

YESTERDAY'S
NEWS

JERSEY JOURNEYS

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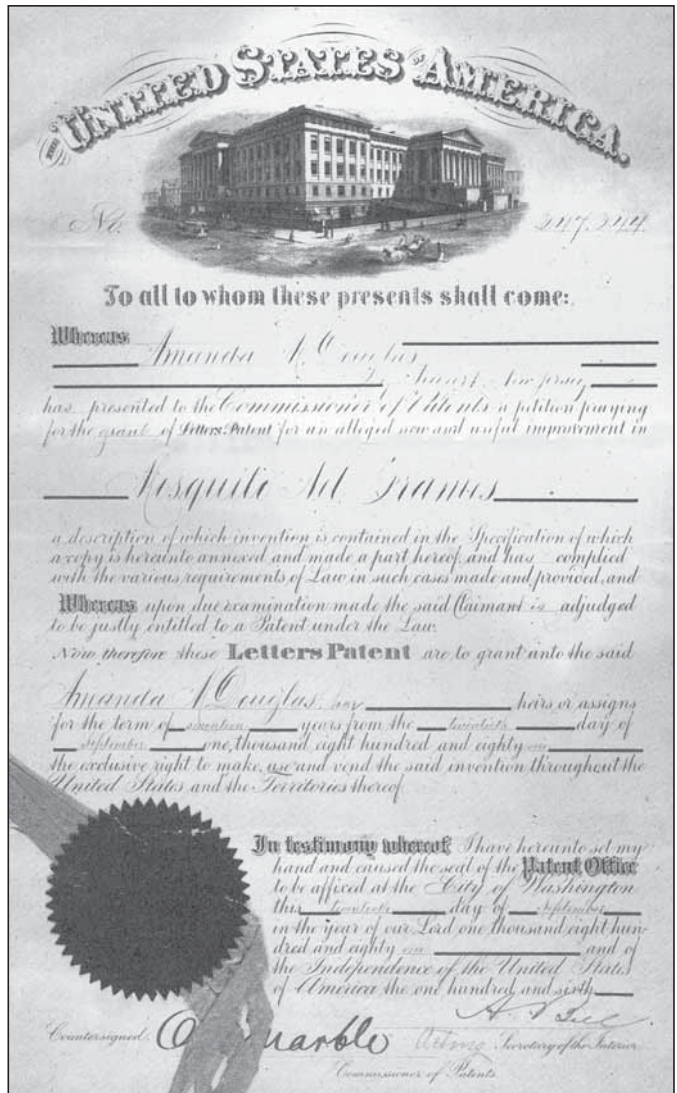
New Jersey Inventors and Their Inventions

Did you know that New Jersey has been called the “Invention State”? “The Research State”? These nicknames are not recent ones. New Jersey has been inventing for quite some time!

Since the late 18th century, New Jersey inventions have played a vital role in the economic development of the state — and the world! New Jersey led the way in inventions related to transportation, communication, electricity, and photography — to name only a few areas. Today, New Jersey, with its many research laboratories and businesses and thousands of inventors, continues to stand apart. Did you know that the state even has an Inventors Hall of Fame?

The invention road is not an easy one. Inventors put in a lot of hard work. Most of the time inventors experiment for several years, testing and retesting their ideas. Many times these experiments fail, and research and work need to begin again. Inventors also face discrimination (no one accepts their revolutionary ideas); money problems; fierce competition; and legal issues. Some inventors never even get credit for their discoveries.

