a laminate heater element 20 for use as an ice protection system (col. 1, line 17), comprising a heater subassembly 40 (Fig. 4) composed of a resistive heater element 22, two strips of conductive material 28 placed on opposite edges of heater element 22 (col. 5, lines 52-63, Figs. 2 and 4) and connected to an electrical power supply (col. 7, lines 27-39), and a dielectric layer 70 (col. 8, line 27). Subassembly 40 was integrated with a laminated composite carrier 50 (col. 5, line 25) and applied to a structure of an aircraft (col. 9, lines 48-50), i.e. D2 described an appliqué within the meaning given above comprising sectioned metal foils (28) connected to an electrical supply and placed on a dielectric layer (70). The resistive heater element was e.g. an electrical de-icing device supplied via the sectioned metal foils 28. The appliqué as defined by claim 1 was not limited to a heater element that conformed to any surface of the aircraft. Thus, in spite of the thermoset resin used in D2, the subject-matter of claim 1 was disclosed in D2, and with similar reasoning also the subject-matter of claim 7. D2 indicated that the conductive metallic foils 28 were fabricated from the same material (see col. 7, line 30: copper), so they were implicitly realised by sectioning a copper foil in order to form sectioned metal foils.

D1 described a laminate 101 or structure applied to exterior surfaces of an aircraft (col. 2, line 23) which could be curved or plane (col. 4, lines 50- 52). The laminate 101 formed a composite and was realised as an integer (col. 3, lines 30-35: "*integrally bonded laminate*") comprising a plurality of integrally bonded

plies (col. 4, line 58). The laminate was then bonded to the surface of the aircraft (col. 4, line 5; col. 5, line 67; col. 8, line 54). The laminate 101 comprised (see Figs. 1, 2) an electrically conductive ply 103, an insulating ply 125 and edge busses 106 of ply 103 (i.e. sectioned metal foils separated by a gap) connected to an electrical supply 115. The electrically conductive ply 103 connected to the edge bus formed a heating resistance for de-icing (col. 9, lines 20-25; col. 2, lines 15-19), as also described in the patent. Thus, the subject-matter of claim 1 was known from D1. The same applied for the subject-matter of claim 7. Sectioning of a copper foil in order to realise sectioned metal foils (edge busses) was implicitly disclosed in D1.

The multilayer structures/laminates described in D1 or D2 were similar to an appliqué. Therefore, in case D1 or D2 did not show a sectioned metal foil, it was obvious for the skilled person (who tried to implement the edge busses of D1 or the strips of conductive material of D2 made of copper) to section a foil of same material (copper) in order to realise adjacent metal foil sections comprising a gap between them. Therefore, the subject-matter of claims 1 and 7 was not inventive in view of D1 or D2 and the knowledge of the skilled person on such realisation.

Following the appellant's problem-solution approach starting from closest prior art document D3 (which disclosed an appliqué), D3 did not show a sectioned metal foil comprising a gap separating the metal layer into adjacent sections to which an electrical supply was connected and an electrical device connected to adjacent sections. The problem to be solved was to connect electrical devices on the surface of the



aircraft. As indicated in the patent (paragraph [0014]) the electrical devices included not only lightning strike protection, but also de-icing devices. Thus, the skilled person was incited to consult documents D1 or D2 which showed laminates applied to an aircraft for de-icing and freezing protection. These documents taught a supply circuit of an electrical device, namely a de-icing resistor, starting from a laminate structure comprising sectioned metal foils comprising a gap and connected to an electrical supply. The skilled person would modify, without any inventive skill, the appliqué of D3 in order to incorporate an electrical device on the surface of an aircraft.

## **Reasons for the Decision**

1. *Main request (patent as granted) - novelty*

1.1 The subject-matter of claims 1 and 7 as granted is novel over document D2 (Article 54(1) EPC).

1.1.1 The Board follows the contested decision with respect to granted claim 1 (see item 2.1.1) insofar as a "sectioned foil" is construed as two foils separated by a gap. Moreover, in a final product as specified by claim 1, it might not be possible to recognise beyond any doubt that the two foil sections have been obtained from the same foil. However, the term "sectioned metal foil" cannot be read in isolation, but in the context it is used in claim 1, the respective feature reading:  
"a sectioned metal foil (20) comprising a gap (60) in a metal layer that separates the metal layer into adjacent sections".

