

New Hampshire and the Simplified Solenoid

....and other interesting information on patents in the Granite State

"The patent system added the fuel of interest to the fire of genius." Abraham Lincoln

Since 1990 New Hampshire inventors have been granted a total of 4,273 patents. In 1990 they were granted 304. Since then, there has been a regular annual increase in grants leading to the 651 granted in 1999. This is a 114 percent increase over ten years ago, outpacing both the region and the nation. This growth in patents issued may have been a direct result of high tech's expansion so some correlation is worth noting. Certainly, many patents issued have been for high tech type items or processes.

New England Patents* Issued, 1990-1999										
State/Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Connecticut	1,360	1,400	1,453	1,545	1,608	1,544	1,451	1,403	1,798	1,794
Maine	101	92	106	115	118	113	98	93	122	121
Massachusetts	1,953	2,035	2,227	2,207	2,333	2,161	2,452	2,575	3,413	3,521
New Hampshire	304	317	335	363	408	406	420	458	611	651
Rhode Island	142	192	195	219	217	206	235	249	280	261
Vermont	129	101	116	130	140	149	254	276	323	340
New England Total	3,989	4,137	4,432	4,579	4,824	4,579	4,910	5,054	6,547	6,688
U.S. Total**	47,390	51,178	52,253	53,231	56,066	55,739	61,104	61,707	80,292	83,909

*Includes Utility Patents only.
 **Total includes totals for Canal Zone, District of Columbia, Guam, Puerto Rico, U.S. Pacific, and U.S. Virgin Islands
 Source: U.S. Patent and Trademark Office <http://www.uspto.gov/web/offices/ac/ido/oeip/ta/cst_util.pdf>

Patents in New England

New Hampshire led the New England region in percentage growth of patents granted from 1998 to 1999. The 651 patents issued was a 6.5 percent increase over that of 1998. The state closest to us was Vermont with its 5.3 percent increase. The total percent increase for New Hampshire was higher than both the New England region at 2.2 percent, and the country with a 4.5 percent increase over 1998.

New Hampshire - 1963 to Present

The number of New Hampshire utility (i.e. invention) patents¹ issued to resident inventors stayed relatively static at an average of 155 from 1963 through 1984 with the exception of 1971. In 1971 the number of patents granted had climbed to over 200 for the first time, but it didn't stay there very long. After decreasing the following year to 155 granted, it returned to

"Made in New Hampshire" can mean many things - The next time you use a *simplified solenoid assembly having a press fit stop*, take comfort that it, whatever it is, came from New Hampshire.

and stayed on a somewhat level plane until 1985, when the number of patents granted finally went over 200 to stay. Just five years later it went over 300.

The number of utility patents issued annually in the state has continued to climb steadily ever since. In 1999 it was approaching 700. If this pace continues, the state might just see

total utility patents granted pushing close to the 1,000 mark somewhere around the end of 2001.

"Made in New Hampshire"

The phrase "Made in New Hampshire" doesn't necessarily refer to just granite or maple syrup. New Hampshire inventors have long been granted patents covering a wide range of inventions. Inventions range from the simplest things to things many of us have never heard of and some that are a challenge to even say.

Ever have a need to debug a computer program? If so, a New Hampshire inventor holds the patent for a process you might need. The next time you use a *simplified solenoid assembly having a press fit stop*, take comfort that it too, whatever it is, came from New Hampshire. Then there is the challenging-to-say multi-cycle I/O ASIC communication system having an arbiter circuit capable of updating address table associated with each I/O ASIC on bus (*K. DeLong, Hollis, NH*). *Phew!*

There are also the more recognizable and simpler (to say!) inventions like a guitar (*R. Clough Jr., Concord, NH*), barbecue grill (*S. Maesk, Manchester, NH*), stationary baby walker, and golf club shaft. Others include an adjustable computer system stand, a doll simulating adaptive infant behavior, a waterproof enclosure, and a fish fighting apparatus to name just a

"What is a patent?" A patent for an invention is the grant of a property right to the inventor, issued by the United States Patent and Trademark Office (USPTO). The term of a new patent is 20 years...."

