

Obtaining Patent Protection in Nano-Nonwovens: Best Practices

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Our industry is embracing the promise of nanotechnology and appears to be capitalizing on the potential of nano-nonwovens, in particular. Nano-filtration, nano-composites and nanofiber structures with fantastic mechanical properties are just some examples that are showing great potential. We will certainly see more innovations in this area moving forward. But how do you manage your own business and research programs in this area to maximize the benefits patents can give your enterprise? Has your business plan accounted for the changing landscape of U.S. patent law? If so, great! You are ahead of the game. But if it has not, this article will help.

It is easily said that forward-looking and deliberate research and development planning can help maximize the benefit that the U.S. patent system can provide your business. But it is true that whether you are managing significant capital investments in technology, entering new markets, or improving on your core products, an effective patent strategy can only help. This article will summarize the state of patent law today regarding patentability. I will then discuss how nanotechnology is faring in the U.S. patent system today, though these trends are applicable to any technology. I will then offer suggestions that any enterprise can use today to help identify what innovations to attempt

to patent and what steps to take to support the patentability of your most important initiatives.

U.S. Patent Law in 2010

U.S. Patent Law grants a patent for inventions that are novel and non-obvious to "a person of ordinary skill in the art." A patent must also disclose the best mode of making the invention, and enable a person of ordinary skill in the art to make and use the invention. The most important part of a patent are the "claims" found at the end of the patent document. The remaining parts of the patent describe what is claimed. Perhaps the most important standards that the *claims* must overcome are the novelty and non-obviousness requirements.

Novelty is relatively straightforward. Your nano-invention is "novel" if it has not been described, sold or publically used (in the U.S.) before you file your patent application. Often nanotechnology inventions yield a new property or structure customers value. Claiming this new structure in your patent can overcome the novelty requirement. Sales executives take note: A price quote is an offer for sale in U.S. patent law and can prevent patenting the product quoted- communicate with your IP managers every time you give a quote for a "new" product. The real challenge is overcoming the requirement that your claims be non-obvious to a person of ordinary skill in the art.

But what makes your nanofiber or nano-based invention non-obvious to a person of ordinary skill? Section 103(a) of the Patent Act recites in part:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103(a).

This statute bars patentability if an invention claimed in a patent application would have been obvious to a person having ordinary skill in the art at the time the invention was made. The Supreme Court of the United States in *Graham v. John Deere Co.* *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966) provided an analytical framework to determine obviousness. According to the Supreme Court, obviousness is based on (1) determining the scope and content of the prior art (i.e., what came before); (2) ascertaining the differences between the claimed invention and the prior art; (3) resolving the level of ordinary skill in the art; and (4) evaluating evidence of secondary considerations (e.g., commercial successes, meeting a need, etc.) Recently, the U.S. Supreme Court in *KSR v. Teleflex* gave additional guidance to help determine what is obvious and what is not. On one hand, inventions that are merely predictable combinations of known elements may be obvious. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 U.S.P.Q.2d 1385 (2007). On the other hand, *KSR* and several other cases decided since then indicate that structures with a new, unexpected property that results from the combination may be patentable. One additional indication of non-obviousness is recognizing a problem that was not widely known. Does combining raw materials you have selected do more than just yield the expected results that the raw materials would provide independent of one another? Does your process result in new structure? What about all the technical effort your business poured into arriving at that seemingly simple solution? The answers to these questions can be used to build a case that your nano-invention is patentable. In fact, these are some of the most important issues your patent counsel will be dealing with (and thus your patent investment dollars will be spent addressing) in procuring patents, or enforcing patents against your competitors.

How do you capture these notions in a way that is meaningful for your business and patent attorney? Make an effort to recognize and capture the essence of the problem you are attacking, and document that you recognize and identify it. R & D, Marketing, and manufacturing finance develop this problem statement together. Develop experiments to characterize the inventiveness of your product. For example, is your nanofiber product so new that to really get a sense of how it works, you had to develop something new to characterize it? Document those efforts in a systematic way.

Nanotechnology and the Patent System

U.S. patent aspires to be technology neutral. What this means is that the patentability standards are applied consistently across all technologies. For example, the standards for novelty and non-obviousness discussed above apply to nanotechnology inventions in same way they would apply to electrical inventions, furniture, or pharmaceuticals. Thus, while new nanotechnology inventions may be new in the sense that the structures involve some “nano” components, it is important to note that nanotech inventions are not novel solely because they are “nano,” unless the process used to make the invention is novel and non-obvious. Further, a nanotech invention may not be novel if the elements and features perform the same function as those in the prior art without giving an unobvious and unexpected result. See *In re Rose*, 220 F.2d 459, 105 U.S.P.Q. 237 (B.P.A.I. 1984). But where the nanotech invention yields unexpected results not recognized before, there are strong arguments that the invention is novel and non-obvious to a person of ordinary skill in the art.

Deciding to Obtain A Patent

As I described above, the standard to show non-obviousness is more rigorous today than it was in years past. But how do you determine if you should even be seeking patent protection on advancement you have made? Start with your business plan. Would a patent support a revenue

stream? Would one or more patents make it more difficult for competitors to operate in your market? Would patents give you an edge in negotiating with your customer? Does it make your competitor's allocate resources to get around your invention? These are a few items to consider. From these questions, you can identify which of your initiatives are most important. Soliciting input from R&D, marketing, manufacturing, and finance regarding the decision to seek patent protection is not only prudent, but it can help ensure that you are seeking patent protection that is valuable to your business.

Once you decide that an innovation should be protected, a patentability search is an inexpensive way to determine if the scope of patent protection should support your goal. As the proliferation of nano-fiber nonwovens proliferate in your market patentability searches become an increasingly valuable business tool. These searches may reveal that what you have done is not quite as new as you thought it was. It might uncover a patent risk you were not aware. The ability to react to these realities early one can save thousands of dollars in fees, many hours of effort, and other

opportunity costs. Patent searches also help focus claims on the aspect of your innovations that are commercially important. Once you have made the decision to file for a patent, what steps can you take to make sure the patent attorney knows all there is to know about the invention? Revisit why you are seeking the patent. Continue to probe whether or not the scope of patent protection supports your business objective. Is the underlying product or process still important to your business? These are issues you can work through with business teams and patent counsel.

In conclusion, nanotechnology has great potential in nonwovens business. Determining which innovations are important to your business is the first step to deciding if patent protection is worthwhile. Consider how valid, enforceable patents that protect your innovations improve you business environment. If you can conclude that they would, coordinating R & D, marketing, finance and manufacturing into the patenting process to maximize the benefit that the U.S. patent system can provide your business.

Sources:

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2. *In re Rose*, 220 F.2d 459, 105 U.S.P.Q. 237 (B.P.A.I. 1984).
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