

New patent class may spur nanotech growth

By LAURA W. SMALLEY

Nanotechnology, the field that involves the creation of particles a few billionths of a meter in diameter, or half the size of a DNA strand, has been touted as the next Industrial Revolution. It is estimated that nano-based global commerce will amount to some \$1.5 trillion by 2015.

New York has invested more than \$500 million in Albany Nanotech alone. With industry partners, the state has committed more than \$2 billion in venture capital and the creation of research and academic centers in such fields as nanoelectronics, photonics, bioinformatics, information technology and environmental systems.

Numerous federal agencies also have claimed a role in oversight of the nanotechnology industry, including the Food and Drug Administration, Consumer Product Safety Commission, Federal Trade Commission, Environmental Protection Agency, Department of Defense, National Institute for Occupational Safety and Health, and U.S. Patent and Trademark Office.

As most inventors know, the USPTO organizes and catalogs all patents in individual classes. Each class is dedicated to a specific area of technology or science; when individuals or patent examiners research patents, they search topically. Of the many classes, one of the most recent additions is that for nanotechnology.

Nanotechnology is the manipulation of materials on a very small scale—on the level of atoms and molecules—to create inventions. Many definitions more narrowly define which sciences and materials are included and which are excluded by the term. Employing the broad definition, and considering only the scale on which a material is

manipulated, nanotechnology intersects with all areas of science that presently work with atomic particles—including, for example, chemistry, biology and both electrical and mechanical physics. With its abilities to manipulate atoms and molecules, nanotechnology has revolutionized existing products and enabled the creation of entirely new ones.

Nanotechnology has been incorporated and utilized in such common products as paint, sunscreen, clothing, sporting goods, computers and cell phones. In addition to the number of products presently available, another indicator of nanotechnology's future is the amount of federal funding dedicated to nanotechnology research. The National Nanotechnology Initiative, a government research entity created in 2001, has enjoyed budget increases since its inception and presently has \$1.5 billion at its disposal.

A further indicator of nanotechnology's growing presence in the marketplace and growing effect on economies is the number of nanotechnology patents issued. In the last decade, nanotechnology patents around the world have had an annual growth rate of roughly 20 percent.

Prior to 2004 it was not possible to search topically for patents relating to nanotechnology because such patents were not in a separate class. The USPTO also did not designate specific examiners to nanotechnology patents.

In 2004, the office created the patent class 977 dedicated solely to nanotechnology. Class 977 is a secondary classification, meaning that patents will still be placed in classes related to their technology; however, they will also be placed within the nanotechnology class. In this way, the nanotechnology classification functions as a system of cross-referencing that enhances searching abilities

and simultaneously ensures that the new classification does not remove patents from other classes, thereby complicating searches.

It is important to note that although there is presently a nanotechnology class, no art unit assigned to nanotechnology currently exists. Most patent classes have an associated art unit, a group of patent examiners dedicated to patents related to that class. Because the nanotechnology class lacks an art unit, there is no official group responsible for examining patents in that discipline, although the USPTO is making an effort to route applications to examiners with expertise in that area.

The agency uses the National Nanotechnology Initiative definition of nanotechnology to classify patents. That definition has three characteristics: 1) research and technology development at the atomic, molecular or macromolecular levels, in the length scale of approximately 1-100 nanometer range; 2) creating and using structures, devices and systems that have novel properties and functions because of their small and/or intermediate size; and 3) ability to control or manipulate on the atomic scale.

All accepted patent applications for inventions that meet the above definition will be classified as nanotechnology class 977. The USPTO's creation of this class allows for further development of nanotechnology. Patents provide great incentives to inventors, and with the ability to search nanotechnology patents directly, it is likely that the number of nanotechnology patents will increase. Additionally, as patents are crucial to a technology's development, the USPTO's recognition of a separate patent class for nanotechnology is further support and recognition of nanotechnology's growing presence in the marketplace.

Laura W. Smalley is a partner in the Intellectual Property Law Practice Group at Harris Beach PLLC.



GUEST
OPINION