

Black History Month

The Ingenuity of Black Inventors

February is Black History Month, and as we observe this celebration of Black people through history, our activity focuses on the ingenious inventions they have contributed to the world. Included is a list of inventors with a brief biography and description of their inventions. There is also some trivia Q & A.

Preparations & How-To's

- This is a copy of the complete activity for the facilitator to present. Check the [Additional Activities](#) section for other ideas to bring to the activity.
- [Pictures](#) can be printed and passed around during the activity or [displayed on a computer or television](#).
- To set the mood, take a look at this [music video celebrating Black inventions](#) called “Black Made That.”



Photo of Lewis Howard Latimer

The Ingenuity of Black Inventors

The contributions of American Black inventors began in the days of U.S. slavery. While slaves were prohibited from owning property, including patents on their own inventions, it didn't halt their innovation and drive to contribute to American progress. Prior to abolition, slaves invented and co-invented products that reshaped industry. Their inventions touched every aspect of the economic markets, from improving farming and transportation safety to enhancing infrastructure, food processing, and telecommunications. Ultimately, U.S. patents could legally be granted to freed slaves after the Civil War, but injustices persisted. Gradually, Black inventors began to win the right to own their inventions, and Black innovation flourished. Their legacy as inventors continues today. But despite the fact that Black people represent a prolific group of innovators, they have gone largely unrecognized through history.

Let's Mention Their Inventions

Following is a list of 15 Black inventors and their contributions to industry. The list is divided into groups of five, with discussion questions after each group.

Invention Innovators

Thomas L. Jennings (1791–1859) was the first Black American to receive a U.S. patent. He invented an early method of dry cleaning called “dry scouring,” which was patented in 1821. This was four years prior to the development of a chemical technique refined by Parisian Jean Baptiste Jolly, who is widely considered the creator of the dry-cleaning business. It was also decades before the Civil War, when Black people were not allowed to own the fruits of their own intellectual properties, but Jennings had a loophole in that he was a free man. He used the profits from his invention to free the rest of his family and donate to abolitionist causes.

Madam C. J. Walker was born Sarah Breedlove in 1867 and endured an impoverished and difficult early life. By the age of 20, she was both an orphan and a widow, but her fortunes changed when she developed her own hair growth formula to address the hair loss she was experiencing. It was created specifically for Black women and was patented. This led to a collection of hair care products and the establishment of beauty schools, salons, and training facilities nationwide. Walker became known as America's first female self-made millionaire.

Jan Ernst Matzeliger (1852–1889) was an immigrant from Dutch Guiana who came to America at a time when the average person could barely afford shoes. He worked as an apprentice in a Massachusetts shoe factory, charged with the task of “lasting.” The lasting process involved sewing the upper portion of the shoe to the sole by hand—an arduous task. Matzeliger changed the shoe-making world by inventing an automated machine that completed this attachment process, resulting in a dramatic increase in production. Prior to his invention, the average worker could assemble 50 pairs of shoes each day. Once his device was refined and implemented into the manufacturing process, that number increased to 700 pairs a day.

Sarah Marshall Boone was born a slave in North Carolina in 1832. It is widely believed that she earned her freedom when she married John Boone, a free African American, in 1847. She and her husband and children migrated to Connecticut prior to the Civil War, using a network tied to the Underground Railroad. There, she became a dressmaker and faced fierce competition. She made a name for herself in 1891 when she improved on the ironing method that prevailed in those times—a wooden plank placed across two chairs. She designed a narrower, curved board that accommodated the contours of her dresses. She also created padding and fitted it with collapsible legs for easy storage. She was awarded a patent in April 1892, and the ironing board was born.

Lewis Latimer (1848–1928) was an inventor in his own right, but he also played an integral role in some famous inventions. Latimer was a member of Thomas Edison's research team for the lightbulb. He also did the draft work for Alexander Graham Bell's telephone, patented to Bell in 1876. Latimer went on to invent and patent a carbon filament to be used in lightbulbs, which was less expensive and longer lasting than the more incendiary materials used that would burn out in just a few days.

Discussion Starters

- Have you ever read about any of these inventors?
- If so, can you share any more about them?
- Have you ever had an idea for an invention?