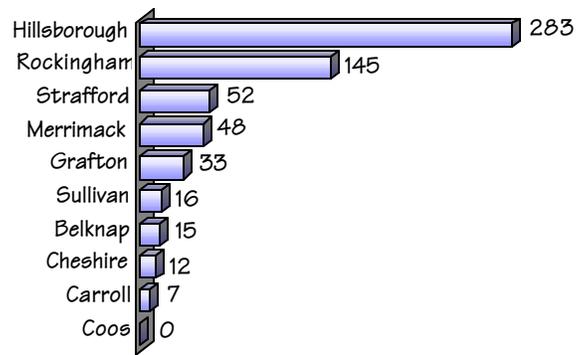
"The right conferred by the patent grant is, in the language of the statute and of the grant itself, *the right to exclude others from making, using, offering for sale, or selling* the invention in the United States or *importing* the invention into the United States. What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention."
 <<http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm> >

small sampling of the many patented items and processes from New Hampshire.

New Hampshire Patents by County

Ninety percent of all utility patents were granted to inventors in just four counties in 1998.² Since 1990 Hillsborough County residents have been granted about 45 percent on average annually of all utility patents granted to New Hampshire inventors. Rockingham County residents were granted around 25 percent. Individuals in Strafford and Merrimack Counties were granted 11 percent and 6 percent respectively on average. While it appears that these counties have very inventive residents, it should be noted they are also the four largest counties by population.

New Hampshire Utility Patents Granted by County, 1998



When utility patents are looked at by county per thousand population, the order changes. While Hillsborough remains first with 4.21 patents granted, Strafford edges out Rockingham for second place by having 3.62 patents to Rockingham's 3.32. Grafton County moves to fourth with 2.72 and Sullivan County is fifth with 2.56 patents granted per thousand population. Cheshire is sixth with 2.04 and Merrimack is seventh with 1.72 patents per thousand population.

You Don't Say!

Given the words and phrases used to describe some of the inventions, it seems New Hampshire not only enjoys a productive inventor population, but one of prolific wordsmiths as well. The vocabulary used to describe some inventions would confound even the best of us. Words like iminodiacetonitrile, electroluminescent, chemiluminescent, and mucopolysaccharide, to say the least.

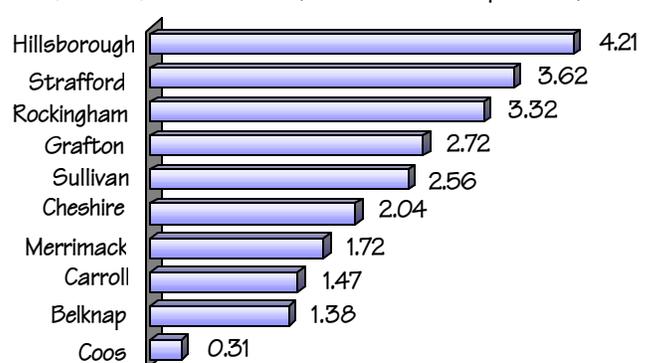
Then there is:

