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Datasheet for the decision of 12 July 2022

Case Number: T 1690/18 - 3.2.06

Application Number: 06254317.8

Publication Number: 1760264

IPC: F01D5/18, B23P15/04, C22C47/16, C23C4/00, C23C4/12

Language of the proceedings: EN

Title of invention:
Turbine engine component and method of making the same

Patent Proprietor:
Raytheon Technologies Corporation

Opponent:
Safran Aircraft Engines

Headword:

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Amendments - added subject-matter (yes)

Decisions cited:

Catchword:

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Case Number: T 1690/18 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 12 July 2022

Appellant: (Opponent)	Safran Aircraft Engines 2 boulevard du Général Martial Valin 75015 Paris (FR)
Representative:	Brevalex 95, rue d'Amsterdam 75378 Paris Cedex 8 (FR)
Respondent: (Patent Proprietor)	Raytheon Technologies Corporation 10 Farm Springs Road Farmington, CT 06032 (US)
Representative:	Dehns St. Bride's House 10 Salisbury Square London EC4Y 8JD (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 20 April 2018 concerning maintenance of the European Patent No. 1760264 in amended form.**

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	W. Ungler

Summary of Facts and Submissions

I. An appeal was filed by the appellant (opponent) against the interlocutory decision of the opposition division in which it found that European patent No. 1 760 264 in an amended form met the requirements of the EPC. The appellant requested that the decision under appeal be set aside and the patent be revoked.

II. The respondent (patent proprietor) requested that the appeal be dismissed or, in the alternative, that the patent be maintained according to one of auxiliary request 1 to auxiliary request 7.

III. The following document is relevant to the present decision:

D10 Paper entitled 'A high performance austenitic ODS superalloy sheet for advanced gas turbine applications', Testin, Ewing and Spees, 1992.

IV. The Board issued a summons to oral proceedings followed by a communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of each of the main request and auxiliary request 1 and 2 failed to meet the requirement of Article 123(2) EPC.

V. With letter of 4 May 2022 the respondent filed a new main request and new auxiliary requests 1 to 7, replacing all requests previously on file.

VI. Oral proceedings by videoconference were held before the Board on 12 July 2022 at the end of which the parties' requests were as follows:

The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked. The respondent (patent proprietor) requested that the patent be maintained in amended form according to the main request or one of the auxiliary requests 1 to 7 all filed with letter of 4 May 2022.

VII. Claim 1 of the main request reads as follows:

"A method for manufacturing a turbine engine component comprising the steps of:
forming a first half (12) of an airfoil portion (10) of the turbine engine component; and
forming a first cooling microcircuit (120) having at least one passageway on an exposed internal wall surface (20) of said first (12) half of said airfoil portion {10};
characterised by further comprising placing a cover plate (128) over said first cooling microcircuit (120);
wherein said first half (12) is formed by casting and wherein said first cooling microcircuit forming step comprises forming said first cooling microcircuit with an inlet (124) and an outlet (126);
wherein said first cooling microcircuit forming step comprises forming said first cooling microcircuit {120) by casting or machining a plurality of pedestals (122) forming said at least one passageway and around which cooling fluid passes as it flows from the inlet {124) to the outlet (126),
said pedestals (122) being arranged in staggered rows across the direction of the cooling flow from the inlet (124) to the outlet (126) such that flow passing between adjacent pedestals (122) of one row impinges on a pedestal {122) of the adjacent downstream row, the pedestals being, in cross section, circular or oblong

in the direction of extent of the respective rows; and further comprising:
joining said cover plate to said plurality of pedestals (122)."

The wording of claim 1 of each of the auxiliary requests 1 to 7 is not quoted here, since the differences in wording relative to claim 1 of the main request are not relevant for the decision taken.

VIII. The appellant's arguments relevant to the present decision may be summarised as follows:

The subject-matter of claim 1 of the main request failed to meet the requirement of Article 123(2) EPC. The features taken from the description and added to claim 1 resulted in claimed subject-matter extending beyond the content of the application as filed.

IX. The respondent's arguments relevant to the present decision may be summarised as follows:

The subject-matter of claim 1 of the main request met the requirement of Article 123(2) EPC. The feature of the "pedestals being, in cross section, oblong" in claim 1 was generally disclosed in Fig. 7A, which figure illustrated an exemplary cooling microcircuit configuration (see sentence bridging cols. 3 and 4 of the application as filed). The pedestals of claim 1 were formed on the exposed internal wall surface of the microcircuit and were also connected to the cover plate. With the skilled person understanding that such pedestals were typically of minimal height (see for example Fig. 6 of D10), a geometrically exact oblong pedestal would be very difficult to form and would thus have rounded rather than sharp ends. Anyway, such a

purely straight sided configuration was not excluded and the skilled person would understand that such was included when depicting the shapes in the figures. Fig. 7A should also be understood as disclosing a concept of pedestals since the necessary presence of a fillet at the base of the pedestal meant that Fig. 7A itself was a generalisation. Consequently the skilled person would see Fig. 7A as disclosing generally oblong shaped pedestals rather than a geometrically strict oblong. The claimed oblong configuration of the pedestals was also what the skilled person would generally take as being directly and unambiguously disclosed in Fig. 7A.

The wording of the respective claim 1 of each of the auxiliary requests 1 to 7 did not change the finding with respect to Article 123(2) EPC of claim 1 of the main request.

Reasons for the Decision

1. *Main request*

1.1 *Article 123(2) EPC*

The subject-matter of claim 1 fails to meet the requirement of Article 123(2) EPC.

1.2 Relative to claim 1 as filed, *inter alia* the following feature has been added to claim 1:
"the pedestals being, in cross section, circular or oblong".

