



# Heartland Science

Ohio's Legacy of Discovery & Innovation



## Transportation

From the Soapbox Derby to the Jeep

### First Automatic Traffic Signal

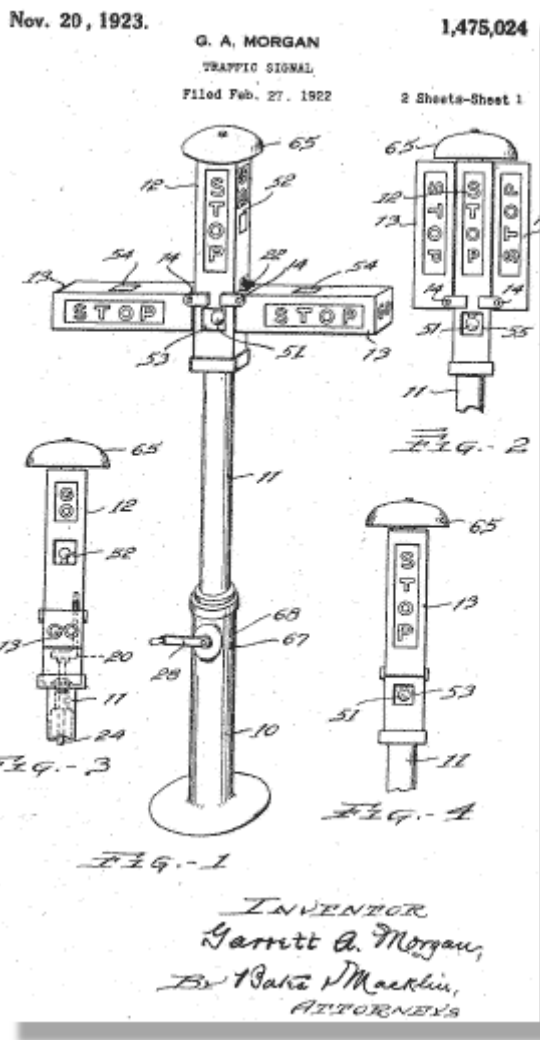
Garrett A. Morgan, an African-American businessman and inventor, invented the first automatic traffic signal in 1923. It brought order and greater safety to city streets congested with the increasingly popular horseless carriages. The first traffic signal was installed in Cleveland at the corner of Euclid Avenue & East 105th Street. Inspiration for the invention came to Morgan as he watched traffic flow on the busy streets of Cleveland. Morgan sold the invention to the General Electric Co for \$40,000, and GE began manufacturing the signals.



Morgan was the son of former slaves, and grew up on a farm in Kentucky. As a teen, he moved to Cincinnati, Ohio. While he never went past elementary school in formal training, he did work with a tutor in Cincinnati. Morgan moved to Cleveland in 1895 and went to work as a sewing machine repairman. His understanding of mechanics helped him both in this trade and also in his memorable inventions. In 1907, he launched his own business that repaired sewing machines and also trained others to do the same. Not a man to focus just on one thing, Morgan started a newspaper in 1920 called the "Cleveland Call." It was during this period that Morgan came up with the idea of the traffic signal.

While colored lights were incorporated later, Morgan's idea was a machine that displayed three versions of signs: "stop" -- "go" -- and an "all-directional stop." The all directional stop was design to allow people to cross the busy streets. While other may have been working on similar ideas at the time, Morgan was the first to acquire a U.S. patent for his work, which was granted on November 20, 1923.

Morgan also contributed to public safety with other inventions. He invented helmets and gas masks used by firefighters in the early 1900's. He also invented a gas mask that was used extensively in 1914 during World War I to protect service people from the effects of chlorine gas fumes.



## Did You Know?

- Morgan invented the first hair straightener which he sold as "Morgan Hair Refining Cream."
- He also designed a "de-curling" comb.
- Morgan invented "zig-zag" sewing machine stitching.

## Find out more...

- [Garrett Morgan: Father of the Stoplight](http://www.nhtsa.dot.gov/kids/safeschool/morgan2.html)  
([www.nhtsa.dot.gov/kids/safeschool/morgan2.html](http://www.nhtsa.dot.gov/kids/safeschool/morgan2.html))
- [Morgan's Patents and Illustrations](http://www.princeton.edu/~mcbrown/display/morgan_patents.html)  
([www.princeton.edu/~mcbrown/display/morgan\\_patents.html](http://www.princeton.edu/~mcbrown/display/morgan_patents.html))