



GETTING YOUR DAY IN COURT: AVOIDING PITFALLS IN PATENTING NANOMATERIAL MANUFACTURE (*ZOLTEK V. US*)

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Introduction

One very important segment of nanotechnology is nanomaterials, e.g. carbon nanotubes, fullerenes, nanoparticles, quantum dots, dendrimers, nanocrystalline diamond, nanowires, etc. See, e.g., *The Chemistry of Nanostructured Materials*, Ed. Peidong Yang, World Scientific, 2003. Companies operating in this space must be able to protect themselves with patents to achieve full value, particularly as commercial manufacture progresses to larger scales and international markets. While trade secret protection may be able to generate some value, most contexts would point to patents rather than trade secrets as the primary mode for intellectual property protection and higher profit margins. However, a recent court case made clear that the business strategy must include consideration of two key factors: international trade and government contracting. Specifically, *Zoltek v. United States* (Fed. Cir., No. 04-5100, 3/31/06) demonstrates some pitfalls that arise from these factors. In our experience, many nanotechnology companies including start-ups consider international collaboration and government contracting. The purpose of this article is to provide an overview to the *Zoltek* case and discuss business implications and strategy in view of modern realities of international trade and government contracting. Patentees must be strategically realistic in asserting their intellectual property rights.

What Happened?

In a nutshell, Zoltek is a U.S.-based carbon fiber company. See, e.g., www.zoltek.com. Carbon fibers are advanced carbon materials which are now characterized and understood at the nanoscale and connect with other forms of nanostructured carbon such as carbon nanotubes and nanodiamond. In particular, carbon fibers have superior properties because of their molecular, nanoscale, and microscale lamellar crystalline properties. Zoltek patented in the U.S. a method of manufacturing carbon fiber sheets which have controlled electrical resistivity on their surface (see Zoltek's Reissue Patent No. 34,162).

The U.S. government contracted with Lockheed Martin Corporation to design and build the F-22 fighter. Lockheed then subcontracted with non-U.S. companies to make advanced material fibers for use in the F-22 fighter. These fibers were



manufactured in Japan and then imported into the U.S. to be incorporated into the F-22 fighter.

In 1996, Zoltek sued the U.S. government for patent infringement in the U.S. Court of Federal Claims under 28 U.S.C. § 1498(a). Under this section of the U.S. Code, whenever a patented invention is manufactured for the United States government by a contractor without license from the patent owner, then the patent owner's remedy is a patent infringement suit against the United States government, rather than against the government contractor, in the United States Court of Federal Claims.

Unfortunately for Zoltek, despite ten years of litigation, the Federal Government has to date escaped liability for patent infringement because, in essence, the infringement of its method claims occurred outside of the US, and the Federal Government therefore has sovereign immunity for patent infringement. In other words, a legislative gap exists which prevents patent infringement when the U.S. patent at issue is a method of manufacture, and the manufacture occurs outside of the U.S. for use with U.S. government contracting.

Court Holdings and Reasonings

For Zoltek, the Court of Federal Claims provided good news and bad news. For the bad news, the Court of Federal Claims held that it lacked jurisdiction for the Section 1498(a) infringement claim because the accused fiber sheets were made in Japan, and 28 U.S.C. § 1498(c) excludes claims for patent infringement that arise in a foreign country. In other words, Zoltek could not get their day in court based on 1498. However, the Court of Federal Claims also provided good news, holding that it had jurisdiction to treat the infringement as a Constitutional Fifth Amendment taking under Section 1491. Each of the parties then appealed to the most influential patent court, the Court of Appeals for the Federal Circuit. Zoltek wanted its rights under 1498 recognized, whereas the Federal government denied that a Constitutional taking can be the basis for suit.

The Court of Appeals for the Federal Circuit, in essence, sided with the U.S. government and reversed the Court of Federal Claims. In ruling against Zoltek, it held that there was no separate jurisdiction for patent infringement as a Fifth Amendment takings under the Tucker Act when there is no jurisdiction under §1498(a).