For all this hard, frustrating work, few inventors achieve the fame and glory of two of New Jersey’s and the world’s most widely known scientists — Thomas Edison and Albert Einstein. This issue of *Jersey Journeys* hopes to change that. Here you’ll meet some of New Jersey’s unsung inventive geniuses of the past and understand a little about who they were, how they came to the inventing game, and how difficult that road to success really was. ★



Amanda Douglas’s patent was issued in what year? And how long was it good for? For more about this author-inventor see page 2. (*Collections of The New Jersey Historical Society*)

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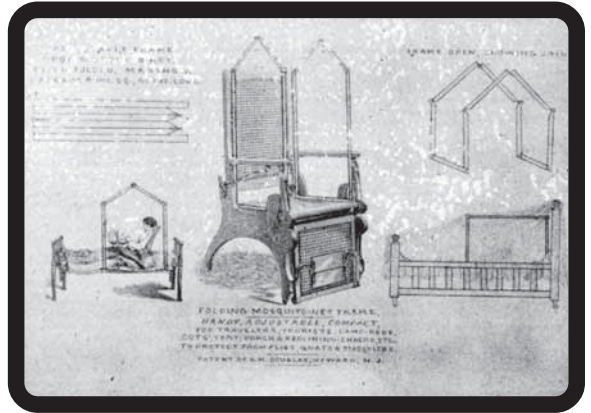
An Exhibit of Little-Known

One-Time Inventor: Amanda M. Douglas, 1831–1916

Amanda Minnie Douglas was not known as an inventor. For almost all of her life she told or wrote stories. As a young girl she entertained family and friends with original stories. Later she wrote her stories down on paper with a steel pen. Most of her books were for young readers.

But Amanda Douglas didn't always want to be a writer. At first she wanted to be an artist and study engraving and design. Unfortunately, though, Amanda had to give up her dream of being an artist because of illness in her family. Writing was a perfect career for her because it could be done at home.

Amanda Douglas moved to New Jersey with her family in the 1850s and settled in Belleville and then Newark. In 1866 her first novel, *In Trust*, was published. Even though she was a writer, Amanda Douglas kept up with her interest in art and design. She illustrated some of her books and designed a mosquito net frame for travelers. She might have thought of the idea for the net during a trip to Europe. In 1881 she received a patent for the mosquito net frame.



Look closely to see how Douglas's frame can be folded and set up. (Collections of The New Jersey Historical Society)

The Quiet Inventor: Lewis Latimer, 1848–1928

Ever since he was a young man, Lewis Latimer was interested in invention. The son of slaves, he traveled a long and hard road to scientific success. After little formal schooling, Latimer served in the U.S. Navy during the Civil War. Then he went to work in a patent office. Unsatisfied with his job as office boy, Latimer taught himself drafting.

Besides being a draftsman, Latimer was an inventor. His first invention was a "water closet for railroad cars." He also helped other inventors. It was Latimer who assisted Alexander Graham Bell with the telephone by creating his patent drawings.

But Latimer is best known for his work with electricity. In 1882 Latimer patented a light bulb with a carbon filament, making it work better and last longer. He also obtained many other patents dealing with electricity.

In 1884 Lewis Latimer went to work for Thomas Edison who had labs

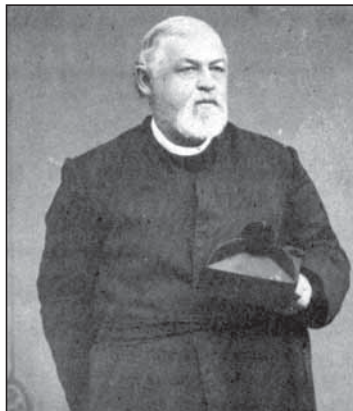


In 1918 the Edison Pioneers were formed. They were men who had worked with Edison before 1885. In 1920 the Edison Pioneers gathered in Orange, New Jersey, to celebrate the inventor's 73rd birthday. Latimer was there — in the front row, second from the left. (Photo provided by Photography Services of the Consolidated Edison Company of New York, Inc.)

in New Jersey. Latimer helped the well-known inventor with his research and patents. Edison often found himself in court battling for the rights to his scientific works.

Latimer continued to invent and

wrote a textbook, *Incandescent Electric Lighting: A Practical Description of the Edison System*. He worked in the electrical industry until he retired in 1924.



