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Datasheet for the decision of 6 September 2012

Case Number: T 1557/10 - 3.2.06

Application Number: 01964341.0

Publication Number: 1317604

IPC: F01D 17/00, F02C 9/00

Language of the proceedings: EN

Title of invention:
System and method for providing efficiency and cost analysis for a power generation unit

Applicant:
GENERAL ELECTRIC COMPANY

Headword:
-

Relevant legal provisions (EPC 1973):
EPC Art. 84, 83

Keyword:
"Claims - clarity (no)"
"Sufficiency of disclosure (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1557/10 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 6 September 2012

Appellant: (Applicant)
GENERAL ELECTRIC COMPANY
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Schenectady, NY 12345 (US)

Representative:
Bedford, Grant Richard
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted 8 February 2010 refusing European patent application No. 01964341.0 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: M. Harrison
Members: T. Rosenblatt
W. Sekretaruk

Summary of Facts and Submissions

I. European patent application No. 01964431 was refused by the examining division by way of its decision posted on 8 February 2010.

II. Claim 1 underlying this decision reads as follows:

"*A method for providing efficiency and cost analysis for a power generation unit (7) comprising the steps of:*
acquiring a plurality of current condition variables for said power generation unit (7);
acquiring a plurality of alternative target operation variables for said power generation unit;
acquiring a plurality of design constants for said power generation unit; and
calculating operational efficiency of said power generation unit based upon said plurality of current condition variables, said plurality of alternative target operation variables and said plurality of design constants by performing a solve snout ring pressure process (220) to compute optimized intermediate pressures between each ring of each snout ring valve in the power generation unit (7)."

III. The examining division held *inter alia* that claim 1 lacked clarity (Article 84 EPC). It considered that it was not clear whether the term "snout ring valve" had a well recognised meaning in the field of power generation units, how the computed optimized intermediary pressures between each snout ring in each snout ring valve affected the operational efficiency of the power plant and how "performing a solve snout ring

pressure process" contributed to the calculation of the operational efficiency.

IV. The appellant (applicant) filed an appeal against this decision requesting that the decision be set aside and that a patent be granted based on the set of claims underlying the impugned decision. The appellant also submitted a set of amended claims entitled "Auxiliary request". Compared to claim 1 underlying the impugned decision, claim 1 of this auxiliary request additionally includes the following features:

"*....of each snout ring valve in the power generation unit (7); wherein*
the snout ring pressure process (220) includes:
i) calculating (234) default intermediate pressures or manually varying (233) intermediate pressures to provide a starting point for the optimization process;
ii) calculating (235) flow pressure between rings;
iii) determining (236) whether calculated flow rate is greater than a threshold; and
iv) conditional on the calculated flow rate being greater than the threshold, modifying (237) the intermediate pressures in order to minimize the calculated differences in flow rates."

V. In a communication in preparation for oral proceedings, the Board informed the appellant of its preliminary opinion. The parts of this communication relevant to the present decision are:

"*2. The appellant's argument that the expression "snout ring valve" is a term of art in the field of power generation has not been backed up by any documentary*

evidence, such as text books or the like. Already for this reason of lack of clarity (Article 84 EPC) the main (primary) request and the auxiliary request appear not to be allowable.

3. Also the arguments of the appellant with respect to the remaining clarity objections stated in the impugned decision are not considered persuasive. It does not appear to be defined in claim 1 of the main request how efficiency and costs are finally analysed based on the results of an obscure "solve snout ring pressure process". Such a process does not appear to belong to the common general knowledge of the skilled person in the field of power generation using steam turbines. Taking into account the seemingly relevant passages of the description (see page 17, line 28 to page 19, line 26) together with the corresponding Figures 11, 12A and 12B, the Board considers that it is still not clear for a skilled person how this process is carried out. For example, it appears to be nowhere properly defined what an intermediate, starting or end pressure is, or which conditions should be met in order to consider an optimisation as failed or not. The lack of clarity of the independent method claim appears therefore to be to such an extent that even in view of the entire disclosure of the application as filed the skilled person is also not able to carry out the invention (Article 83 EPC).

Consequently, also the amendments to claim 1 of the auxiliary request seemingly do not overcome the clarity objections raised in the impugned decision; nor would the requirements of Article 83 EPC be fulfilled."

VI. In reply to the Board's communication the appellant submitted, with its letter dated 22 August 2012, the following three pages printed from the internet:

P1: http://ktsco.com.sa/Main%20Kafou.swf (1 page),
P2: http://www.highsky.com.sa/demos/kts/final/SpareManagement.swf (2 pages),

which pages were denoted with a printing date of 20 August 2012. The appellant further informed the Board that no representative would be available to attend the oral proceedings and requested that a written decision be issued in accordance with the current state of the file.

VII. The appellant requested that the decision be set aside and a patent be granted on the basis of the claims underlying the impugned decision or, as an auxiliary request, on the basis of the claims entitled "Auxiliary request" submitted with the grounds of appeal.

VIII. Oral proceedings were held on 6 September 2012.

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

(a) with respect to item 2 of the Board's communication:

The technical catalogue pages (P1, P2) from the website of the technical service provider Kafou Ltd in Saudi Arabia indicated that they were able to supply replacement snout ring valve parts for various steam turbines. P1 and P2 thus constituted evidence that the terminology was known in the art

and would accordingly have been clear to the skilled person.

