

Inventors in the 1800s

6 Articles

Check articles you have read:

The Photophone
224 words

Thomas Edison and the First Phonograph
265 words

Henry Ford
339 words

The First Telephone Call
261 words

Samuel F.B. Morse Changes Communication
333 words

Edison's Light Bulb
324 words

The Photophone

This text is from "America's Story from America's Library" by the Library of Congress.

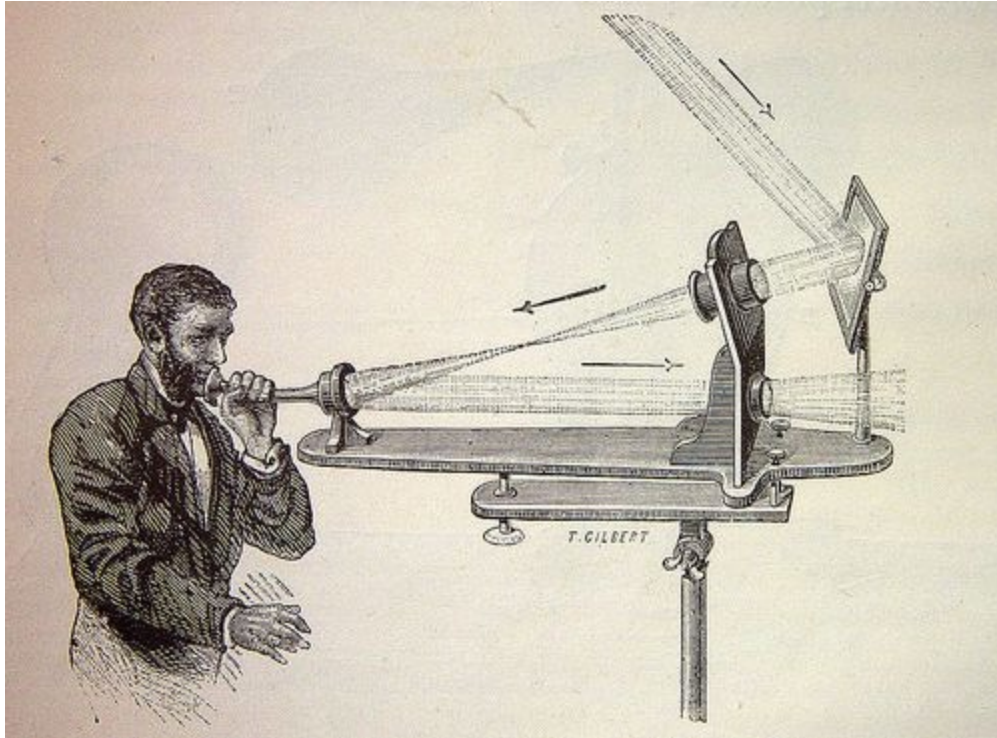


Illustration of photophone transmitter

Alexander Graham Bell Invented the Photophone

June 3, 1880

You may know that a telephone uses electricity to send voice communications. However, you may not know that the man who invented the telephone, Alexander Graham Bell (1847-1922) had another invention that used light to transmit sound. He called it the photophone.

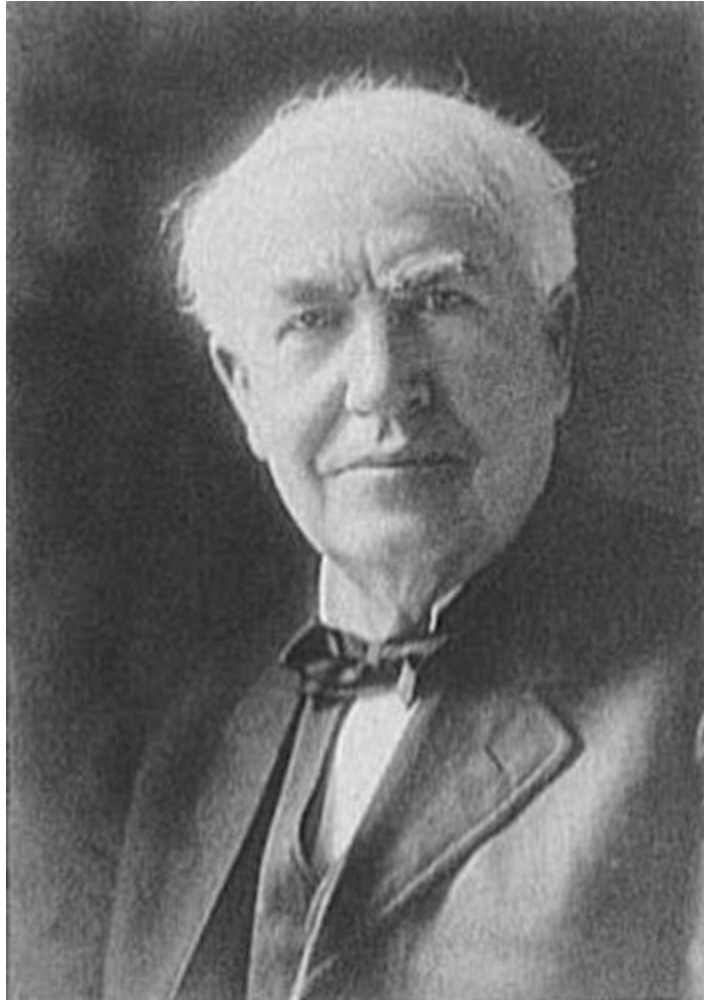
Imagine a solar-powered telephone, and you're close to understanding the important gadget Alexander Graham Bell invented on June 3, 1880, four years after he had patented the telephone. Bell considered the photophone one of his most important inventions. He's probably right, since the technology behind the photophone led to the technology that helps computers send information around the world today.