Father Goodwin. (Collections of The New Jersey Historical Society)

Part-Time Inventor: Hannibal Goodwin, 1822–1900

Hannibal Goodwin was not only an inventor but also a clergyman. For many years he served as the rector for Newark's House of Prayer at Broad and State Streets.

Father Goodwin was devoted to children. At the House of Prayer, he ran a religious school, organized a choir of boys and men, and gave talks on Bible history to children. During these talks Father Goodwin would use a stereopticon (a slide viewer) to make the Bible stories more exciting. But the slides used at this time were made of glass. They were awkward and easily broken. Father Goodwin set out to change all of that.

He worked in the attic of the church's rectory to come up with a new kind of photographic slide. It wasn't uncommon to see Father Goodwin with acid burns on his hands and chemical stains on his clothes. Finally he was successful. In 1887 Father Goodwin invented a flexible photograph film that could be wound on a spool.

But it was extremely hard for Father Goodwin to patent his invention. He first tried in 1887, but it would take more than ten years before he was awarded his patent. The reason for the delay had to do with another inventor who had come up with a similar film and obtained a patent in 1889. Hannibal Goodwin died two years after his patent was awarded to him.



Inventors of the Past

The Inventor's Inventor: Seth Boyden, 1788–1870

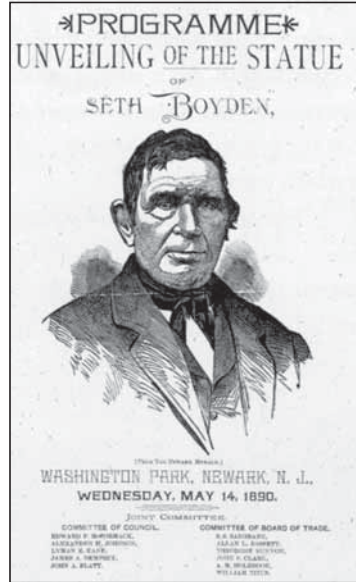
Seth Boyden is not widely known because he couldn't sit still. Always busy and curious, Seth Boyden went from one invention to another. But he only obtained one patent!

Thomas Edison said that "Seth Boyden was one of America's greatest inventors, and one who has never received proper credit for his many great and practical inventions. They have been the basis of great industries . . ."

Seth Boyden came to New Jersey already an inventor. As a young man he had invented machines to make nails, tacks, and files. In Newark Boyden worked on his leather-splitting machine and then moved on to machines that made inexpensive nails and silver-plated buckles. But it was his next invention that had more of an impact. In 1818 Boyden invented the technique for making patent leather and opened a patent leather factory in Newark.

Selling that business, Boyden worked on malleable iron (capable of being shaped) and founded the first malleable iron foundry in the United States — in Newark. He then built locomotives that could travel up steep grades, experimented with early forms of photography, worked on the telegraph with Samuel Morse, and even found time to travel to California during the Gold Rush.

Boyden returned to New Jersey



Seth Boyden's statue stands in Newark's Washington Park. (Collections of The New Jersey Historical Society)

where he developed a "hybrid strawberry of unusual size," and invented hair dye and a "machine for forming hat bodies," the only patent Boyden obtained. Boyden once said that he had "enough experiments on hand to last two lifetimes." ★

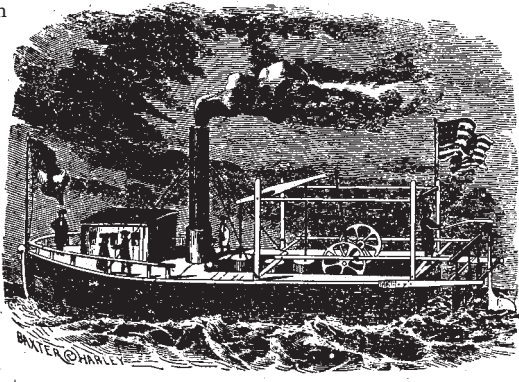
The Forgotten Inventor: John Fitch, 1743–1798

John Fitch was a clockmaker, silversmith, watchmaker, gunsmith, Revolutionary soldier, and land surveyor before he became an inventor. After seeing a carriage pass by, Fitch became interested in steam engines. "A thought struck me that it would be a noble thing if I could have such a carriage without the expense of keeping a hors [horse]. . . I soon thought that there might be a force procured by Steam and set to and made a draft. And in about one weeks time gave over the Idea of Carriages but thought it might answer for a Boat . . ."