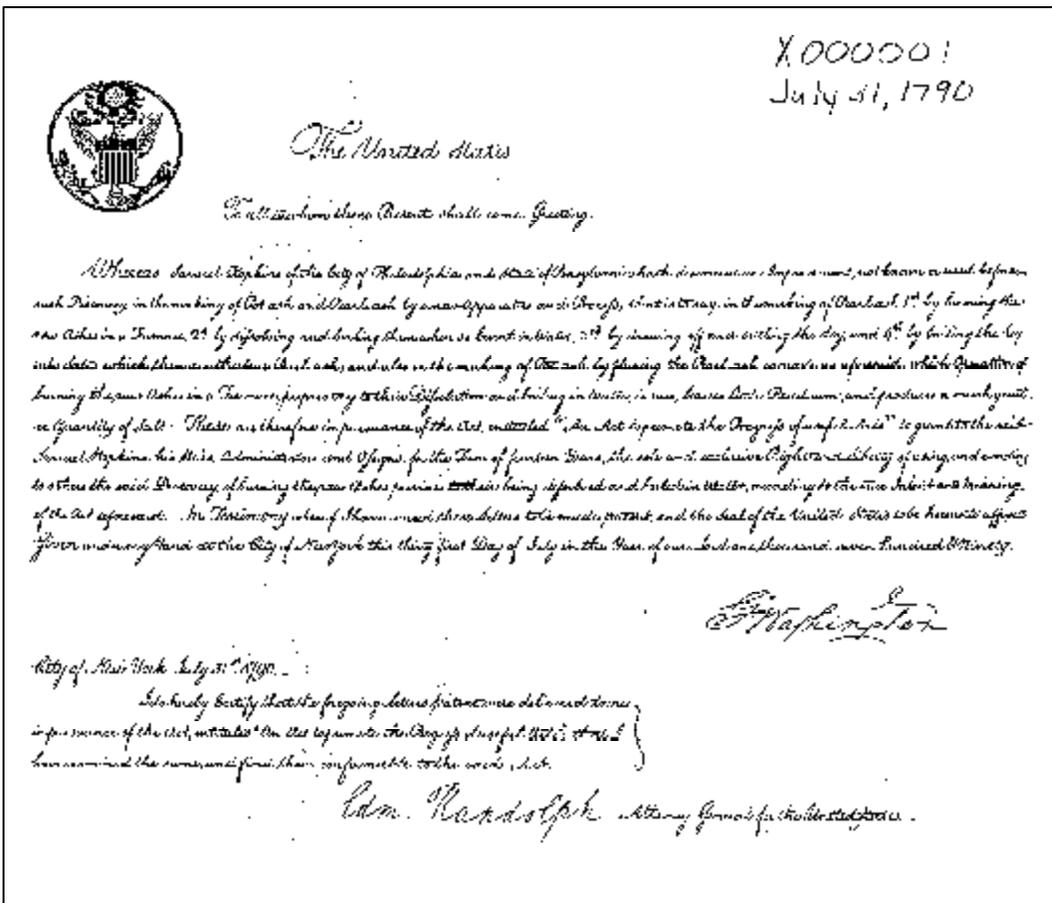
Neoalkoxy titanante in high density mica laminates.
Eh?

What language is this you wonder? The language of patents, patent attorneys, inventors, and the United States Patent and Trademark Office, to name a few areas where you might experience these type of words. If you ever need to conduct a patent search, these are words you may encounter.

"Made In New Hampshire" A Sampling of Recent New Hampshire Utility Patents Issued	
Adjustable computer system stand	US5295648 Inventor(s): Hames, Edward L. Issued/Filed Dates: March 22, 1994/Sept. 22, 1992
Waterproof enclosure	US5728052 Inventor(s): Meehan, John J. Issued/Filed Dates: March 17, 1998/Sept. 20, 1996
Doll simulating adaptive infant behavior	US6048209 Inventor(s): Bailey, William V. Issued/Filed Dates: April 11, 2000/May 26, 1998
Debugging a computer program by simulating execution forwards and backwards in a main history log and alternative history logs	US5784552 Inventor(s): Bishop, John E., NH; Carignan, D., MA Issued/Filed Dates: July 21, 1998/July 28, 1993
Bearing for liner-hanger assembly	US4190300 Inventor(s): Scalzi, Louis M. Issued/Filed Dates: Feb. 26, 1980/Nov. 13, 1978
Simplified solenoid assembly having a press fit stop and method of assembling same	US5886607 Inventor(s): Ricker, Russell Issued/Filed Dates: March 23, 1999/Nov. 26, 1997 Source: < http://www.patents.ibm.com >
Fish fighting apparatus (A fish fighting apparatus for assisting an angler in the capture of large hooked fish.)	US6089652 Inventor(s): Miller, Sr.; Daniel C. Issued/Filed: Jul. 18, 2000/Jul. 31, 1998
Roller Ski	US6082768 Inventor(s): Johnson, Lennart B. Issued/Filed: Jul. 4, 2000/Apr. 25, 1997
Soap dispenser pump tip	D427470 Inventor(s): Daansen, Warren S. Issued/Filed: Jul. 4, 2000/Oct. 21, 1999
Alphabet and numeral simulative balloon	D427645 Inventor(s): Savage, John G. Issued/Filed: Jul. 4, 2000/Jul. 30, 1999
Stationery baby walker	D427116 Inventor(s): Keegan, C.; Bernstein, M.; Sundberg, B. Issued/Filed: Jun. 27, 2000/Nov. 19, 1999
Shoe with split sole and mid-section reinforcement (A shoe, e.g. for dance or athletics.)	US6076284 Inventor(s): Terlizzi, John Issued/Filed: Jun. 20, 2000/Nov. 6, 1995
Golf club shaft	D426277 Inventor(s): McTague, William Issued/Filed: Jun. 6, 2000/Jun. 16, 1999
Piezoelectric switch	US6064141 Inventor(s): Wiciel, Richard D. Issued/Filed: May 16, 2000/Jul. 1, 1998
Combined backpack, cot, and tent	US6062446 Inventor(s): Daneau, George Issued/Filed: May 16, 2000/Dec. 20, 1993 Source: < http://www.uspto.gov/patft/index.html >

