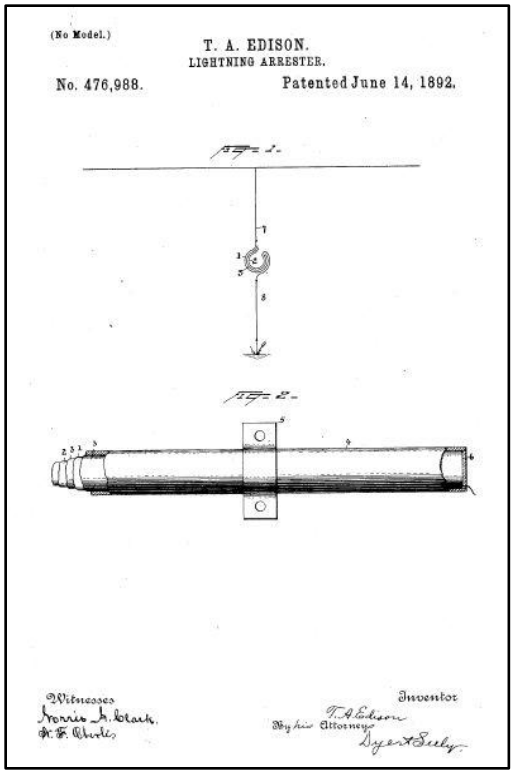
# Thomas Edison's 1892 Arrester Patent

Jonathan Woodworth

**Edison's Prolific Patent History**

On June 14th, 1892, the US Patent office issued patent 476,988 to Thomas Edison residing at Llewellyn Park, NJ. It was applied for in August 1891, not even a year earlier. This was the first and only arrester patent of his lifetime total of 1093 US patents. Thomas Edison was 27 years old when he received his first patent. His first patent was regarding an electric voting machine. It was a flop, but that did not stop him. At the age of 50 he received the arrester patent. Edison died at the age of 89 and never stopped inventing. He was issued several patents as late as 1933, 2 years after he died.

Not only was his list of patents of mammoth proportions, but the subjects were of equal proportion. In 1892, he was issued 64 patents. The titles covered the phonograph, electric meters, an apparatus for separating ores, an incandescent lamp, arc lamp, duplex telegraph, electric railway and many more. He certainly has to be one of the more brilliant humans of all time. One has to wonder how he could be involved at a depth of understanding for so many different types of patents.


(No Model.)

T. A. EDISON.

LIGHTNING ARRESTER.

No. 476,988. Patented June 14, 1892.

Witnesses
Morris A. Stark.
A. F. Chute.

Inventor
T. A. Edison
By his Attorneys
Dyer & Seely

**Figure 1 Patent 476,988, Thomas Edison Lightning Arrester Patent**

**Patent 476,988**

Edison's lightning arrester patent is very consistent with arresters of that time frame. (PDF of Patent) Arresters at that time would be applicable to both power systems and telegraph systems. He does not indicate to which application this arrester is targeted however since it is fundamentally a capacitor, it was probably not suitable for the impulse nature of telegraphs. This device would also be applicable to AC or DC systems. However since it came from Edison, it is most likely targeted for DC applications.

**The Basic Concept**

The concept that is disclosed in this patent is a onetime use, very cost effective lightning arrester. It is a simple condenser type arrester where two plates are separated by a thin insulator. It is an open circuit to DC voltages, but passes impulses. Since lightning usually contains significant energy, it is a sacrificial device that can only be used one time to protect nearby insulation. This arrester contained no series gap.

There you have it, even Thomas Edison, one of the most famous electrical engineers fits into the early years of lightning arrester patent history.

(No Model.)

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Fig. 1.