In this context, the sectioned metal foil is specified ("comprising") to be a metal layer separated via a gap into adjacent sections. The Board concurs with the appellant that the term "metal layer" imparts a meaning to the skilled reader which cannot be neglected, namely a foil of a large area (i.e. having large extension in two dimensions). Sectioning the layer by providing a gap might reduce the length in one dimension. However, the wording of claim 1 still requires a metal layer separated into adjacent sections. Irrespective of what limitation is provided by the term "adjacent" (the respondents referred to paragraph [0064] of the patent in this respect), these sections still have to form an appreciable proportion of a surface.

The Board notes that thereby it adheres to the finding in the decision of previous appeal T 859/14 (page 7, last paragraph) that *the wording "a sectioned metal foil" in claim 1 already necessarily defines a "large area circuit", for said term, by its very nature, has to be seen in relation and in contrast to conventional cabling or circuitry as described in EP-B (paragraphs [0010], [0011]; ...). A sectioned metal foil being used as an appliqué (covering part of an external surface of an aircraft) constitutes a large planar material and thus fulfils the requirement of being large within the meaning of the patent specification (EP-B).*

Document D2 shows two separate strips of conductive material 28 placed on opposite edges of heater element 22, between which substantially the whole area of the conductive heater extends. The strip-like structure of the conductive material 28 in D2 defines an element which extends predominantly in one direction, which according to the Board's understanding as set out above does not fall under the wording of claim 1, namely "a

sectioned metal foil (20) comprising a gap (60) in a metal layer that separates the metal layer into adjacent sections".

Therefore, on this ground alone, novelty of the subject-matter of claim 1 over D2 has to be acknowledged, irrespective of whether the laminate structure of the resistive heater subassembly 40 of D2 (see Figs. 1, 2 and 4) or the heater assembly 20 comprising resistive heater subassembly 40 embedded within a protective carrier laminate 50 (see Fig. 3) can be considered as an appliqué.

- 1.1.2 As regards claim 7, the opposition division found (see point 2.1.2 of the contested decision) that D2 fails to mention explicitly a step of "sectioning the foil". However, the Board does not follow the contested decision that this step was implicitly disclosed in D2. According to the established jurisprudence, a feature can only be considered "implicit" if nothing other than the alleged implicit feature forms part of the subject-matter disclosed, requiring that it is necessarily or inevitably implied. As the skilled person can envisage other alternatives in D2 (e.g. strips made from different rolls, or deposit on the silver-filled adhesive 30 of D2, see col. 7, line 30), this criterion is not fulfilled so that novelty of claim 7 over D2 has to be acknowledged already for this reason.

The respondents' argument (based on col. 7, line 30) that the conductive metallic foils 28 of D2 were implicitly realised by sectioning a copper foil cannot be followed. The disclosure in D2 referred to by the respondents only shows that the same material (preferably copper) was used to fabricate the metallic

foils 28, leaving open any detail on the process for producing them.

Moreover, the method steps according to claim 7 of "providing a foil" and "sectioning the foil ... to form a sectioned metal foil" have to be construed as set out above for claim 1, i.e. the wording "a sectioned metal foil" necessarily defines a "large area circuit" (as found in T 859/14). D2 explicitly describes (col. 5, lines 60-63) that a first and a second strip of conductive metal 28 are attached on opposite edges of the heater layer 22. The term "strip" clearly indicates an elongation predominantly in one direction. This means that the subject-matter of method claim 7 is also new over for the reasons set out with regard to product claim 1.

1.2 The subject-matter of claims 1 and 7 is new over the disclosure of document D1 (Article 54(1) EPC).

The edge busses 106 shown in D1 do not together form a metal layer in which a gap is formed, or do not form a sectioned metal foil. Therefore, with similar reasoning as set out above, novelty of the subject-matter of claims 1 and 7 over D1 cannot be denied.