Fitch went to work on a steam-powered vessel, but getting financial and political help was hard. Finally, New Jersey, Delaware, Pennsylvania, New York, and Virginia allowed him to operate boats on their waters. With financial backing and the help of Henry Voight, a clockmaker, Fitch was able to build a steam engine. His first boat was completed in 1786 and traveled the Delaware River at 7 mph. Fitch later built bigger boats that

moved slightly faster. In 1790 his boat carried paying passengers — a first! — along the Delaware and Schuylkill rivers. But this boat didn't make money, and Fitch was forced to stop operation. His last boat, the *Perseverance*, was never completed.

Fitch's pioneering work in steam travel was overshadowed by Robert Fulton, who gets credit for operating the first steamboat in the United States. ★



John Fitch's Steamboat of 1790.

An Inventor's Other Half: Alfred Vail, 1807–1859

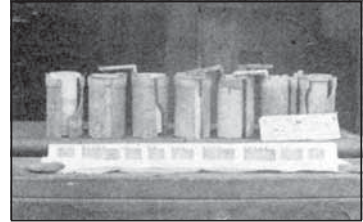
In 1854 Alfred Vail wrote to his brother, "If ever I shall write the history of the Telegraph, I shall do it honestly and it will then appear what service I have done to the whole concern."

Alfred Vail grew up around mechanical things and came to invention easily. He was the son of Stephen Vail, the founder of the Speedwell Iron Works in Morristown and builder of the machinery for the S.S. *Savannah*, the first trans-oceanic steamship in the world.

As a young man Alfred Vail witnessed Samuel Morse's demonstration of a crude telegraph. Vail encouraged the older inventor to further develop his telegraph and offered him financial help and a workspace at his father's property in Morristown. At Speedwell in 1838, Morse sent Stephen Vail's message "A patient waiter is no loser" to Vail. A few days later the telegraph was demonstrated to the public. It was a success!

But it would take six more years and several demonstrations before the famous transmission between Washington, D.C., and Baltimore took place. With Morse at one end and Vail at the other, the message "What hath God wrought" was sent. The telegraph was born!

Afterward, Morse went on to claim most of the credit for the telegraph's success. Unfortunately Alfred Vail had signed a contract granting him only an interest in the invention. But in 1858 a newspaper hailed Vail: "He it was who invented the far famed alphabet; and he too was the inventor of the instrument which bears Morse's name." ★



Alfred Vail (top). "Original porous cups and zincs of battery, and the original telegraph type cast by Prof. Morse at his brothers house." (Collections of The New Jersey Historical Society)



Protecting Your Invention: The Patent

New Jersey ranks fourth in the country for the number of patents issued in 1999. But did you know that New Jersey ranks first in another area of patent history? Hoboken's John Stevens (1749–1838) is considered by some to be the father of the U.S. patent system.

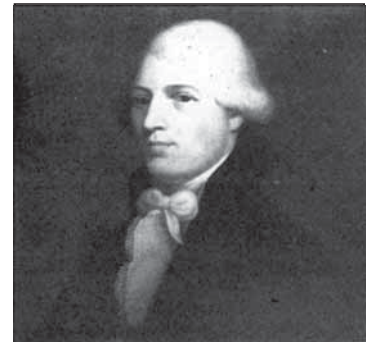
A lawyer, engineer, and inventor, Stevens petitioned Congress to pass patent laws. The U.S.

Patent Office was created in 1790. Patents were first listed under the name of the inventor, and models accompanied each application. Later, numbers were assigned to patents, and blueprints, not models, were used.

