

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GENERAL ELECTRIC COMPANY,
Petitioner,

v.

UNITED TECHNOLOGIES CORPORATION,
Patent Owner.

Case IPR2016-00533
Patent 8,511,605 B2

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

DANIELS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

General Electric Company (“Petitioner” or “GE”) filed a Petition requesting *inter partes* review of claims 1–6 and 12–16 of U.S. Patent No. 8,511,605 B2 (Ex. 1001, “the ’605 patent”). Paper 1 (“Pet.”). GE’s Petition is supported by declarations from Dr. Reza Abhari (Ex. 1003, “Abhari Declaration,” and Ex. 1036, “Abhari Reply Declaration”). Pet. 4, Pet. Reply 10. United Technologies Corp. (“Patent Owner” or “UTC”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). On June 30, 2016, the Board instituted a trial, determining that GE had shown a reasonable likelihood of prevailing on at least one of the challenged claims of the ’605 patent. Inst. Dec. 2.

After institution of trial, UTC filed a Patent Owner Response. Paper 15 (“PO Resp.”). GE entered subsequently a Reply. Paper 26 (“Pet. Reply”). In a motion authorized by the Board, UTC moves to strike certain portions of the Abhari Reply Declaration and GE’s Reply. Paper 32. GE provided a rebuttal to UTC’s motion. Paper 36.

Notably, UTC disclaimed claims 1–6 and 12–14 of the ’605 patent leaving only claims 15 and 16 at issue in this proceeding. PO Resp. 1.¹

A hearing for IPR2016-00533 and other proceedings was held on May 4, 2017. The transcript of the hearing has been entered into the record. Paper 43 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

¹ UTC filed a Disclaimer under 37 C.F.R. § 1.321(a) of claims 1–6 and 12–14 in the ’605 patent with the USPTO on October 14, 2016.

GE has shown by a preponderance of the evidence that claims 15 and 16 of the '605 patent are unpatentable, and UTC's motion to strike is denied as moot.

B. Additional Proceedings

In addition to this petition, GE has filed a petition challenging the patentability of claims 1, 2, and 7–11 of the '605 patent. See IPR2016-00531. GE and UTC have not identified any litigation involving the '605 patent. Pet. 1, Paper 5, 2.

C. The '605 Patent

The '605 patent issued August 20, 2013 from an application filed May 31, 2012, and claims priority as a continuation-in-part from application No. 12/131,876, filed June 2, 2008, now U.S. Pat. No. 8,128,021. Ex. 1001, cover page. The '605 patent is titled "Gas Turbine Engine With Low Stage Count Low Pressure Turbine." *Id.* at 1:1–2. Figure 1A, reproduced below, illustrates the invention:

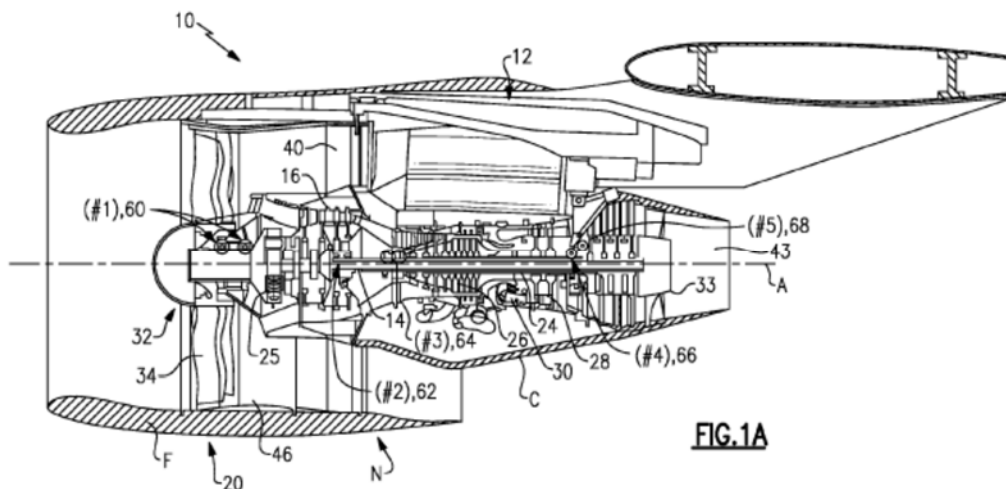


Figure 1A depicts a partial fragmentary schematic view of gas turbofan engine 10 suspended from engine pylon 12. *Id.* at 3:32–34. Turbofan 10 includes a fan within fan nacelle F and a core engine within

core nacelle C. *Id.* at 3:36–39, Fig. 1A. In operation, fan blades 34 suck air into fan nacelle F, which at least partially surrounds core nacelle C. *Id.* at 3:66–67, Fig. 1A. Air passes both into the core engine (core air flow) and around the core engine (bypass air flow). *Id.* at 4:31–34. The core air flow is compressed, mixed with fuel and combusted, expanding first through high pressure turbine 28, then low pressure turbine 18, and expelled via core nozzle 43 to provide thrust for the aircraft. *Id.* at 3:66–4:14. An aspect of such turbofan engines to keep in mind is that low pressure turbine 18 in the core drives the fan either directly or via a gear system. *Id.* at 3:35–41, 51–53. The bypass air flow around core nacelle C also provides engine thrust and certain efficiencies, particularly at cruise operation of the aircraft. *See id.* at 4:42–45.

In described embodiments relevant to the claims remaining in this proceeding, the specification states that “the low pressure turbine 18 has a pressure ratio that is greater than [about] 5.” *See id.* at 3:53–55, 58–59.

D. Challenged Claims

The remaining challenged claims, 15 and 16, each depend directly from claim 1, now disclaimed. Claims 1, 15 and 16 are reproduced below:

1. A gas turbine engine comprising:
 - a gear train defined along an engine centerline axis;
 - a spool along said engine centerline axis which drives said gear train, said spool includes a low stage count low pressure turbine
 - a fan rotatable at a fan speed about the centerline axis and driven by the low pressure turbine through the gear train, wherein the fan speed is less than a speed of the low pressure turbine;
 - a core surrounded by a core nacelle defined about the engine centerline axis;

a fan nacelle mounted at least partially around said core nacelle to define a fan bypass airflow path for a fan bypass airflow, wherein a bypass ratio defined by the fan bypass passage airflow divided by airflow through the core is greater than about ten (10).

15. The engine as recited in claim 1, wherein said low pressure turbine defines *a low pressure turbine pressure ratio that is greater than about five (5)*.

16. The engine as recited in claim 1, wherein said low pressure turbine defines *a low pressure turbine pressure ratio that is greater than five (5)*.

Ex. 1001, 7:43–8:7, 8:43–50 (emphases added).

E. The Alleged Ground of Unpatentability

GE contends that the challenged claims are unpatentable on the following specific ground.²

References	Basis	Claims Challenged
Wendus ³	§ 102	15 and 16

II. CLAIM CONSTRUCTION

A. Legal Standard

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).

² GE supports its challenge with the Abhari Declarations (Exs. 1003, 1036). *See infra*.

³ Bruce E. Wendus et al., *Follow-On Technology Requirement Study for Advanced Subsonic Transport* (Aug. 2003) (Ex. 1005).

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