UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAL ELECTRIC CO., Petitioner,

v.

UNITED TECHNOLOGIES CORP., Patent Owner.

Case IPR2016-00526 Patent 7,966,807 B2

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Held: May 8, 2017

Before HYUN J. JUNG, SCOTT A. DANIELS, and GEORGE R. HOSKINS, *Administrative Patent Judges*.

The above-entitled matter came on for hearing on Monday, May 8, 2017, commencing at 10:00 a.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.



APPEARANCES:

ON BEHALF OF THE PETITIONER:

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ON BEHALF OF PATENT OWNER:

M. ANDREW HOLTMAN, Ph.D.
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| 1 | PROCEEDINGS |
|----|--|
| 2 | |
| 3 | JUDGE JUNG: Okay. This is the oral hearing for case |
| 4 | IPR2016-00526 between Petitioner General Electric Company |
| 5 | and Patent Owner United Technologies Corporation in which |
| 6 | Petitioner challenges the claims of U.S. Patent Number |
| 7 | 7,966,807. |
| 8 | Starting with counsel for Petitioner followed by counse |
| 9 | for Patent Owner, please introduce yourself for the record. |
| 10 | MR. DESAI: Anish Desai for Petitioner General |
| 11 | Electric Company. |
| 12 | JUDGE JUNG: Welcome back. |
| 13 | MR. HOLTMAN: Andy Holtman from the law firm of |
| 14 | Finnegan Henderson for United Technologies Corporation. |
| 15 | JUDGE JUNG: Welcome. |
| 16 | All right. Each party has about 30 minutes of total time |
| 17 | to present its position in all three cases. Petitioner, you may |
| 18 | proceed when you're ready. |
| 19 | MR. DESAI: Good morning, Your Honors. I will |
| 20 | reserve 10 minutes for rebuttal. |
| 21 | As you mentioned, this is an IPR challenging all claims |
| 22 | of U.S. Patent 7,966,807. Claims 1 to 3 were disclaimed by |
| 23 | Patent Owner and so what remains at issue is 4 through 20. |
| 24 | The '807 patent was filed in 2007, issued in 2011 and |
| 25 | this is a natent about the use of a heat nine to cool static structure |



| 1 | in a gas turbine engine. Static is another way of saying |
|----|--|
| 2 | non-rotating. Examples of static components are stationary vanes |
| 3 | and struts. |
| 4 | Patent Owner has tried to cast this as a patent about the |
| 5 | design of a heat pipe. This is categorically not a patent about the |
| 6 | design of a heat pipe. Instead, it is a patent about the application |
| 7 | of a conventional heat pipe and the application is not in any way |
| 8 | new. |
| 9 | I will show you that using a heat pipe to cool static |
| 10 | components in every section of the gas turbine engine has been |
| 11 | known to those of skill in the art long before the '807 patent was |
| 12 | filed. None of the prior art that forms the core of this Petition |
| 13 | was cited to the Patent Office during the prosecution of the '807 |
| 14 | patent. |
| 15 | So I'll start with slide 2 of Petitioner's demonstratives |
| 16 | and what I've shown here are some excerpts from the '807 patent. |
| 17 | It's column 2, lines 30 to 43, column 2, lines 56 to 57, column 3, |
| 18 | lines 13 to 15 and Table 1. Okay? |
| 19 | And this is effectively |
| 20 | JUDGE JUNG: Mr. Desai, I need to interrupt for a |
| 21 | moment. Is your microphone actually on? My panel members |
| 22 | are having a little trouble |
| 23 | MR. DESAI: Can you hear me, is that better? |
| 24 | JUDGE DANIELS: I can hear you pretty well. It just |
| 25 | sounds like the microphone wasn't on. |



| 1 | MR. DESAI: It looks like it's on. I see a green light |
|----|--|
| 2 | now. |
| 3 | JUDGE JUNG: Sorry about that. Go ahead. |
| 4 | MR. DESAI: Okay. So on slide 2 here we have what |
| 5 | are effectively these are the parts of the patent that are about |
| 6 | the heat pipe design. Okay? And all it says in the patent is the |
| 7 | heat pipe has a vaporization section, it has a condenser section |
| 8 | and it has a working medium. Okay? |
| 9 | So when it comes to the design of these sections, the |
| 10 | patent also says the shape and size and configuration can vary as |
| 11 | needed. And then, finally, with respect to the working medium, it |
| 12 | says here's a table of working media, you can pick whichever one |
| 13 | suits your operating conditions. Okay? |
| 14 | Everything that is written about the design of a heat |
| 15 | pipe in the '807 patent can be found in a college textbook on heat |
| 16 | pipes. |
| 17 | Okay. So this is slide 3 and this is a textbook on heat |
| 18 | pipes and thermodynamics and this is GE-1011 and this is a 1995 |
| 19 | textbook. And just to show you on the left is a figure of a |
| 20 | conventional heat pipe. It has a condenser section, an evaporator |
| 21 | section and a working medium. That's the basics of a heat pipe. |
| 22 | And on the right you have a table of working medium |
| 23 | that can be used and the temperature ranges this is effectively |
| 24 | what's been copied into this '807 patent. The '807 patent, the |



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