Bell's photophone was based on transmitting sound on a beam of light. A person's voice was projected through an instrument toward a mirror. The vibrations of the voice caused similar vibrations in the mirror. Sunlight was then directed into the mirror, where the vibrations were captured and projected back to the photophone's receiver. There they were converted back into sound.

It took a long time before the idea behind Bell's photophone became practical. The original machine had a big flaw: when the weather was cloudy it didn't work! Today, digital voice and data communications are transmitted at the speed of light through glass fibers called optical fiber.

Thomas Edison and the First Phonograph

The text and images are from "America's Story from America's Library" by the Library of Congress.



Library of Congress

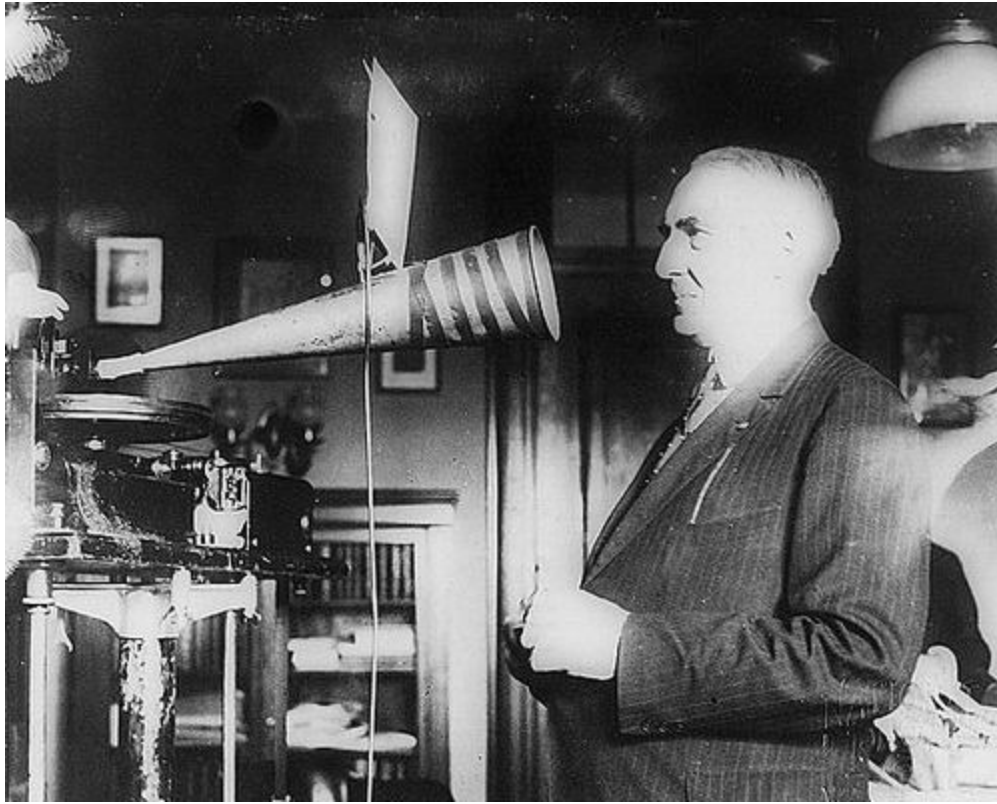
Thomas A. Edison, head-and-shoulders portrait, 1900-1920

Thomas Edison and the First Phonograph

August 12, 1877

The next time you listen to a favorite album, you can thank Thomas Edison for discovering the secret to recording sound. Before there were CD players and tape decks, there was the phonograph. August 12, 1877 is the date popularly given for Thomas Edison's completion of the model for the first phonograph.