1.3 The definition of at least the cross section being oblong lacks an explicit basis in the application as

filed. As also accepted by the respondent, the sole basis for the oblong cross section is Fig. 7A or Fig. 7B as filed. Since Fig. 7B seems to disclose two types of pedestal, the respondent stated that Fig. 7A could be understood as representing the embodiment with the option in claim 1 of oblong cross sections for the pedestals. Fig. 7A discloses pedestals 122, 122' in an exemplary cooling microcircuit 120, 120' (see sentence bridging cols. 3 and 4 of the application as filed, all references being to the A2 publication of the application as filed, accepted as corresponding to the original), each pedestal depicted to have an essentially lozenge-shaped cross section with two straight sides. Based on Fig. 7A alone, the respondent elected to describe the shape of the pedestals as "oblong" in cross section.

1.4 The Board finds the term "oblong" to be broader than the very specific pedestal shape depicted in Fig. 7A. In this figure the longitudinally opposite ends of the pedestals are arcuate which is not reflected in the term "oblong" used to define the pedestal shape in claim 1. An "oblong" may, for example, have two sets of opposing parallel sides forming a rectangle, rather than just one set as depicted in Fig. 7A. Consequently the term "oblong" used to define the cross section of the specifically depicted pedestals is not directly and unambiguously derivable from Fig. 7A, since it is a term encompassing other non-disclosed shapes.

1.5 The respondent's reference to Fig. 6 of D10 in order to show that the claimed pedestals would always have somewhat rounded, rather than sharp ends as well as fillets at the interface between the pedestals and the sheet is not decisive for claim 1. Whilst D10 indeed shows smooth fillets to the button-shaped pedestals of

the Lamilloy sheet disclosed therein, this has no bearing on the pedestals depicted in Fig. 7A. In the absence of an explicit reference to D10 in the opposed patent, there is no reason for the claimed pedestals to exclusively exhibit the gently rounded edges and fillets of D10; sharp cornered edges are equally reasonable from a technical point of view even if, in view of how such pedestals may typically be formed, a slight fillet radius may be present at the interface with the sheet. The skilled person would thus not see the term "oblong", chosen in the context of the cross sectional shape of the pedestals, to solely imply the specific pedestal shape depicted in Fig. 7A.

1.6 The respondent's contention that the skilled person, on reading Fig. 7A, would automatically understand that oblongs with two sets of opposing parallel sides (with 90° angles at each corner) were included in the disclosure is without basis. The term "oblong" is not a term that appears in the description at all and was introduced into claim 1 based solely on the disclosure in Fig. 7A which depicts only a specific cross sectional shape of pedestal. Whether the skilled person would indeed interpret the shape of the pedestals of Fig. 7A in the broad manner suggested by the respondent is thus highly questionable and lacks any unambiguous basis.

1.7 The respondent's argument that Fig. 7A should be understood as depicting merely a "concept of pedestals" (since the necessary presence of a fillet at the base of the pedestal, as clearly indicated in Fig. 6 of D10, allegedly meant that Fig. 7A itself was a generalisation) is not accepted. As reasoned in point 1.5 above, in the absence of an explicit reference to D10 in the opposed patent, there is no basis for the

assumption that the claimed pedestals necessarily exhibit the fillets of D10 at their base. Consequently, the skilled person would interpret Fig. 7A as explicitly indicated in the sentence bridging cols. 3 and 4 of the patent, as an "exemplary cooling microcircuit configuration" i.e. as a specific embodiment of the invention. Fig. 7A is thus found not to disclose a generalised pedestal cross sectional shape, rather specific pedestals of an essentially lozenge-shaped cross section with two straight sides.

1.8 The respondent's further argument that the claimed oblong configuration of the pedestals was that which the skilled person would generally take as being directly and unambiguously disclosed in Fig. 7A is also not accepted. Para. [0009] discloses Fig. 7A to depict "various features which can be used in the cooling fluid microcircuit of Fig. 6". Fig. 7A is thus a specific example of possible features of the microcircuit, and not, as alleged by the respondent, a general disclosure of the same. This understanding is underlined in the sentence bridging cols. 3 and 4 in which Fig. 7A is disclosed to "illustrate exemplary cooling microcircuit configurations" i.e. specific embodiments, rather than a general teaching. This passage does not support the respondent's contention that a broad interpretation of the shape in Fig. 7A should be taken but, if anything, simply confirms that the depicted shape of the pedestals in Fig. 7A is a specific disclosure, with the consequence that only this particular pedestal shape can be considered directly and unambiguously disclosed in Fig. 7A. The use of the term "oblong" to describe this specific disclosure, as identified in point 1.4 above, thus lacks a direct and unambiguous basis in the application

as filed.

1.9 In summary therefore, since the application as originally filed lacks a direct and unambiguous basis for the subject-matter of claim 1, this fails to meet the requirement of Article 123(2) EPC. The main request is consequently not allowable.

2. *Auxiliary requests 1 to 7*

2.1 *Article 123(2) EPC*

2.2 Claim 1 of each of these requests includes at least the feature "the pedestals being in cross section oblong", which is found, as explained above, to be subject-matter of claim 1 of the main request which extends beyond the content of the application as filed. No feature included in the respective claim 1 of any of the auxiliary requests changes the Board's finding with respect to Article 123(2) EPC not being met for the main request. The respondent also confirmed this to be the case.

2.3 The subject-matter of claim 1 of each of auxiliary requests 1 to 7 thus fails to meet the requirement of Article 123(2) EPC. Auxiliary requests 1 to 7 are thus not allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

D. Grundner M. Harrison

Decision electronically authenticated