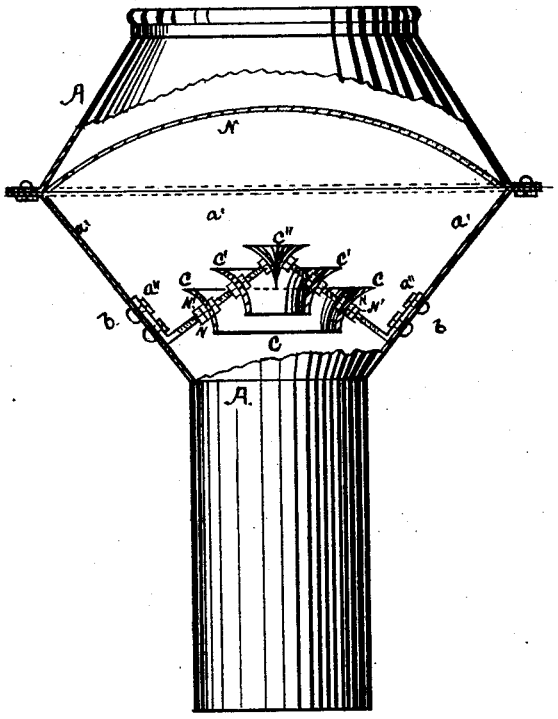
C. G. ROBERTS.

Spark-Arrester.

No. 162,498. Patented April 27, 1875.



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UNITED STATES PATENT OFFICE.

CYRUS G. ROBERTS, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **162,498**, dated April 27, 1875; application filed October 26, 1874.

To all whom it may concern:

Be it known that I, CYRUS G. ROBERTS, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and which represents a vertical section of a smoke-stack with my spark-arrester attached within the same.

The objects of my invention are to produce a spark-arrester that will so disseminate the sparks over the whole surface of the smoke-stack, between the netting and the smoke-pipe, that it will be evenly worn and the sparks reduced in size; and, also, to still further reduce the sparks in size, so that when they escape through the netting there will be small danger of fire being produced by them; and it consists of a series of inverted sections of cones so placed that the smallest section is at the top, and the largest section at the bottom, of the series.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

A represents an ordinary smoke-stack for locomotives. C C′ C″ represent a series of inverted sections of cones, placed one above the other, with the smallest one at the top, and sustained on the screw-bolts B B in above position by the nuts *n n*, and the nuts securing the largest section are secured by the lock-nuts *n′ n′*. N is the wire netting in top of stack. *b b* are bolts securing the screw-bolts to lower flare of stack. The series of sections are so placed that all sparks must impinge against some portion of their surfaces—as the largest diameter of the section C, which is the section first in the series, is greater than the diameter of the smoke-pipe, and the largest diameter of the section C′ is greater than the smallest diameter of the section C, and thus through the series until the top one C″ is reached, which is a cone itself having a diameter greater than the smallest diameter of the section C′ immediately below it—and by such impingement will be reduced in size and directed against the lower flare of the smoke-stack, between the points *a′ a″*, which causes them to be reduced still further, and to escape through the netting with the draft. When sparks of a large size strike against the netting they drop back to the smoke-pipe and are redirected against the series until they are sufficiently small to pass through the netting, where they do no damage, having been so reduced. The netting used in connection with the invention is slightly heavier than ordinarily used.

By the use of this spark-arrester the sparks are so reduced that they do no damage, and the whole of the inside surface of the lower flare, between the points *a′ a″* and the netting, is evenly worn, and thus a saving is made, as other spark-arresters either wear the lower flare in a narrow circle or throw out the sparks so large through a top grate that fires are often created, and do much damage.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A spark-arrester, consisting of a series of inverted sections of cones, one above the other, in which the greatest diameter of its lower section exceeds the diameter of the smoke-pipe, and the greatest diameter of each succeeding section exceeds the smallest diameter of the section immediately below it, and whose top section is a cone, with the same relation existing between its greatest diameter and the smallest diameter of the section immediately below it, substantially as described.

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