Edison was trying to improve the telegraph transmitter when he noticed that the movement of the paper tape through the machine produced a noise resembling spoken words when played at a high speed. Experimenting with a stylus (hard-pointed instrument like a large needle) on a tinfoil cylinder, Edison spoke into the machine. Do you know the first words ever recorded?



Library of Congress

Photograph of President Harding speaking into a photophone

To Edison's surprise, the cylinder recorded his message, "Mary had a little lamb." People had a hard time believing his discovery at first, but soon doubt turned into awe as Edison became known as "The Wizard of Menlo Park," after the name of the city in New Jersey where he did his work. Sound recording was rapidly becoming an American industry.

As a young boy growing up in the late 19th century, Harry Reece remembered the invention of the phonograph as one in a series of technological marvels: "Electric lights were something to marvel at . . . the old Edison phonograph with its wax cylinder records and earphones was positively ghostly . . ." Here you can listen to one of the early musical recordings.

Henry Ford

The text and images are from "America's Story from America's Library" by the Library of Congress.



Library of Congress

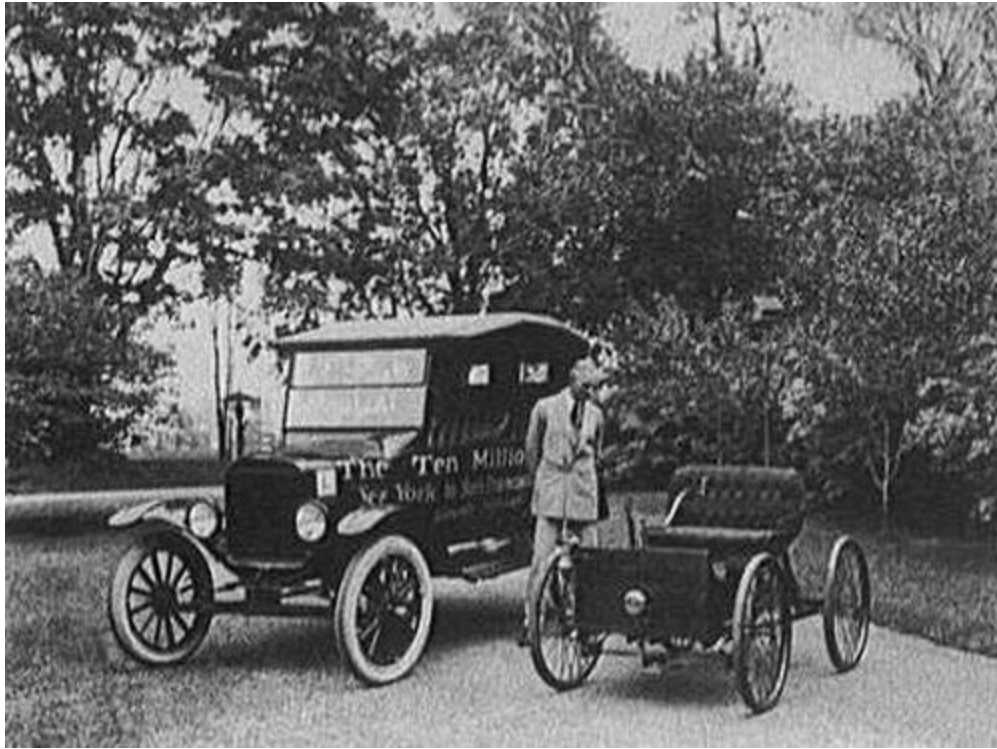
Photograph of Henry Ford

Automobile Manufacturer Henry Ford Was Born

July 30, 1863

Born on July 30, 1863, on his family's farm in Dearborn, Michigan, Henry Ford enjoyed tinkering with machines from the time he was a young boy. His work on the farm and a job in a Detroit machine shop allowed him many opportunities to tinker and experiment. By 1896, Ford had constructed his first horseless carriage, but he wanted to do even more!

"I will build a car for the great multitude," Ford proclaimed. At first the automobile had been a luxury item only for the wealthy. Henry Ford wanted to create a car that ordinary people could afford, and in October 1908, he did it. The Model T sold for \$850. In nineteen years of manufacture, Ford lowered the price to \$260 and sold 15 million cars in the U.S. alone.

