

**Internal distribution code:**

- (A) [ - ] Publication in OJ
- (B) [ - ] To Chairmen and Members
- (C) [ - ] To Chairmen
- (D) [ X ] No distribution

**Datasheet for the decision  
of 25 May 2021**

**Case Number:** T 1749/18 - 3.2.04

**Application Number:** 09173331.1

**Publication Number:** 2180162

**IPC:** F02C6/08, F01D9/06, F01D25/12

**Language of the proceedings:** EN

**Title of invention:**  
Gas turbine ejector and method of operation

**Patent Proprietor:**  
General Electric Company

**Opponent:**  
Siemens Aktiengesellschaft

**Headword:**

**Relevant legal provisions:**  
EPC Art. 54(2), 84, 101(3), 111(1)  
EPC R. 100(1)  
RPBA Art. 12(4)  
RPBA 2020 Art. 13(2)

**Keyword:**

Novelty - main request (no) - auxiliary request (yes)  
Amendment after summons - taken into account (no)  
Late-filed request - submitted with the statement of grounds  
of appeal - admitted (yes)  
Claims - clarity - auxiliary request (yes)  
Appeal decision - remittal to the department of first instance  
(yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

Boards of Appeal of the  
European Patent Office  
Richard-Reitzner-Allee 8  
85540 Haar  
GERMANY  
Tel. +49 (0)89 2399-0  
Fax +49 (0)89 2399-4465

**Case Number: T 1749/18 - 3.2.04**

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.04**  
**of 25 May 2021**

**Appellant:** General Electric Company  
(Patent Proprietor) 1 River Road  
Schenectady, NY 12345 (US)

**Representative:** Freigutpartners IP Law Firm  
Hahnrainweg 4  
5400 Baden (CH)

**Respondent:** Siemens Aktiengesellschaft  
(Opponent) Werner-von-Siemens-Straße 1  
80333 München (DE)

**Representative:** Isarpatent  
Patent- und Rechtsanwälte Behnisch Barth Charles  
Hassa Peckmann & Partner mbB  
Postfach 44 01 51  
80750 München (DE)

**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 8 May 2018  
revoking European patent No. 2180162 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman** G. Martin Gonzalez  
**Members:** J. Wright  
T. Bokor

## **Summary of Facts and Submissions**

- I. The appellant-proprietor lodged an appeal, received on 6 July 2018, against the decision of the Opposition Division posted on 8 May 2018 revoking European patent No. 2180162 pursuant to Article 101(3)(b) EPC, and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was received on 10 September 2018.
- II. Opposition was filed under Article 100(a) EPC for lack of novelty and lack of inventive step and under Article 100(b) EPC for insufficiency of disclosure.
- III. The Opposition Division found that the invention was sufficiently disclosed and that claim 1 was not new over D5: US 2,164,263.
- IV. In preparation for oral proceedings the Board issued a communication, dated 11 September 2020, setting out its provisional opinion on the relevant issues. Oral proceedings before the Board were duly held by videoconference on 25 May 2021.
- V. The appellant-proprietor requests that the decision under appeal be set aside, and that the patent be maintained as granted (main request), or that the patent be maintained in an amended form on the basis of an auxiliary request, filed with the grounds of appeal dated 10 September 2018.

The respondent-opponent requests that the appeal be dismissed.

VI. The wording of independent claim 1 of the requests relevant to this decision is as follows:

(a) Main request

"1. An ejector system (34) for combining a high pressure fluid flow stream (26) with a low pressure fluid flow stream (18) comprising;  
a nozzle chamber (35) in communication with a high pressure fluid flow stream (26) having an inlet (36) and an outlet (40);  
a suction chamber (42) in communication with a low pressure fluid flow stream (18) having an inlet (38), an outlet and configured to receive the outlet (40) of the nozzle chamber (35) therein;  
characterised in  
the outlet (40) of the nozzle chamber (35) defining multiple nozzles (48) wherein the high pressure flow stream (26) exits the nozzle chamber (35) to define multiple flow streams having multiple surface areas for interlayer drag between the multiple high pressure flow streams and the low pressure flow stream (18) in the suction chamber (42), wherein the low pressure fluid flow stream (18) is entrained by the high pressure fluid flow streams (26), and wherein the outlet (40) of the nozzle chamber (35) includes a non-symmetrical nozzle configuration."