New Hampshire Average Utility Patents Granted by County, 1990-1998 (Per Thousand Population)





Historical First Patents, for having invented the engine, one of the precursors to other inventions now in everyday use, not the least of which is the automobile.

Patent Models Move to New Hampshire (eventually)

The original Patent Board decided on April 10, 1790, that all patent applications be required to include the submission of a miniature working model. This rule was amended twice before the final version, enacted in 1903 and still in effect today, required working models for perpetual machines only.

Having a working model helped to understand an invention, but it made storage an issue from the beginning. By 1823 there

had been 1,819 miniature working models received by the Patent Office and by 1836, there were 7,000. What to do with all these models (over 200,000 received by 1880) was ultimately answered by congress passing a law to build a new Patent Office Building.

The Patent Office went through many growing pains and moves before finally settling into its current facility in Washington, D.C. The Office also experienced several fires at its different locations which destroyed well over half of all models submitted. In 1907 Congress decided to sell the models, since the hassles and expense of storing them were too great. The Smithsonian took 1,061 models for preservation and in 1908 about 3,000 were sold for \$62.18 or just over two cents apiece. The rest went back into storage. In 1925 Congress again put the models up for sale after the

First Patent Issued in U.S.

Congress passed the first Patent Act April 10, 1790. Then the very first patent ever granted was issued in New York City (first home of Patent Office) July 31, 1790, to Samuel Hopkins, Philadelphia, PA.³ It was for a new process for making potash. No, that's not potato hash as it sounds like it might be. It is actually a combination of pot ash and pearl ash used as an ingredient in such things as soap and fertilizer manufacture. It was issued by Secretary of State Thomas Jefferson, Secretary of War Henry Knox, and U.S. Attorney General Edmund Randolph; and signed by President George Washington.

First Patent Issued in New Hampshire

The very first patent ever issued to a New Hampshire inventor went to Samuel Morey³ from Orford, January 26, 1793, for what was called a Spit-Turner. (Since I was unable to turn up further details, your guess is as good as mine as to what it was.)

Samuel was a very inventive gentleman. He also received patents for Steam Application, March 25, 1795, Steam Power, March 27, 1799, and a patent for an internal combustion engine, April 1, 1826. He is credited several times in a book by Travis Brown,

**“meters” that show up in
New Hampshire inventions**

- square meters, bellows meter, ice jam multi-meter,
- gas meter, light meter, footwear activity meter,
- spectrometer, chromometer, roller skate odometer,
- thermometer, speedometer, interferometer,
- parameter, manometer, tachometer, barometer,
- electric meter, gas flow meter, torque arm dynamometer

United States Patents – 1931 to 1999

In 1931, the total number of patents granted in the country went over 50,000 for the first time. It didn't stay there very long however. After increasing again the following year to over 53,000 granted, it started a downward journey until it fell back to just over 20,000 patents granted in 1947. In 1948 the number of patents granted started climbing again and surpassed the 50,000 mark in 1965. It took almost thirty more years to add another 50,000 annually when in 1994, the number of patents issued finally went over 100,000 and stayed there. Just five years later in 1999, the number of patents granted was just about 154,000. At well over 150,000 patents granted in 1999, the United States has come a long way from the 23,288 granted back in 1899 and a real long way from the 44 granted in 1799.