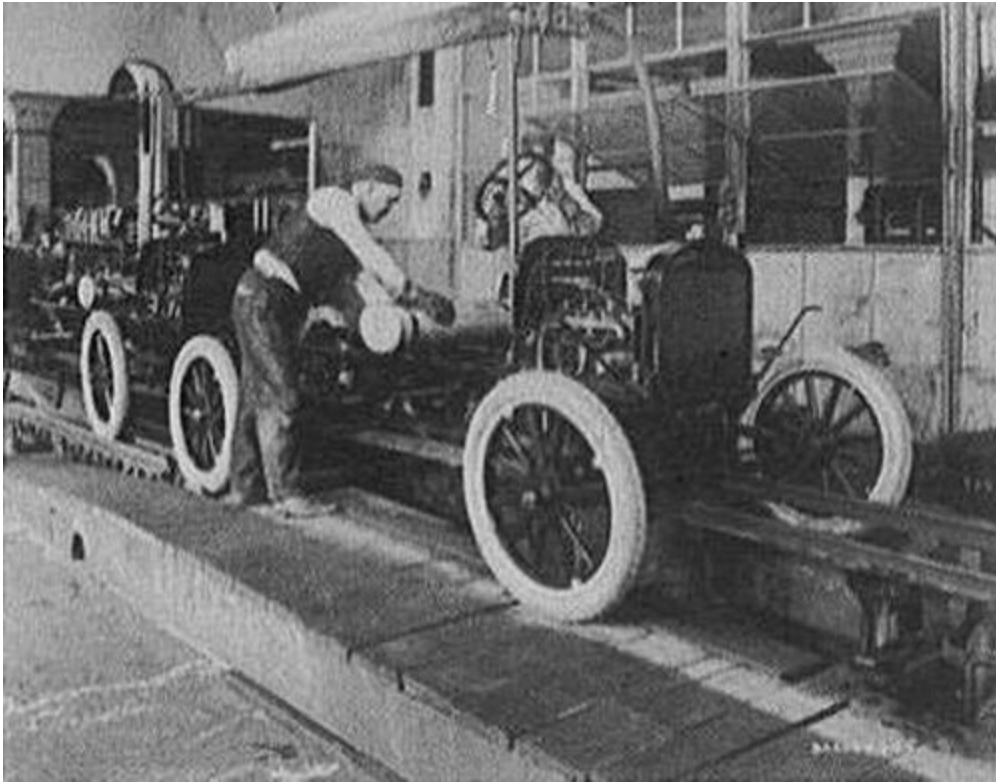


Library of Congress

Photograph of the first and ten millionth Ford, 1924.

How did he make the Model T so inexpensive?

Ford invented the modern assembly line. He doubled his workers' wages and cut the workday from nine to eight hours. Ford did this to ensure quality work and allow a three-shift workday. As a result, the company was able to make Model T's twenty-four hours a day!