(b) Auxiliary request

Claim 1 as in the main request amended as follows  
(emphasis added by the Board to indicate added text)

"1. An ejector system (34) for use with a multistage compressor of a turbine engine, the ejection system for combining a high pressure fluid flow stream (26) taken

from one extraction point of the compressor with a low pressure fluid flow stream (18) taken from a second extraction point of the compressor comprising;..."

VII. The appellant-proprietor argued as follows:

Granted claim 1 is new over D5. Their new submissions in respect of novelty of claim 1 during oral proceedings before the Board should be admitted, Article 13(2) RPBA 2020, inter-alia for being prima-facie relevant. Admission of the auxiliary request under Article 12(4) RPBA 2007 is justified under the circumstances of the present case as a normal development of the proceedings. Claim 1 of the auxiliary request is clear and the added feature confers novelty to the claim over the cited prior art. The appellant-proprietor agrees with a remittal of the case for further prosecution on the basis of the auxiliary request.

VIII. The respondent-opponent argued as follows:

The Opposition Division's conclusion of lack of novelty of granted claim 1 is correct. The auxiliary request should have been filed in first instance. It is thus not admissible under Article 12(4) RPBA 2007. The new added subject-matter objection is justified and thus admissible under Article 13(2) RPBA 2020. The functional feature added to claim 1 of the auxiliary request is unclear. The subject-matter of claim 1 is not new over D5. The respondent-opponent also agrees with a remittal of the case for further prosecution on the basis of the auxiliary request.

## **Reasons for the Decision**

1. The appeal is admissible.
2. Background

The invention relates to a cooling system of a turbine engine that uses air diverted from the air compressor to provide cooling air to the turbine, see paragraphs [0001]-[0002] of the patent specification. The invention is directed in particular to an ejector system for efficiently combining high pressure and low pressure air streams diverted from two different stages of the compressor. The ejector system utilizes the momentum of motive flow of the high pressure air through a nozzle to create a suction flow of low pressure air surrounding the nozzle. Interlayer shear operates between the high and low pressure air flow streams within the ejector system resulting in entrainment (suction flow) of the low pressure air with the high pressure flow stream, see paragraph [0003]. To increase the entrainment of low pressure air flow within the high pressure air flow, and so improve the efficiency of the ejector system, multiple nozzles are provided in order to define multiple flow streams that create multiple surface areas for interlayer drag, see paragraph [0004], in a non-symmetrical nozzle configuration, which lowers vibration and acoustical effects, see paragraph [0008].

3. New case of the appellant-proprietor during oral proceedings - Admission
- 3.1 During the discussion in the oral proceedings before the Board on 25 May 2021 concerning novelty of granted

claim 1 over D5, the appellant-proprietor submits that the claimed feature of a non-symmetrical configuration of the outlet nozzle is not disclosed by document D5. Claim 1 would thus be new over D5.

- 3.2 The appellant-proprietor in their statement of grounds of appeal did not address the non-symmetrical configuration feature. It is thus an amendment to the proprietor's appeal case. Since it has been put forward after notification of the summons to oral proceedings issued on 25 June 2020, its admission is subject to the provisions of Article 13(2) RPBA 2020.

According to Article 13(2) RPBA 2020 such case amendments shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

- 3.3 The appellant-proprietor has not put forward any cogent reasons that could possibly justify the admission. They merely argue that the argument *per se* is *prima facie* relevant. However, they do not submit any indication that this is a new or in any other way exceptional circumstance. It cannot thus serve to justify the amendment to their case at this late stage of the proceedings.