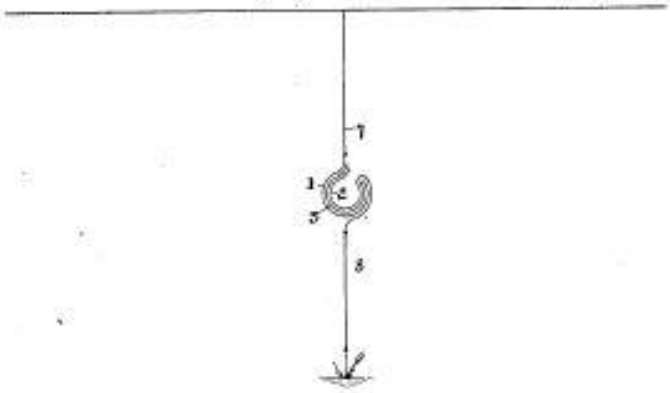
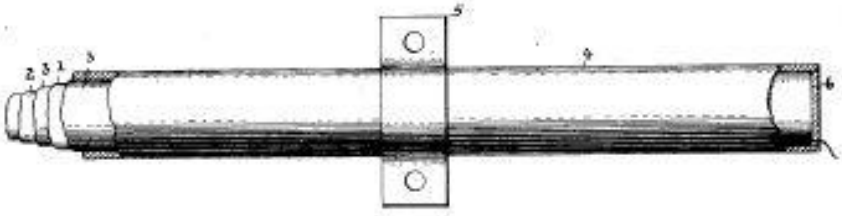



Fig. 2.




Witnesses
Morris A. Black.
H. F. Charles.

Inventor
T. A. Edison
By his Attorneys
Dyer & Seely

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 476,088, dated June 14, 1892.

Application filed August 14, 1891. Serial No. 402,886. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Lightning-Arresters, (Case No. 918,) of which the following is a specification.

The present invention relates to means for protecting electrical circuits and instruments from the destructive effect of lightning and abnormally-high-tension currents; and the object is to provide such a device which shall be certain in operation and exceedingly simple and cheap to manufacture, so that it may be readily and economically replaced after it has been once used.

The device is illustrated in the accompanying drawings, in which—

Figure 1 is a diagram showing the general arrangement of the parts. Fig. 2 is a side view, partially in section, of the arrester.

As the lightning-arrester I employ a device in the form of a condenser. This consists simply of two sheets of metal foil, preferably about a foot square, separated by a sheet of paraffined paper and coiled into a roll, as indicated in Fig. 2.

In Figs. 1 and 2, 1 indicates one of the sheets of foil, and 2 the other sheet, while 3 indicates the insulating-sheet separating and surrounding them. This roll is inserted into a sheet-metal tube or casing 4, which can be secured to any suitable support by means of a band 5. The ends of the tube are closed by water-proof material, (indicated at 6,) through which the wires connected to the two foil sheets may pass.

In using the arrester the sheet of foil 1 is connected to the circuit to be protected by a copper or other suitable wire 7. The other sheet of foil 2 is connected to ground through a long easily-fused wire 8, preferably a lead wire. When lightning strikes the circuit 9, the high potential at the line side of the arrester will break through the paper sheet separating the sheets of foil and will pass to ground over the fusible wire 8. Any current that would pass in this way will ordinarily be sufficient to immediately fuse or burn the wire 8, causing a wide break in the ground branch. At the same time the lightning-arrester is rendered useless; but, owing to its cheapness and simplicity, it can be readily replaced.

What I claim is—

1. The combination, with a circuit, of a lightning-arrester which is destroyed by a single use connected thereto, and a fusible wire in the circuit of said lightning-arrester, said fusible wire being of such conductivity and character that it will be fused by any current that will pass through the lightning-arrester, whereby both the arrester and the fusible wire will be simultaneously destroyed, substantially as described.

2. The combination, with a circuit, of a lightning-arrester which is destroyed by a single use and consisting of sheets of metal foil separated by insulating material, such as paraffined paper, one sheet of the foil being connected to the circuit and another sheet of the foil being connected to ground, said ground connection including easily-fused wire, substantially as described.

3. The combination, with a circuit, of a lightning-arrester which is destroyed by a single use and consisting of sheets of metal foil separated by insulating material, such as paraffined paper, one sheet of the foil being connected to the circuit and another sheet of the foil being connected to ground, one of said connections including easily-fused wire, substantially as described.

4. The combination, with a circuit, of a lightning-arrester which is destroyed by a single use and consisting of sheets of metal foil separated by insulating material, such as paraffined paper, a water-tight inclosing case, one sheet of the foil being connected to the circuit and another sheet of the foil being connected to ground, one of said connections including easily-fused wire, substantially as described.

This specification signed and witnessed this 31st day of July, 1891.

THOS. A. EDISON.

Witnesses:
JOHN F. RANDOLPH,
FREDERICK OTT.