(b) with respect to item 3 of the Board's communication:

The application itself on page 17, paragraph 5, relating to Figures 12A and 12B, and page 20, paragraph 4, referring to Figure 13, explained that the snout ring process was used to calculate the impact of the snout ring clearances on the flow efficiency and that a summary of the snout ring impact was made, which could be included in the customer efficiency report to help the customer evaluate possible maintenance options available. The optimisations performed for snout ring pressures was by way of calculating intermediate pressures that would equalise the flows between the rings of each valve. Based on this calculation, estimates of kilowatt loss, heat rate penalty and cost/year could be obtained for each valve. The table of values entitled "Summary of N Packing and Snout Ring Appraisal" presented in the appellant's letter of 22 August 2012, were included to demonstrate how data relating to snout rings might be used and displayed in a customer summary report, whereby for the optimisation process, the algorithm analysed where intermediate pressures resulted in maximum and minimum flows being equal. A skilled person therefore had no undue burden in implementing various embodiments of the invention.

Reasons for the Decision

Procedural issue

1. The appellant informed the Board that no representative would be available at the oral proceedings and requested that a decision be issued in accordance with the then current state of the file including the appellant's submissions filed with his letter of 22 August 2012.

The Board decided to hold the oral proceedings in the absence of the appellant. Further, according to Article 15(3) of the Rules of the Procedure of the Boards of Appeal the appellant may then be treated as relying only on its written case, i.e. the arguments presented in the grounds of appeal and in its letter of 22 August 2012 in reply to the Board's communication. By way of this written decision, the Board has therefore dealt with the appellant's request in this regard.

Main request

2. Claim 1 lacks clarity, contrary to the requirements of Article 84 EPC 1973.

2.1 The appellant failed to supply convincing evidence in reply to the Board's preliminary opinion in regard to item 2 of its communication (see item V above). The technical catalogue pages P1 and P2 only bear printing dates of 2012 and do not contain any indication that its content, i.e. the replacement parts referred to in these pages, was available prior to the date of filing

of the present application. These documents are thus not suitable to demonstrate the common general knowledge of the skilled person on the date of filing of the present application. It may also be noted that P1 and P2 do not anyway even mention "snout ring valves". Instead they list replacement parts for gas and steam turbines, among which the features "snout ring" and "valve parts" are mentioned in separate columns. Taking into account the other listed replacement parts and the way they have been presented in tabular form, without any apparent systematic relationship, the Board cannot see any reason to combine the two expressions "snout ring" and "valve parts" from consecutive lines and different columns and construe them as referring to a category of replacement parts entitled "snout ring valve parts". Consequently P1 and P2 are not suitable to demonstrate that the term "snout ring valve" had a well defined meaning in the field of power generation units at the filing date of the application.

In the absence of any further evidence, the Board has no reason to deviate from its position expressed in the its communication (see item V.2 above).

2.2 Also with respect to the Board's preliminary opinion given in item 3 of its communication (see item V above) concerning the clarity of the feature "solve snout ring pressure process", the appellant's arguments are found unconvincing. The appellant did not provide any evidence that such a process belonged to the common general knowledge of the skilled person in the field of power generation units using steam turbines.

The meaning of this expression and how such a process might be carried out can also not be derived from the description of the application. It remains unclear how for example the starting or ending pressures referred to in this context in the description on pages 17 to 19 are defined. In particular on page 18, lines 17-30, it is stated that the intermediate pressure is initially calculated using linear interpolation between the starting and ending pressure values previously input by the user at a certain step 131 of the disclosed method. Following the reference number 131 and the reference to Figure 7 given in these lines, the user input may be construed as relating to the loading of data contained in a design data file (see page 12, lines 9 to page 13, line 5). However, nowhere is a reference made to a starting or ending pressure.

In regard to the "Summary of N Packing and Snout Ring Appraisal" table supplied by the appellant, the source of the data in the table is not stated, nor is it clear what the arrangement of the system was from which such data had allegedly been taken. Further, no details of how the data were measured or how the test was actually run were given, apart from referring generally to an unknown "optimization algorithm". Due to the aforegoing, any interpretation of the data given in the table can therefore only be regarded as speculative and unsupported.

No further argument in reply to the Board's objection made in its communication (see item V.3 above) was given.

3. The lack of clarity of the aforementioned steps in claim 1 is also such that, even when taking into account the entire disclosure of the application as filed, the skilled person is not able to carry out the invention, contrary to the requirement of Article 83 EPC 1973 (see item V.3 above).

For example, because it is not clear what is meant by the terms "starting pressure" and "ending pressure" and how these are to be determined, the skilled person is unable to calculate a default or initial intermediate pressure, let alone carry out the "solve snout ring pressure process" described on pages 17 to 19. It is therefore irrelevant that the condition for deciding whether an intermediate pressure optimisation failed or not might be the consideration of whether the resulting calculated flow rates between the snout rings of an obscure snout ring valve are equalised.

Auxiliary request

4. In the last paragraph of item 3 of the Board's communication (see item V above), it was noted that the amendments to claim 1 made by way of the auxiliary request would seemingly not overcome the clarity objections with respect to claim 1 of the main request. The appellant did not submit any further arguments in reply to this and the Board is unable to see any reason why it should deviate from its former preliminary position. Consequently, the auxiliary request is also not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Patin M. Harrison