More Inventors

Andrew Jackson Beard was born a slave on an Alabama plantation in 1849. After he gained emancipation at the age of 15, he worked as a farmer, carpenter, blacksmith, and businessman before finding his niche with the railroad. He received his first patent in 1881 for an improvement to the double plow, a design that allowed the plates to be adjusted at varying distances. Soon after, he patented a second plow featuring blades that could be modified for pitch. He went on to receive two patents for his rotary steam engine designs, but he is best known for his invention of the Jenny Coupler, patented in 1897. This invention improved upon the knuckle coupler invented by Eli Janney, which was a system for connecting railroad cars by manually inserting a pin. After losing a leg in a car coupling accident, Beard developed the idea for the Jenny Coupler, which secured two cars by simply bumping them together. It has likely saved countless lives and limbs.

Garrett Morgan (1887–1963), son of a slave, attained only an elementary school education but went on to develop several significant inventions. Among them were an improved sewing machine, the gas mask, and a protective hood used primarily in the field of firefighting. But his most familiar and notable invention is the three-position traffic light, invented in 1923 and patented the following year. Prior to this, traffic was directed by a two-light system for “stop” and “go.” When he witnessed a serious car accident at a city intersection, he had the idea for a third light—the yellow “yield” light—to caution drivers of an impending stop.

Marie Van Brittan Brown (1922–1999) invented the first surveillance device for home security, known as the closed-circuit television system, or CCTV. Her invention was motivated by the high crime rate and slow police response time in her Queens, New York City, neighborhood in the 1960s. She and her partner, an electronics technician, applied for a patent in 1966, calling it a Home Security System Utilizing Television Surveillance. The invention was the precursor to all advanced home security technology on the market today.

Frederick McKinley Jones (1893–1961) survived a difficult childhood. Two years after his mother deserted the family, his father passed away, leaving 11-year-old Frederick on his own. His education was minimal, but he had a knack for fixing automobiles and became a self-taught mechanical and electrical engineer. He invented a range of devices relating to refrigeration, sound, and automobiles. During his lifetime, he was awarded more than 60 patents, including one for the roof-mounted cooling system used to refrigerate goods transported for long distances on trucks. He received that patent in 1940 and went on to co-found the U.S. Thermo Control Company, which later became known as Thermo King.

Janet Emerson Bashen, born in 1957, is the first Black woman to hold a software patent in the U.S. She was raised in a working-class family and excelled academically, having received her undergraduate degree in legal studies and government before completing graduate studies at Rice University’s Jesse H. Jones Graduate School of Administration. She also has a master’s degree in labor and employment law from Tulane University. She began her professional life in the insurance industry and saw a need for third-party teams to investigate Equal Employment Opportunity (EEO) claims. When her ideas were dismissed by her CEO, she borrowed \$5,000 and started her own EEO complaints-management business. She then joined forces with her cousin, a computer scientist, to develop software to securely store and manage information about her cases. She called it LinkLine and filed for a patent, which was granted in 2006.

Discussion Starters

- What impresses you most about these inventors?
- Which of these inventions do you think has had the most impact on the daily lives of people?
- Is there an everyday problem you have noticed that you wish could be solved by an invention?

Even More Innovators

Martha Jones was the first-known African American woman to be granted a U.S. patent. Her invention husked, shelled, cut, and separated husks from corn in just one step, delivering significant progress in agricultural automation. Due to a fire in 1836, many records were destroyed at the U.S. Patent and Trademark Office, so there is no way to know whether any other patents were filed on behalf of an African American woman prior to Jones.

James Edward Maceo West, was born in 1931 in Prince Edward County, Virginia. In pondering academic pursuits, he was drawn to science, but his parents expressed concern due to prevailing racism toward Black scientists. But he persisted and attended Temple University to study physics. After he graduated, he landed a job as an acoustical scientist at Bell Labs, and he remained there for his entire professional career. He partnered with a colleague in 1960 to develop his idea for the electroacoustic transducer electret (*ih LEK tret*) microphone. He received a U.S. patent in 1962, one of more than 250 patents he would receive for his inventions. By 1968, his electret microphone was in mass production. It is used in 90 percent of microphones currently used in telephones, camcorders, hearing aids, and baby monitors.