Moreover, the Board notes that D1 fails to show, in addition, the following features of claims 1 and 7:

- The insulating ply 125 of D1 does not necessarily imply dielectric characteristics, so a dielectric layer required in claims 1 and 7 is missing in D1.
- The Board does not follow the respondents that the laminate 101 was realised as an integer and then applied as a whole to the surface of the aircraft. The term "*integrally bonded laminate*" found in D1 (col. 3, lines 30-35) does not unambiguously relate

to a laminate formed in advance as an integer before attaching it the surface of the aircraft. The process of applying and bonding the laminate to an aircraft part as described later in D1 in detail (see col. 8, lines 54 ff.) makes clear that the different layers or plies are applied sequentially to the aircraft, including intermediate curing steps. Therefore, the Board cannot see that even the minimum requirements for an appliqué, comprising "*a minima* a metal foil and an insulating film" to be applied to a surface of an aircraft as argued by the respondents, are realised in D1.

2. *Main request (patent as granted) - inventive step*

2.1 The subject-matter of claims 1 and 7 as granted involves an inventive step (Article 56 EPC).

2.2 In case novelty over D1 and D2 was acknowledged, the respondents argued that it was obvious for the skilled person starting from D1 or D2 to realise adjacent metal foil sections comprising a gap between them by sectioning a foil of copper.

The distinguishing feature of providing or forming a sectioned metal foil, i.e. a metal layer covering a significant portion of the laminate known from D1 or D2 (irrespective of whether it was considered an appliqué or not), provides an electrical shielding function such as to protect against lightning strikes. The problem to be solved may be seen in increasing the number of functions that may be provided by appliqués (see also paragraph [0009] of the patent).

However, the Board cannot see that the skilled person trying to solve this problem would deviate from the

basic structure taught by D1 or D2, which requires a resistive heater element over a large area. Providing a sectioned metal foil, i.e. a conductive element which according to the Board's understanding (see above) would cover an appreciable proportion of a surface, would result in short-circuiting corresponding portions of the heater element. This would compromise the dedicated function of de-icing or anti-icing of the laminate structure as described in D1 (col. 3, lines 30-33: "*integrally bonded laminate which is used to thermally control a surface or a portion of a surface of an aircraft*") or D2 (col. 1, lines 16-17: "*electrically conductive laminate heater element for use as an ice protection system*") and would therefore not obviously be considered.

Therefore, even following the respondents that the step of sectioning a copper foil (according to claim 7) might not be inventive, the skilled person would neither arrive at a sectioned metal foil comprising a gap in a metal layer according to claim 1, nor at forming a sectioned metal foil as required by claim 7, in view of the Board's interpretation of the claim language as set out above.

- 2.3 In its line of argument starting from document D3 as the closest prior art, the respondents agreed on the fact that D3 only showed a continuous planar foil without any gap or sectioning.

First of all, the Board cannot accept the appellant's and also the respondents' formulation of the problem to be solved ("*connect electrical devices on the surface of the aircraft*") which already contains a pointer to the solution. The distinguishing features of claims 1 and 7 of having/forming a sectioned metal foil and an

electrical device connected to adjacent sections in contact with an electrical supply has the technical effect of increasing the functionality of the appliqué known from D3. The problem to be solved is therefore considered to provide an increased number of functions of an appliqué, as stated in the contested patent (see paragraph [0009]).

Assuming that the skilled person were aware of additional functions to be provided by an appliqué as mentioned in the contested patent (paragraph [0014]: e.g. de-icing), the Board cannot see that the skilled person, without hindsight knowledge of the invention, would arrive at the subject-matter of claims 1 and 7. By sectioning or cutting the continuous metal layer known from D3, the shielding function of the continuous metal layer and its increased protection from lightning strike (by dispersing energy of the lightning strike over a large area) would deteriorate.

Even if the skilled person would seriously contemplate applying the teaching of D1 or D2 on how to realise a de-icing function to the appliqués of D3, he would end up with a structure as shown in D1 or D2, i.e. having bus bars or predominantly one-dimensional strips of metal in contact with opposing edges of a large area resistive heater element, and not at a sectioned metal foil as required by claims 1 and 7. As suggested by Fig. 4 in D3, rectangular appliqués of different configuration or function might be applied to the surface of an aircraft.

As there is no teaching in the prior art of providing sectioned metal foils according to the Board's understanding of claims 1 and 7, the skilled person starting from D3 is not prompted to arrive at the subject-matter of independent claims 1 and 7.

**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:



A. Vottner

H. Geuss

Decision electronically authenticated