

1) Sarah Boone - ironing board

Sarah Boone created the modern-day ironing board. She was the daughter of enslaved parents and was a dressmaker. Her ironing board was different from others of the time because it had a narrower, curved board. This meant that sleeves could be put into it and a garment could be shifted without getting wrinkled. She added padding to avoid impressions from the wood boards. It was also collapsible. Boone was given a patent for her invention on April 26, 1892.

<https://www.biography.com/inventor/sarah-boone>

2) Marie Van Brittan Brown - home security system

Marie Van Brittan Brown created the first home security system that influenced modern home security systems. Brown was a nurse and her husband was an electronics technician. They lived in Queens, New York City where the crime rate was high. Her security system involved a camera, peepholes, a two-way microphone, monitors, and an alarm button that contacted the police when pressed. Brown's system is still used by small offices, single-family homes, multi-unit dwellings, and small businesses.

This website provides a more detailed description of how her system works.

<https://www.blackpast.org/african-american-history/brown-marie-van-brittan-1922-1999/>

3) Dr. Gladys West - GPS technology

Dr. Gladys West is a mathematician whose work made the Global Positioning System possible. She worked in the U.S. Naval Weapons Laboratory in Dahlgren, Virginia beginning in 1956 until she retired in 1998. While there she worked on the Naval Ordnance Research Calculator (NORC). With others she was able to program the NORC to find the motion of Pluto relative to Neptune in Project 29V. In 1987 she worked with SEASAT, which is the first satellite designed for remote sensing of the Earth's oceans. West and her team used it to measure ocean depths. The GEOSAT satellite used SEASAT and other data to formulate high accurate computer simulations of the earth's surface. Her work allowed modern GPS to be highly accurate.

<https://www.blackpast.org/african-american-history/gladys-mae-west-1930/>

4) Alexander Miles - automatic elevator doors

Alexander Miles invented automatic elevator doors. He was inducted into the National Inventors Hall of Fame. In that article they said "Miles attached a flexible belt to the elevator cage, and when the belt came into contact with drums positioned along the elevator shaft just above and below the floors, it allowed the elevator doors to operate at the appropriate times. The elevator doors themselves were automated through a series of levers and rollers."

<https://www.invent.org/inductees/alexander-miles>

5) James E. West - electret microphone

James E. West and his colleague Gerhard Sessler invented the foil-electret transducer. This microphone was developed to help acoustical psychologists research subtleties of human

hearing. West and Sessler's microphone was accurate, inexpensive, compact, and more sensitive than carbon microphones. The foil-electret transducer is now used as the "basis of sound transmission in most cell phones, hearing aids, professional microphones, and other acoustical equipment."

<http://www.cpnas.org/aahp/biographies/james-edward-west.html>

6) Lewis Latimer - Carbon filament for light bulbs

Lewis Latimer was an inventor and the son of escaped slaves. After his honorable discharge from the US Navy, Latimer worked at the Crosby and Gould patent law office, where he observed the work of draftsmen and taught himself mechanical drawing and drafting. Arguably his most important invention was creating a way to extend the lifespan of light bulbs, which led to the decreased cost and increased efficiency of light bulbs. Latimer used a cardboard envelope to encase the carbon filament of a light bulb, which prevented the carbon from breaking. This allowed the light bulb to emit light for a longer period of time and for the more widespread use of electric lighting.

<https://blackinventor.com/lewis-latimer/>

7) Richard Spikes - automatic gear shift

Richard Spikes was born on October 2, 1878. He has a long list of inventions with patents under his belt, including a self-locking rack for billiard cues, a "trolley pole arrester", and a pantograph for conveying electrical current to trolleys' wires. His most notable is a "shifting device aimed to keep the gears for various speeds in constant mesh, enhancing the turn-of-the-century invention of the automatic transmission". He also invented the automatic brake safety system that was essentially a back up brake system if the normal ones broke, which is still used in some buses. Spikes died at 86 years old on January 22, 1965.

<https://www.blackpast.org/african-american-history/spikes-richard-1878-1965/>

8) John Albert Burr - lawn mower

John Albert Burr was born in Maryland to freed slaves. As a teen he worked as a field hand. Wealthy African Americans around him noticed his skill in inventing and enabled him to attend a private university where he went to engineering classes. Burr patented the rotary lawn mower in 1898. His mower decreased the clogging of grass clippings, which was common in manual lawn mowers at the time. The mower was easily controlled and allowed its users to clip closer to objects.

<https://www.thoughtco.com/green-lawns-john-albert-burr-4072195#:~:text=Black%20American%20Inventor%20Improves%20Rotary%20Lawn%20Mower&text=On%20May%209%2C%201899%2C%20John,improved%20rotary%20blade%20lawn%20mower.&text=John%20Albert%20Burr%20also%20improved,to%20building%20and%20wall%20edges.>

9) Philip Downing - mailbox

Philip Downing patented the street letter box on October 27, 1891. The blue mailboxes that are seen today on street corners are based off of his design. Downing's street letter box was significant because up until that point a person had to make a trip to the post office to mail a letter. With Downing's invention they could now walk to the street letter box and drop their letter in saving a lot of time. He prevented the mail from weather damage by adding a hinged door.