This is all the more true in view of the role played by the contested feature in opposition proceedings: The non-symmetrical configuration of the nozzle and also the question whether or not this was disclosed in D5 was central to the outcome of the impugned decision, see section "Art. 83 EPC", and paragraphs "iii)" and "to iii)" in section "Art. 54 EPC, Novelty" of the contested decision. The late submission thus directly



relates to central arguments of the decision sought to be reviewed with the appeal and its statement of grounds. The delay of such a submission beyond the filing of the statement of grounds and for the first time during oral proceedings is thus hardly justifiable without a change in the circumstances of the case.

3.4 They also argue that novelty over D5 was not discussed until the oral proceedings before the Opposition Division on 23 February 2018. This, however, does not change the fact that all the various aspects of the novelty objection were known at the commencement of the appeal proceedings, and even earlier. This argument cannot thus justify a delay or late filing beyond the initial statement of grounds.

3.4.1 In view of the above the Board decided not to admit the amendment to the appellant-proprietor's appeal case.

4. Main request - novelty

4.1 The appellant-proprietor contests the finding of a lack of novelty by the Opposition Division.

4.2 The Board noted the following in its written communication:

*"4.2 As variously stated in case law, see Case Law of the Boards of Appeal, July 2019, 9th Edition (CLBA), II.A. 6.3.4, for the purposes of judging novelty and inventive step, the description cannot be relied on to read into the claim an implicit restrictive feature not suggested by the explicit wording of the claim.*

*4.3 In the present case, claim 1 merely requires "combining a high pressure fluid flow stream with a low*

*pressure fluid flow stream". The claim wording neither implicitly nor explicitly requires the two streams to be air streams or that they have the same state (gas or liquid). It is also not apparent to the board why the use of the term interlayer in the feature "interlayer drag" necessarily implies streams of fluids of the same state or involves the same fluids. An interlayer drag may also take place between streams of fluids in different states. Thus, in the board's understanding, also embodiments having streams of different fluids and/or in different states fall under the claimed scope.*

*4.4 Document D5 discloses a jet or ejector pump that produces high pressure fluid jets of steam and water from nozzles 22 and 31 "to entrain the desired quantity of air", see D5, page 1, column 1, lines 22-29. Even if there is a relatively high degree of mixing, as put forward by the appellant-proprietor, it is immediately evident to the skilled person, knowing the working principle of an ejector pump, that interlayer drag also takes place, and therefore anticipates the claimed feature.*

*4.5 As explained on pages 4-6 of the impugned decision, the other claimed features are also disclosed by D5. This is moreover not contested.*

*4.6 Claim 1 appears thus to lack novelty over D5."*

4.3 The Board, pursuant to Article 13(2) RPBA 2020, did not admit the further submissions of the appellant-proprietor during the oral proceedings in respect of novelty of granted claim 1, see above. Otherwise the appellant-proprietor refrained from commenting on the above preliminary opinion of the Board. Absent any such

comment, the Board sees no reason to change its opinion in respect of the above features. It therefore confirms the conclusion of the Opposition Division that the subject-matter of granted claim 1 is not new over D5.

5. Auxiliary request - Admission

5.1 This is a new request that was not presented in the first instance proceedings. Its admission is at the discretion of the Board, Article 12(4) RPBA 2007 (Article 25(2) RPBA 2020). According to Article 12(4) RPBA 2007 the Board has the power to hold inadmissible requests which could have been presented in the first instance proceedings. As variously stated in case law, the precondition of whether the request at issue could have been presented in the first-instance proceedings relates to the question of whether the presenting party, in the circumstances of the specific case, could have been expected to present its request, see Case Law of the Boards of Appeal, 9 edition 2019 (CLBA), V.A. 4.11.3.d)

5.2 The Board considers the current auxiliary request to be admissible in the circumstances of the present case. The patent proprietor was confronted with the novelty objection over D5, which forms the basis for the revocation of the patent, for the first time during the oral proceedings before the Opposition Division. Contrary to the respondent-opponent's submission, the opponent's letter of 20 February 2018, one week before the oral proceedings before the Opposition Division, does not present or even suggest that D5 could be relevant for novelty, and thus not that they would rely on D5 to substantiate a new novelty objection during the oral proceedings. In that letter D5 was merely listed as one of a list of 10 documents without any

indication that it might have been considered more or less relevant than the others. No novelty analysis for any document was submitted in that letter.

