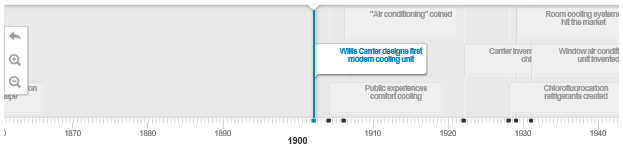
https://www.energy.gov/articles/history-air-conditioning

1902

Willis Carrier designs first modern cooling unit

Willis Carrier invents first modern electrical air conditioning unit as a way to solve a moisture problem for a publishing company.

Carrier Corporation



WE TAKE THE AIR CONDITIONER FOR GRANTED, BUT IMAGINE WHAT LIFE WOULD BE LIKE WITHOUT IT.

Once considered a luxury, this invention is now an essential, allowing us to cool homes, businesses, hospitals, data centers, laboratories and other buildings vital to our economy and daily lives. In fact, air temperature is so important to us that 48 percent of all energy consumption in American homes is a result of cooling and heating, according to the Energy Information Administration.

Like most important breakthroughs, modern commercial and residential air conditioning technology is a result of a series of advancements by scientists and inventors who challenged themselves to come up with creative solutions to problems of the day. Scroll through our interactive timeline above and read on to learn about some of the key milestones in air conditioning history.

THE EVILS OF HIGH TEMPERATURES

In the 1840s, physician and inventor Dr. John Gorrie of Florida proposed the idea of cooling cities to relieve residents of "the evils of high temperatures." Gorrie believed that cooling was the key to avoiding diseases like malaria and making patients more comfortable, but his rudimentary system for cooling hospital rooms required ice to be shipped to Florida from frozen lakes and streams in the northern United States.

To get around this expensive logistical challenge, Gorrie began experimenting with the concept of artificial cooling. He designed a machine that created ice using a compressor powered by a horse, water, wind-driven sails or steam and was granted a patent for it in 1851. Although Gorrie was unsuccessful at bringing his patented technology to the marketplace -- primarily due to the death of his chief financial backer -- his invention laid the foundation for modern air conditioning and refrigeration.

WRINKLED PAGES, REVOLUTIONARY SOLUTION

The idea of artificial cooling went stagnant for several years until engineer Willis Carrier took a job that would result in the invention of the first modern electrical air conditioning unit. While working for the Buffalo Forge Company in 1902, Carrier was tasked with solving a humidity problem that was causing magazine pages to wrinkle at Sackett-Wilhelms Lithographing and Publishing Company in Brooklyn.

Through a series of experiments, Carrier designed a system that controlled humidity using cooling coils and secured a patent for his "Apparatus for Treating Air," which could either humidify (by heating water) or dehumidify (by cooling water) air. As he continued testing and refining his technology, he also devised and patented an automatic control system for regulating the humidity and temperature of air in textile mills.

It wasn't long before Carrier realized that humidity control and air conditioning could benefit many other industries, and he eventually broke off from Buffalo Forge, forming Carrier Engineering Corporation with six other engineers.