<https://www.blackpast.org/african-american-history/downing-philip-b-1857-1934/>

#### 10) Otis Boykin - pacemaker

Otis Boykin was a black inventor that made multiple improvements to resistors, which led to the first usable implantable pacemaker. He had multiple patents for resistors each one with a different improvement. His very first patent was for a wire precision resistor which "allowed for the designation of a precise amount of resistance for a specific purpose". He also received a patent for an electrical resistor that was easily manufactured, cheap, and able to withstand high temperatures. Boykin's improvements allowed electronic devices to be more reliable and cheap. For pacemakers, his resistors allowed for the precise regulation needed for successful operation.

<https://lemelson.mit.edu/resources/otis-boykin>

#### 11) Alice Ball - the "Ball Method", the first effective treatment to leprosy

Alice Ball received undergraduate degrees in pharmacy and pharmaceutical chemistry from the University of Washington. At the College of Hawaii she was the first woman and first African American to receive a M.S. degree in chemistry. She became a laboratory researcher and focused on Hansen's disease, commonly known as leprosy. Alice was successful in creating the first truly effective treatment to relieve the symptoms of leprosy. Up until then chaulmoogra oil was being applied topically, taken orally, or injected under the skin. Now called the "Ball Method" she "successfully isolated the oil into fatty acid components of different molecular weights allowing her to manipulate the oil into a water soluble injectable form". Alice was given no credit for her work because she died at 24 years old and before publishing her results. A short film called *The Ball Method* was made about her and her work that premiered at the 28th Annual Pan African Film Festival in February 2020.

<https://daily.jstor.org/the-chemist-whose-work-was-stolen-from-her/>

<https://www.biography.com/scientist/alice-ball>

#### 12) Frederick Jones - refrigeration

Frederick Jones used his work experience to learn about electronics and mechanics, which enabled him to make innovations in the cinematic and transportation worlds. In the cinematic universe he made "talking pictures" a reality by giving movie projectors the ability to play back recorded sound. He revolutionized air conditioning in the transportation industry. Jones created a portable air-conditioning unit that proved to be more beneficial than just passenger comfort. Trucks carrying meat and other perishable goods began to use Jones's unit instead of the ice

commonly used during that time. In light of this, Jones created a refrigeration unit that was compact, automatic using his self-starting motor, and shockproof. After the beginning of World War II, Jones invented portable units for the military that was used to carry blood to military camps. In partnership with Joseph Numero, Jones created the company Thermo King that is still operating today.

<https://lemelson.mit.edu/resources/frederick-jones>

<https://www.biography.com/inventor/frederick-jones>

### 13) Granville T. Woods

Granville T. Woods was an African American inventor nicknamed the “Black Edison”. While he was a teen, Woods performed a variety of jobs to support his family, at the expense of his education. When he was older he moved to New York City, where from 1876 to 1878 he studied engineering and electricity. After finishing his courses, Woods moved back to his home state of Ohio where he moved jobs as a mechanic for railroad companies frequently. He eventually created his own company that manufactured and sold electrical apparatus. Of all of his inventions the multiplex telegraph was Woods’s most notable accomplishment. The block system or “induction telegraph” helped prohibit errors by enabling operators to communicate by voice through telegraph wires. He was sued by Thomas Edison who challenged his patent in the lawsuit. From then on he was called the “Black Edison”.

<https://www.biography.com/inventor/granville-t-woods>

### 14) Dr. Hadiyah- Nicole Green - first person to cure cancer with laser technology

Dr. Hadiyah-Nicole Green began doing research with cancer after her aunt and uncle died from the disease. She attended the University of Alabama at Birmingham (UAB) where she received a Ph.D. in physics and became the second African American woman and fourth African American to receive such a degree from UAB. She created her idea about using lasers to treat cancer after reading about laser technology while earning her doctorate. Dr. Green concentrates on utilizing lasers and nanoparticles to create precision cancer therapies that are able to target cancer cells and leave healthy cells unaffected. She was able to cure cancer in laboratory mice using her treatment, thus becoming the first person to use nanoparticles to successfully cure cancer. As with any cancer treatment, it costs a large amount of money. Dr. Green wants to make her treatment affordable and accessible to all via a nonprofit. She founded the Ora Lee Smith Cancer Research Foundation to do just that. Dr. Green was recently given a \$1.1 million grant from the U.S. Department of Veteran Affairs (VA) to continue research of her “4-1 system for early detection, imaging, targeting, and selective treatment of head and neck cancers”.

<https://oralee.org/drgreen/>

<https://www.nbcnews.com/news/nbcblk/dr-hadiyah-green-plans-defeat-cancer-lasers-n741206>