- 5.3 The appellant-proprietor was thus confronted for the first time during the oral proceedings with the objection and thus potentially with the task to formulate a new amended claim limiting the subject-matter of claim 1 against D5, while this document had never been cited for novelty or as a starting point for an assessment of inventive step.

The respondent-opponent submits that the appellant-proprietor was given several opportunities to file a new request during the oral proceedings, as it appears to be so from section 4 of the minutes: "The proprietor did not wish to submit any auxiliary request". However the time available at oral proceedings is limited. The filing of amendments in those circumstances would have involved several new aspects that would have needed careful consideration. Such amendments would have needed to address a new objection and also focus on differentiating its subject-matter over new evidence, D5 with different relevant features. It is not realistic to expect that a patent proprietor should always be able to file an adequate new request under such circumstances. Moreover, they had learned of the objection at the oral proceedings only orally. It was only with the impugned decision that they received, for the first time, a full and written features analysis of D5 against the contested claim.

The respondent-opponent refers to case law of the Boards of Appeal. However, the Board is not aware of any comparable case having the same material facts, namely where the objection forming the basis for the

unallowability or revocation was filed for the first time during oral proceedings in first instance on the basis of document having no prominent role until the attack, and a proprietor was not permitted to counter such attacks with later requests.

- 5.4 The Board therefore considers the filing of the new request in the circumstances of the present case as a normal development of the proceedings and thus admissible. The Board thus decides to refuse the opponent's request for non-admission of the auxiliary request under Article 12(4) RPBA 2007.

6. New case of the respondent-opponent after summons to oral proceedings - Admission

- 6.1 The respondent-opponent submits with letter of 23 April 2021 a new objection under Article 123(2) EPC for auxiliary request 1. It is thus an amendment to the respondent-opponent's case. Since it has been put forward after notification of the summons to oral proceedings issued on 25 June 2020, its admission is subject to the provisions of Article 13(2) RPBA 2020.

According to Article 13(2) RPBA 2020 such case amendments shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

- 6.2 The respondent opponent has not shown any exceptional circumstances in the sense of Article 13(2) RPBA 2020 that might justify the admission of the new objection. The only auxiliary request was filed with the proprietor's statement of grounds on 10 September 2018. The respondent-opponent had the opportunity to file any

relevant added subject-matter objection with their reply of 18 September 2018. They filed none. There were no further submissions of the appellant-proprietor. The Board's preliminary written opinion does not question the issue.

- 6.3 Contrary to the arguments of the appellant-opponent, the general obligation of the Board to examine the appeal does not put the Board under a strict obligation to examine *ex officio* the admissibility of amendments under Article 123(2) EPC, even where an opponent does not raise this issue. This would contradict the general expectation of the impartiality of the Board in an *inter partes* proceedings. It can thus hardly be seen as an exceptional circumstance that justifies a belated amendment to a party's case. Rather, it is the responsibility of each party to present their complete case at the required time. In respect of the *prima facie* relevance of the objection, the respondent-opponent has also not explained any circumstance that would demonstrate that the present added subject-matter objection only became *prima facie* relevant after issuing of the summons and not before. Thus whether the objection is *prima facie* relevant or not *per se* can also not serve to justify the late submission.

- 6.4 In view of the above the Board decides not to admit the added subject-matter objection.

It follows that the question of added subject-matter, i.e. the compliance of the auxiliary request with the requirements of Article 123(2) EPC has not been fully examined and decided by the Board, and the Opposition Division may still examine this issue following remittal (see below).

7. Auxiliary request - Clarity

- 7.1 The issue of clarity under Article 84 EPC has been raised by the respondent opponent in their reply to the appeal. Claim 1 has been amended to restrict the claimed ejector "for use with a multistage compressor of a turbine engine", where the high pressure fluid flow stream is "taken from one extraction point of the compressor" and the low pressure fluid flow stream is "taken from a second extraction point of the compressor".