Smithsonian selected about 2,500 and inventors and other museums took around 2,600.

This time they were all sold then sold again to different entrepreneurs. In 1943 a man named O. Rundle Gilbert paid \$2,100 for the models and \$11,614 in back rent owed for storage. He immediately put many on display for sale, but was little more successful than the previous owner though his loss was only \$3,000. In 1949, after losing 20,000 more models (again to fire), Mr. Gilbert moved the collection to a museum (remodeled barn) in Center Sandwich, New Hampshire. He charged one dollar admission to view around 1,000 of the most interesting models. He again tried to sell them individually after Gimbels Department Stores invited him to display them, but only approximately 600 sold. His partners were so bothered by this they sold out to him for practically nothing. In 1952, Gilbert moved the collection to an abandoned hospital in Plymouth, New Hampshire, converted it into a museum, and displayed his collection until 1970 when he started selling them off again.

For the next nine years his son organized several sales that attracted as many as 1,500 buyers at a time. How many of those models may be in New Hampshire today, I wonder? In 1979 he sold (through his son) the remainder of the collection. In 1992 this collection of about 40,000 models was donated to a foundation whose objective it is to return them to the Smithsonian.

Richard Ricker

The basic filing fee for a utility patent is \$690 and issue fee is \$1,210 according to the fee schedule on the state library Web site (<http://www.state.nh.us/nhsl/patents>). There are several different categories of fees as well as types within each category so the entire process could cost a fair sum.

Patent Fees*

Filing	Extension Service	
Issue	Appeals/	Enrollment
Maintenance	Interference	Finance Service
Miscellaneous	Petition	Computer Service

*USPTO Fees only. Other areas may also require payment of fees such as self-searching at the state library (minimal) or patent attorney fees.

**“Made In New Hampshire”
A Sampling of Not-so-Recent
New Hampshire Utility Patents Issued**

Spit-Turner	Inventor(s): Morey, Samuel Issued: January 26, 1793
Steam Application	Inventor(s): Morey, Samuel Issued: March 25, 1795
Steam Power	Inventor(s): Morey, Samuel Issued: March 27, 1799
Sumac Extraction	Inventor(s): Ladd, Nathaniel Issued: February 12, 1796
Wheat Fan	Inventor(s): Tyler, Benjamin Issued: April 15, 1796
Washing Machine	Inventor(s): Nathaniel Briggs Issued: March 28, 1797
Preserving butter and eggs	Inventor(s): Johnson, Moses Issued: June 30, 1797
Sleigh Runner	Inventor(s): Wilder, Abijah Issued: December 14, 1799 <i>Source: General Index of Patents, 1891 State Library Reference R608 U58IP</i>
Machine for cutting nails, brads, etc	Inventor(s): Kimball, Increase Issued: May 1, 1805
Machine for raising stumps, etc. from the ground	Inventor(s): Craig, Alexander Issued: April 15, 1807
Pressing and Boring Machine	Inventor(s): Ramsey, Robert Issued: July 9, 1808
Machine for splitting skins	Inventor(s): Cobb, Isaac Issued: July 12, 1808
Churn	Inventor(s): Lapish, Benjamin U. Issued: August 15, 1809
Machine for smoothing linen	Inventor(s): Smith, Wm P. & Odell, Jacob Issued: July 17, 1810
Facilitating the making of carriage wheels	Inventor(s): Greenough, Brackett L. Issued: September 12, 1815
Tub-Winning Mill	Inventor(s): Elliot, Moses Issued: May 18, 1816 <i>Source: Patent Office Report, 1790-1836 State Library Reference R608 U508L</i>

¹ Utility (or Invention) Patents are the majority of patents granted by the U.S. Patent and Trademark Office. Other types include plant, design, statutory invention, registration documents, and defense publications.

² Latest figure available by county is from 1998 as reported by the U.S. Patent and Trademark Office Web site <http://www.uspto.gov/web/offices/ac/ido/ocip/taf/reports.htm>.

³ General Index of Patents, 1891, State Library Reference R608 U58IP.