Six million patents have been issued since 1790. Today patent holders have the right to prohibit others from “making,

using, or selling” their inventions for up to 20 years.

Even if an invention is wacky or serious, it is usually useful to someone. *Have you ever invented anything? Has it made your life easier?* ★

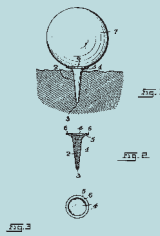


Stevens is known for his work on steamboats and the railroad. (Image in private collection (top))

Collections of The New Jersey Historical Society (left)

INVENTION: LIFE MADE EASIER

When William Lowell, a dentist from South Orange, played golf, he didn't like to get his hands or clothes dirty. Unfortunately that had been part of the game for hundreds of years. Players used their hands to form a mound of wet sand to “tee” the ball. Lowell decided to do something about this dirty practice. Using some of his dentist tools, Lowell created a model out of wood and gutta-percha (a plastic used in dentistry). His first tees were made of wood and painted green.



In 1924 William Lowell received a patent for his tee. It's the same tee that golfers use today!

DID YOU KNOW . . .

that the Society has several patent models, including a clothes dryer, a machine for numbering pages of books, a sieve, a knitting machine, a refrigerator, a meat chopper, and ice skate?

. . . the photographic condensing lens used by Hannibal Goodwin? It was found in the eaves of the House of Prayer's rectory.

. . . a patent copy (drawing) of the “Steam Boat, Experiment, now in use, 1790. Constructed by Fitch and Voig[h]t”?

TO FIND OUT MORE

Web Sites

Inventure Place, National Inventors Hall of Fame (www.invent.org). Discover information on the inventors who made the world what it is today.

New Jersey Inventors Hall of Fame, New Jersey Institute of Technology, Newark (www.njinvent.njit.edu). Meet New Jersey inventors — individuals and corporations — past and present.

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Upon Request



Historic Speedwell, The Birthplace of the Telegraph (www.Speedwell.org). This site highlights the telegraph, Iron Works, S.S. Savannah, and Speedwell Village.

Books

African American Inventors (Black Stars Series). By Otha Richard Sullivan. 1998, John Wiley & Sons. Spanning early to modern inventors, this illustrated book includes a chronology, notes, bibliography, and index. Latimer is featured. Grade 5 and up.

Women Inventors. By Linda Jacobs Altman. 1997, Facts on File, Inc. Ten inventors are profiled — with chronologies, further reading sections, and black and white illustrations. Grade 6 and up.

NJHS Hours

Office hours: Mon.–Fri., 9 a.m.–5 p.m.
Public hours: Tues.–Sat., 10 a.m.–5 p.m.
Library hours: Tues.–Sat., 12 p.m.–5 p.m.
Closed Sunday and Monday
Admission to the Society is free.

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per issue, mailed at year-end) \$25. Individual subscription (1 copy) \$10.

COMING NEXT ISSUE

What are New Jersey's natural resources? How are they used? Find out the answers next month — and more!

Main Sources: *New Jersey: History of Ingenuity and Industry*. By James P. Johnson. 1987, Windsor Publications; *A Biographical Sketch of Amanda Minnie Douglas*. By Frank A. Polkinghorn. 1969; “An Electrifying Genius,” *Cobblestone Magazine*. February 1992, Cobblestone Publishing, Inc.; “Inventors of New Jersey,” *Newark Sunday News*; Historic Speedwell Staff; *The Crossroads*. May 1974, The New Jersey Historical Society; “History of the U.S. Patent Models.” By Mr. and Mrs. Rundle Gilbert; *The Crossroads*. April 1966, The New Jersey Historical Society; “Teeing off with grandpa,” *The Star-Ledger*. January 26, 1998.

INVENTIVE IDIOMS

en•tre•pre•neur	a person who starts a business
in•ven•tion	something new that a person creates through experimenting
in•no•va•tion	a new creation, usually an idea or method
pat•ent	legal document that grants rights to an inventor
re•search	gathering of facts and figures on a particular subject

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