More troubling to nanotechnology companies seeking to protect their nanomaterials, the Federal Circuit agreed with the Court of Federal Claims that the United States government was not liable for infringement under §1498 in this case. The Federal Circuit held that under § 1498, the United States government is liable for use of a method patent only when government (or its contractor) practices every step of the claimed method in the United States. Thus, the U.S. government and its contractors can escape infringement of method claims in U.S. patents if they outsource the production which uses the claimed method to foreign countries! The Federal Circuit based its decision that there was no Section 1498 jurisdiction on the prior *NTP, Inc.*



v. *Research in Motion, Ltd.*, 418 F.3d 1282, 1316 (Fed. Cir. 2005) decision (the “BlackBerry case”), which supposedly held that Section 1498 claims are subject to the requirement of 35 U.S.C. § 271(a)¹ that infringement must occur “within the United States.” The Federal Circuit stated:

“...where, as here, not all steps of a patented process have been performed in the United States, government liability does not exist pursuant to section 1498(a). We affirm the trial court’s conclusion that § 1498(a) bars Zoltek’s claims.”

We will examine the legal merits of the Federal Circuit’s opinion elsewhere. Working in a complex area of the law, *Zoltek* generated three concurring and dissenting opinions providing fodder for further detailed legal analysis. However, the purpose here is to dwell on the practical implications.

Practical Implications and Concluding Remarks

The *Zoltek* holding confirms that a gap is present in federal patent law: *Zoltek* could have pursued this lawsuit against a private company defendant under 35 U.S.C. § 271(g), but not against the federal government or its contractors. The Court of Federal Claims attempted to close this gap, but the Federal Circuit blew open the gap.

Unless the Federal Circuit eventually overrules or distinguishes its *Zoltek* holding in a future case, nanomaterials manufacturers can lobby Congress to slightly amend the law to close the gap between private company and U.S. government infringement. This issue is important because the U.S. government markets and contracts continue to be an important economic revenue source for many high technology materials and nanotechnology companies. For example, recent patent litigation has featured large government contracts to supply stockpiles of vaccines. If nothing is done, patent owners in nanomaterials manufacturing may not get their day in court for infringement of their U.S. method claims by the U.S. government and its contractors when the contract is outsourced to a foreign country!

For business and patent strategy, the practical lessons from the case include:

- Seek to obtain and enforce composition or device claims wherever possible; proving infringement of a method of manufacture claim can be difficult when infringement occurs in secret.
- Consider whether the federal government is involved in the market and the impact of that on patent licensing and enforcement;

¹ 35 U.S.C. §271(a) states: “Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.” (emphasis added)



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- Consider whether manufacture of materials will occur outside of the U.S., particularly for patents for methods of manufacture;
 - Consider filing for foreign patent protection, particularly in Japan and Europe (although whether a foreign company working on a government contract is immune from patent infringement in the foreign country must be considered, but not considered here); and
 - Become knowledgeable about the complex legal framework for modern patent infringement which increasingly involved international and government contracting issues. Litigation to sue competitors increasingly includes the Court of Federal Claims and the International Trade Commission, as well as the traditional district court.

In the final analysis, another practical lesson is that arguably Zoltek may also represent a company which was seeking to extend its patent overaggressively. Patents are powerful tools but not infinitely expandable. The Zoltek patent here clearly focuses on carbon fibers, but litigation documents indicate the U.S. government was not even using carbon fibers in the F-22! Even if Zoltek got its day in court, this would weaken its position. One recent study of patent infringement litigation concluded:

We are inclined to believe that patentees are too often “pushing the envelope” in quests for financial return on their investments in patents. They overvalue their patents and assign an unrealistic scope to the language of the patent claims, driven perhaps by what they thought the claims ought to have said.

P. Janicke, L. Ren, “Who Wins Patent Infringement Cases?”, *AIPLA Quarterly Journal*, Vol. 34, No. 1, Winter 2006, pages 39-40.