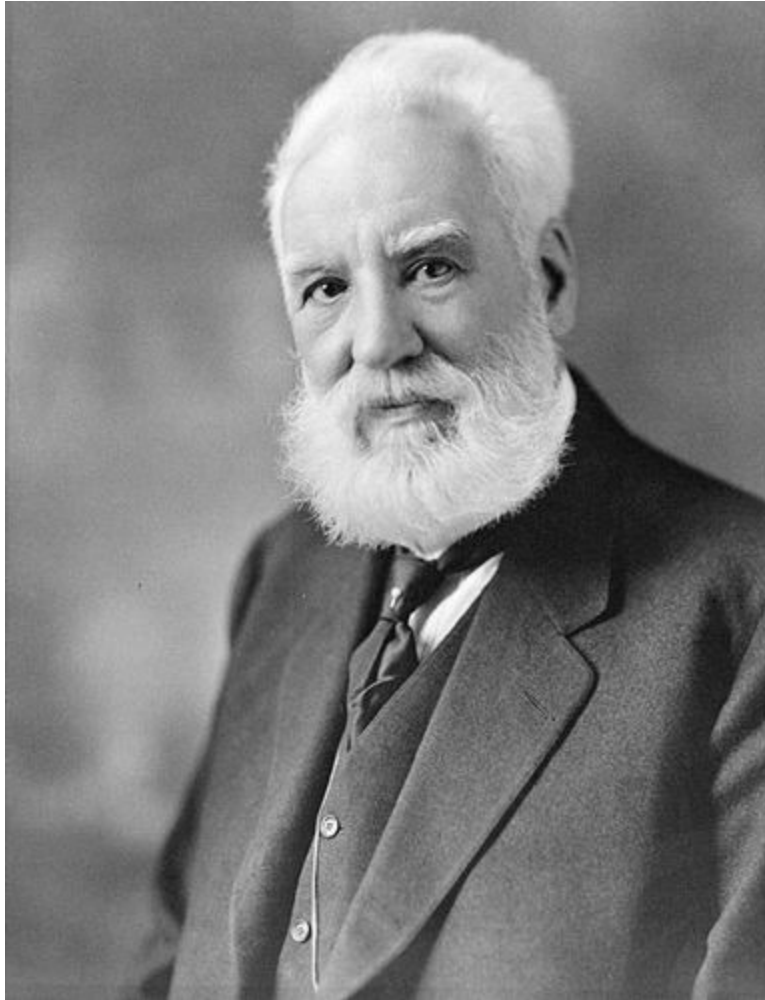
Library of Congress

Photograph of a Ford assembly line

The automobile altered American society forever, changing where and how we lived. As more Americans owned cars, the organization of cities changed. The United States saw the growth of the suburbs and the creation of a national highway system. Americans were thrilled with the possibility of going anywhere, anytime. Ford witnessed many of these changes during his lifetime. In his later years, he spent most of his time working on Greenfield Village, a restored rural town modeled after his memories of Dearborn during his youth. Next time you are out on the road, try to imagine life without cars. Ask your family and friends how different they think the world would be.

The First Telephone Call

This text is from "America's Story from America's Library" by the Library of Congress.



Photograph of Alexander Graham Bell

The First Telephone Call

March 10, 1876

What were the first words ever spoken on the telephone? They were spoken by Alexander Graham Bell, inventor of the telephone, when he made the first call on March 10, 1876, to his assistant, Thomas Watson: "Mr. Watson--come here--I want to see you." What would you have said?

Born in 1847 in Edinburgh, Scotland, Bell became an expert in sound and public speaking. His understanding of sound helped him to teach the deaf and then invent the telephone.

Bell was a man of vision. After the telephone's success, he wrote to his father about a future when "friends converse with each other without leaving home." How often do you talk with your friends on the phone? Can you imagine how life would be different without it?

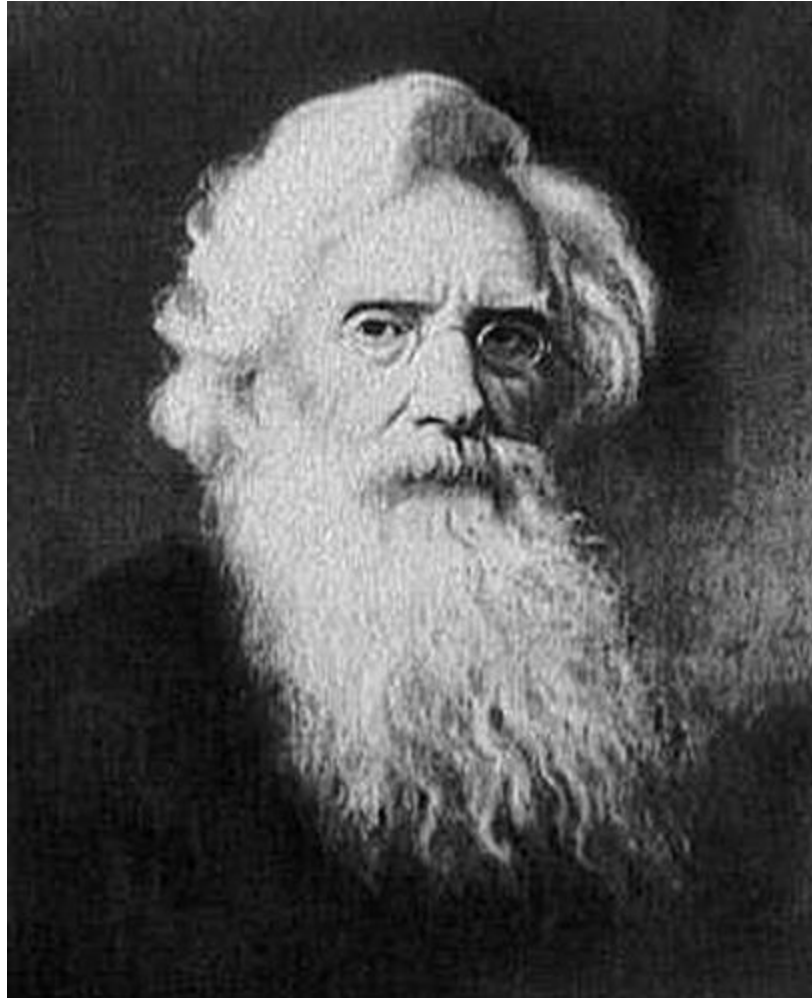
Inspired by his scientific curiosity, Bell went on to create other new inventions, including the

