

Raytheon Technologies Corp. v. General Electric Co., 993 F.3d 1374 (Fed. Cir. 2021)

BY R. WILSON “TREY” POWERS III, PH.D.

General Electric Co. (GE) petitioned for *inter partes* review (IPR) of claims 3 and 16 of Raytheon Technologies Corp.’s U.S. Patent No. 9,695,751 related to gas turbine engines. The U.S. Patent Trial and Appeal Board (Board) found the challenged claims to be invalid over the “Knip” prior art—a forward-looking, 1987 NASA technical memorandum. The U.S. Court of Appeals for the Federal Circuit (Federal Circuit) reversed, holding that the Board erred in finding Knip to be an enabling reference.

The ’751 patent claims a geared gas turbine engine with two turbines, a specific number of fan blades, turbine rotors, and stages. The claims each also recite a “power density” (thrust per unit engine volume) range that was described as “much higher than in the prior art.” The claims do not require any specific materials to build the claimed engine. In its petition, GE relied on Knip, which envisioned superior performance characteristics for an imagined “advanced [turbofan] engine” that incorporated “all composite materials.”

During the proceeding, Raytheon established that the prior art’s disclosure of “highly aggressive performance parameters for a futuristic turbine engine was based on the use of nonexistent composite materials.” One of those performance parameters was the engine’s “power density.” GE, for its part, put forth no evidence that a skilled artisan could have actually made the patented turbine engine with the claimed power density. There was thus no dispute at trial that the construction of such an engine using all composite materials was not attainable as of the critical date.

In its final decision, the Board found Knip to be enabling prior art and concluded that the claims would have been obvious. This is because, in its view, Knip provided enough information to allow a skilled artisan to determine a power density. The Board reasoned that even if the prior art’s power density did not fall within the claimed range, “power density is a

Patent challengers should take care when using forward-looking prior art that it enables the skilled artisan to actually make and use the claimed invention.

results effective variable.” The Board further observed that the claims at issue do not require the advanced materials recited by Knip, so whether Knip’s advanced engine had been or could be implemented “is not the proper consideration.” The Board’s overall conclusion thus focused on the narrow question of whether Knip itself provided enough disclosure to enable a skilled artisan to calculate the power density of Knip’s advanced engine—that is, it focused on whether Knip was a self-enabled reference with respect to the claimed power density.

On appeal, Raytheon argued that Knip did not enable a skilled artisan to make the claimed invention because it was only through the use of imagined and unavailable “revolutionary” advanced composites that the prior art was able to suggest the advanced performance characteristics recited in the challenged claims. GE maintained its position that “it is irrelevant whether Knip actually enables a [skilled artisan] to build the specific engine contemplated by Knip.”

The Federal Circuit disagreed with GE and reversed. The court explained that the Board (and GE) improperly focused on whether Knip was self-enabling with respect to the claimed power density range, despite the undisputed unavailability of the materials required to achieve that range. It observed that GE’s argument “may have carried the day if GE had presented other evidence to establish that a skilled artisan could have made the claimed turbofan engine with the recited power density.” But GE failed to present any such evidence, and Raytheon’s un rebutted evidence thus carried the day.

This case has important lessons for practitioners relying on self-enabling prior art to prove up obviousness. As the court explained at the beginning of the opinion, “[t]here usually is no dispute about whether an asserted prior art reference is ‘self-enabling,’ i.e., whether a skilled artisan can make and use the subject matter disclosed in the reference.” Moreover, “there is no absolute requirement for a relied-upon reference to be self-enabling in the § 103 context, so long as the overall evidence of what was known at the time of invention establishes that a skilled artisan could have made and used the claimed invention.” But this case is a good reminder that “that if an obviousness case is based on a non-self-enabled reference, and no other prior art reference or evidence would have enabled a skilled artisan to make the claimed invention, then the invention cannot be said to have been obvious.”



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