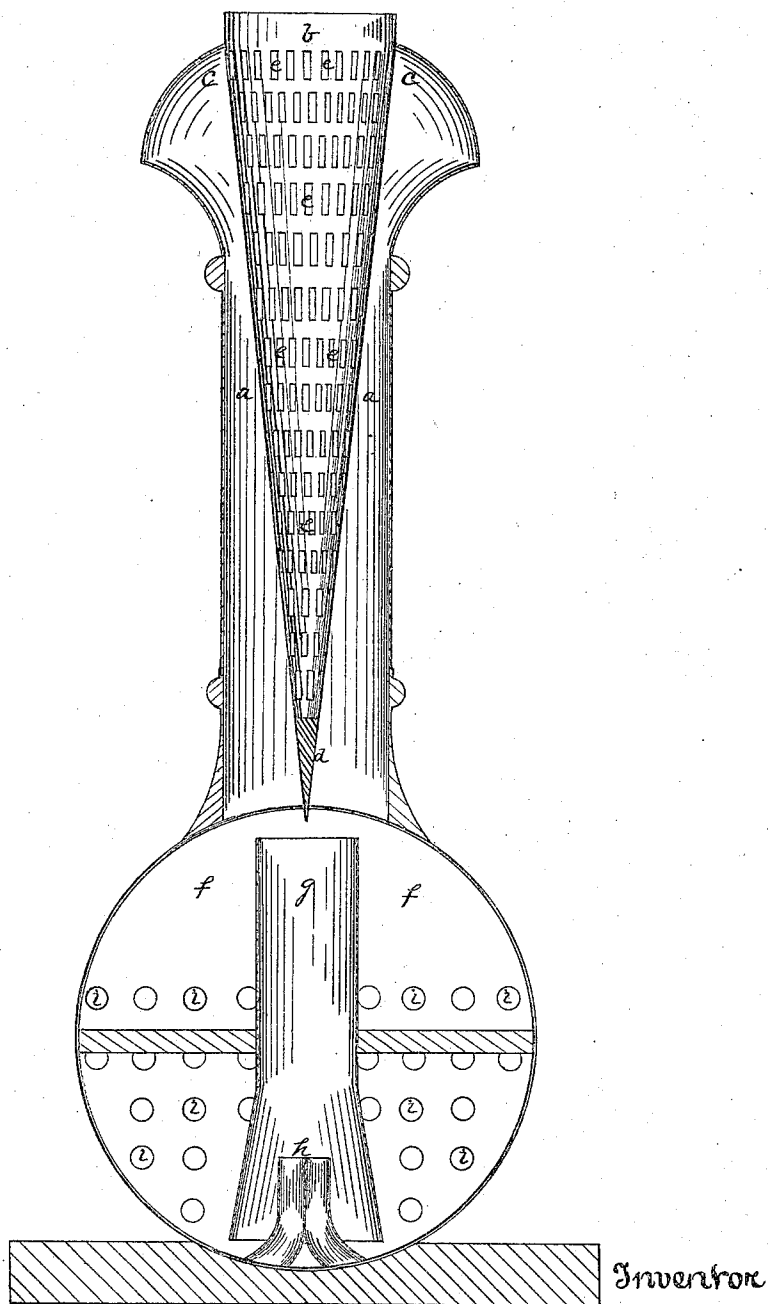


C. B. STREET.

Improvement in Spark-Arresters.

No. 130,827.

Patented Aug. 27, 1872.



Witnesses

James L. Kay.  
E. C. Titler

Inventor

Charles B. Street  
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His Attys

# UNITED STATES PATENT OFFICE.

CHARLES B. STREET, OF BLAIRSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. 130,827, dated August 27, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, CHARLES B. STREET, of Blairsville, in the county of Indiana and State of Pennsylvania, have invented a new and useful Improvement in Spark-Arrester; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, and which is a vertical sectional view of my improvement.

My invention consists in the following described and claimed device, by which I am enabled to secure the perfect pulverization of all sparks, cinders, &c., in the smoke-stacks of locomotive-engines, so that when they escape into the atmosphere they are immediately extinguished by the contact therewith.

In the stack *a*, which is of a common form, I place an inverted cone or cone-shaped pipe, *b*, which I secure to the cap or mouth *c* of the stack, and in such a way as to leave little or no opening around it. The cone or pipe *b* is made with numerous perforations, *e*, extending from the top down nearly to the lower end, which is closed by the solid shoe or cone point *d*. The lower end or cone-point *d* of the pipe *b* extends down to or nearly to the smoke-chamber *f*, and stands, preferably, just in front of the upper end of the "petticoat" or "lift" pipe *g*. Projecting up into the lift-pipe *g* is the steam or exhaust pipe *h*. The smoke, &c., enter the smoke-box through the apertures or flues *i i*.

The operation is as follows: The smoke and cinders are drawn into the smoke-chamber *f*, and from thence cast up into the stack *a* by the force of the exhaust; the smoke and fine cinders pass out through the perforations *e e*, and the coarser cinders, striking against the pipe *b* with great force, are broken up and fall back toward the smoke-box, when they are caught by the next jet of steam and again thrown against the perforated pipe, the fine

forced through and the coarse falling back, as described.

While it is immaterial what may be the longest dimension of each perforation or opening *e* the shortest dimension should be such as will secure the object in view—viz., permit of the escape of the fine cinders or sparks and prevent the escape of those which are of such size as may be thought to endanger combustible articles; such as dried grass, leaves, wood, &c. Such minimum dimension may be from one to three-eighths of an inch, more or less.

This operation goes on continuously with such effect that no cinders or soot remain in the box *f*, thus obviating the necessity of cleaning out the stack and box.

It will be observed that there is no way of escape through the perforations *e*, and that after passing through them the sparks must be very small, so that, in fact, they are extinguished by contact with the atmosphere, and, therefore, can do no harm.

By the extension of the pipe *b* down in the stack I secure an extended area or surface of escape, and thereby the complete and untrammelled operation of the exhaust.

This invention can be applied to all or nearly all the forms of stacks now in use and operate with good effect.

What I claim as my invention, and desire to secure by Letters Patent, is—

The inverted cone-shaped pipe *b* having perforations *e e* and closed at its smaller end, also connected at its larger end with the stack *c*, substantially as described, with reference to preventing the escape of the cinders from the stack except through the perforations, as set forth.

In testimony whereof I, the said CHARLES B. STREET, have hereunto set my hand.

CHARLES B. STREET.

Witnesses:

A. S. NICHOLSON,  
JAMES I. KAY.