photophone in 1880. This first wireless telephone transmitted sound on a beam of light instead of electrical wires. It is the forefather of the cordless phone and 80% of today's telephone systems that use fiber optics.

Bell's first telephone call was so famous, he repeated the phrase in 1915 in the formal opening of the completed transcontinental telephone lines connecting America's East and West coasts. Picking up the phone in New York, Mr. Bell said, "Mr. Watson, come here, I want you." But this time Watson replied that it would take him a week; he was on the other end of the line in San Francisco.

Samuel F.B. Morse Changes Communication

The text and images are from "America's Story from America's Library" by the Library of Congress.



Library of Congress

Portrait of Samuel Finley Breese Morse

Samuel F.B. Morse Sent the First Telegraphic Message

May 24, 1844

What was the first telegraph message? Sent by inventor Samuel F.B. Morse on May 24, 1844, over an experimental line from Washington, D.C., to Baltimore, the message said: "What hath God wrought?" Taken from the Bible, Numbers 23:23, and recorded on a paper tape, the phrase had been suggested to Morse by Annie Ellsworth, the young daughter of a friend. The success of the experiment would change forever the national communication system. But Morse wasn't just interested in the telegraph.

Morse was also well respected for his paintings of people, like the self-portrait on the previous screen and this one of Mrs. David C. De Forest. He painted his subjects with honesty and insight. It was while returning from Europe to take his position as an arts professor at New York University that Morse came up with the idea of a communications system using the electro-magnet and a series of relays through a network of telegraph stations. In order to transmit messages in this system, he

invented Morse Code, an alphabet of electronic dots and dashes. The system made communication across the country faster than ever before.



Library of Congress

Photograph of Field Telegraph Station in Virginia (1864)

Western Union completed the first transcontinental telegraph line in 1861, dooming the Pony Express, but aiding forces in the Civil War. Mobile telegraph stations, like this one with hastily strung wires, connected scattered military units. President Lincoln kept up with events of the war through frequent dispatches from General George McClellan. One Confederate attack failed when soldiers became tangled up in Union telegraph wires strung from tree stump to tree stump. Morse probably never expected telegraph wires to be a booby-trap!

A generation or two ago, people would send telegrams to announce important news such as a new birth in the family. Ask your family if they have ever sent a telegram.

Edison's Light Bulb

The text and image are from "America's Story from America's Library" by the Library of Congress.

First Public Demonstration of Edison's Light Bulb

December 31, 1879

Can you imagine what life was like before you could simply flip a switch and turn on a light? How would not having electric light affect the way you live your life? In the 1870s, many inventors were working on creating lighting devices, but until Edison became involved, what existed was electric arc lighting. This kind of lighting system was one in which lights were connected in a series circuit, so if one failed, the whole circuit failed. Edison boasted that he would create a safe, reliable, and inexpensive electric light that would replace gaslight.

On December 31, 1879, after years of work and thousands of experiments, Edison gave the first public demonstration of the incandescent light bulb at his laboratory in Menlo Park, New Jersey. An incandescent light has a thread-like object, or filament, that gives off light when heated to incandescence (hot enough to emit light) by an electric current.



Library of Congress

Illustrations of Edison's Menlo Park laboratory where he worked on the electric light bulb

Edison was able to spend so much time on this invention because, thanks to his reputation as a successful inventor, he had the support of some leading financiers of the day. J.P. Morgan and the Vanderbilts established the Edison Light Company and advanced Edison \$30,000 for research and development.

Edison did not work on creating the incandescent electric light alone. He was assisted by Francis Upton, a 26-year-old graduate of Princeton University with a master's degree in science. Upton provided the mathematical and theoretical expertise that Edison lacked. In October 1879, they produced a bulb with a platinum filament. But platinum was too expensive, so instead they found that a carbon filament provided a good light at a cheaper price. Although there were problems with the early incandescent lighting systems for years, Edison's reputation as the world's greatest inventor was firmly established.