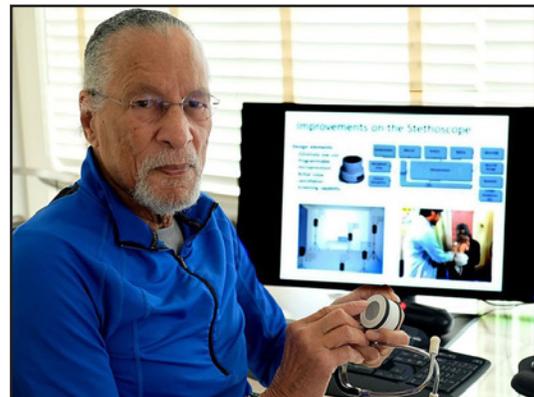


Photo from Sonavi Labs

Dr. Patricia Era Bath (1942–2019) began her life in Harlem, New York. She was the first Black to complete a residency in ophthalmology and the first Black female doctor to receive a medical patent. She is widely considered a pioneer in her field, and her contributions revolutionized medicine. Dr. Bath invented the laserphaco probe, a groundbreaking instrument used to remove cataracts with increased accuracy and minimal invasion of tissue. Prior to her invention, the procedure was performed manually. She received a patent on December 18, 1986. She went on to co-found the American Institution for the Prevention of Blindness, and in 2009, President Barack Obama appointed Dr. Bath to his commission for Digital Accessibility for the Blind.

Mark E. Dean, born in 1957, is credited for his contributions to the development of the first IBM personal computer. He led the team of computer scientists and engineers at IBM in the design of the ISA bus, which is the hardware interface allowing multiple devices such as modems, keyboards, and printers to be plugged into a computer. Dean also helped develop the first color computer monitor and led the programming team that created the world's first gigahertz chip. Currently, he holds three of IBM's original nine patents and owns more than 20 in total. Dean was inducted into the National Inventors Hall of Fame in 1997.

Valerie Thomas was born in Maryland in 1943. From an early age, Thomas was fascinated with technology. She shared an interest in electronics with her father, but unfortunately, he sent her to a school for girls that marginalized the study of math and science. However, her aspirations overcame the obstacles she faced, and she went on to study physics at Morgan State University, where she earned a degree in chemistry. She became a data analyst at NASA in the 1960s. A decade later, she was managing the development of the image-processing systems for LANDSAT, the first satellite to send images from space. Her invention came about in the late '70s, when Thomas began experimenting on an illusion transmitter, which produces optical illusion images through two concave mirrors. She received a patent on October 21, 1980. Her invention has practical applications in space exploration, surgical medicine, and the production of television and video screens.



Trivia Questions and Answers

1. Dr. Charles Richard Drew (1904–1950) was a Black physician who developed and refined methods of collecting, processing, and storing plasma. He is credited with military efforts that grew into the American Red Cross Blood Donor Service, but he eventually resigned in protest. Why?

Answer: He learned that the military separated blood donations according to race.

2. In 1887, Alexander Miles invented a safety improvement for a common convenience in peoples' lives. After his daughter narrowly escaped death from a fall, he was motivated to come up with a solution that would lead to the safer operation of a modern machine. What was his invention?

Answer: Automatic elevator doors. Prior to his invention, elevators were dangerous because riders had to manually shut both the shaft and elevator doors. Too often, people forgot to complete both tasks, and some fell down the shaft as a result.

3. Alfred L. Cralle received a patent in 1897 for his invention, which makes enjoying a banana split much easier. What is it?

Answer: A mechanical ice cream scoop with a squeezable handle. Under the patent it was called an "ice cream mold and disher."

4. Prior to the Civil War, what happened with the inventions of Black enslaved persons?

Answer: Ownership of patents and resulting profits from inventions belonged to their slaveholders.

5. What African American inventor became known as "the Peanut Man" and why?

Answer: George Washington Carver. Carver developed hundreds of new products using peanuts, creating a new market for them. Peanuts were not recognized as a U.S. crop in the late 1890s. However, by 1940, peanuts were one of the six leading crops in the country and the second-most lucrative crop in the South. Carver developed the idea of crop rotation to enrich the depleted soils of cotton fields in the South; he rotated cotton crops with sweet potatoes and peanuts.

Additional Activities

1. Check out this [magician who educates children about Black inventions](#) using magic tricks.
 2. Here is an [interview with Dr. Patricia Bath](#) about her invention of the laserphaco probe.
 3. [This video](#) provides more illustration about some of the inventions presented in the activity.
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