According to the respondent, the subject-matter of claim 1 of the auxiliary request is still one ejector pump. It does not include constructional elements of an engine compressor. Thus, the additions in the amended claim 1 cannot lead to any further limitation of the claimed subject-matter, since they only refer to the turbine engine compressor. Instead, this addition now leads to a lack of clarity as to what is now being sought to protect. The ejector pump as granted cannot be, otherwise no change would have been made, while the turbine engine compressor is outside the scope of the claim.

- 7.2 The Board notes in this respect that the functional formulation of the additional features is related to the intended use of the claimed ejector. These new limitations imply that the claimed ejector, including its nozzle and chamber geometries, must be suitable for use with flow streams of air as those diverted from multistage compressors of turbine engines. In this respect, the new features represent a further limitation of the scope of protection of the ejector itself. They are moreover clear. Indeed, the Board is in no doubt that the skilled person, an engineer

involved in the development of turbine engines with an understanding of fluid dynamics, would have no difficulty in ascertaining whether or not a given ejector would be suitable and thus fall under the scope of the contested functional feature.

They would, for example, use fluid flow analysis or routine experiment. The relevant fluid properties of fluids extracted from a compressor of a turbine engine, such as pressure ranges, temperature, specific heats, expansion coefficients or density are readily known from common general knowledge, while fluid flow analysis, including flow behaviour calculations through given nozzle geometries, or its testing fall within routine practice in the art. Such routine skills and abilities allow the skilled person to identify, without undue burden, whether or not given nozzles and nozzle chamber geometries are adapted to ensure a suitable interlayer drag and low pressure fluid entrainment when used with fluids having the characteristics of those extracted from a turbine engine compressor and thus fall under the claimed subject-matter.

7.3       The Board thus holds that claim 1 is clear in the sense of Article 84 EPC.

8.       Auxiliary request - Novelty

8.1       As explained above for clarity, the functional use limitation of claim 1 implies otherwise unspecified features of the nozzles and nozzle chamber. In particular that the nozzle geometry, including length to diameter ratio or its convergent/divergent profile, and nozzle chamber geometry are suitable for the claimed use. More specifically that these are adapted to ensure a suitable interlayer drag and low pressure



fluid entrainment when used with fluids having the characteristics of those extracted from a turbine engine compressor, typically air at certain pressure and temperature ranges.

8.2 The ejector pump of D5 is adapted for use with jets of steam as the higher pressure fluid flow, see page 2, column 2, lines 6-27. The known ejector is designed to effect complete or nearly complete condensation of the motive fluid, thus reducing its volume, see page 1, column 1, lines 30-34. The result achieved by the ejector of D5 if used with a non-condensing fluid as that extracted from a turbine engine compressor is uncertain. It might choke or else might not be able to ensure interlayer drag and entrainment when connected to fluid flows extracted from a turbine engine compressor. Only with the information in D5 and without further evidence, the skilled person would thus not regard with certainty the known ejector of D5 as suitable for the claimed use. It follows that the skilled person cannot unambiguously derive the subject-matter of the contested claim 1 with all its features from D5. The Board thus concludes that the subject-matter of claim 1 is new over D5.

8.3 Absent further novelty objections, the Board concludes that the novelty of claim 1 of the auxiliary request is given, Article 54(2) EPC.

9. Remittal

Under Article 11 RPBA 2020 the Board may remit the case to the department whose decision was appealed if there are special reasons for doing so. In the present case, the Opposition Division did not consider the issue of inventive step. Given the primary object of an appeal

to review the decision under appeal in a judicial manner, Art 12(2) RPBA 2020, and the fact that the decision under appeal does not deal with the opposition ground of inventive step, a special reason is seen to exist for remittal of the case for further prosecution according to Article 111(1) EPC on the basis of the set of claims of the present auxiliary request, filed on 10 September 2018.

Both parties have declared their agreement with this course of action.

## **Order**

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

- 1. The decision under appeal is set aside.**
- 2. The case is remitted to the Opposition Division for further prosecution.**

The Registrar:

The Chairman:



N. Schneider

G. Martin Gonzalez

Decision electronically authenticated