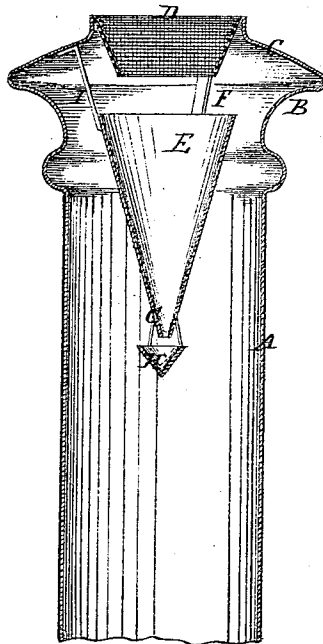


H. F. REINER.

Improvement in Spark Arresters.

No. 123,420.

Patented Feb. 6, 1872.



Witnesses:

Chas. Nida
Francis McCord

Inventor:

H. F. Reiner
PER *Munn & Co*
Attorneys.

UNITED STATES PATENT OFFICE.

HERMAN F. REINER, OF BLAIRSVILLE, PENNSYLVANIA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. 123,420, dated February 6, 1872.

Specification describing a new and Improved Locomotive Spark-Arrester, invented by HERMAN F. REINER, of Blairsville, in the county of Indiana and State of Pennsylvania.

My invention consists in a wire screen in the form of a frustum of a cone, which is inverted and attached to the mouth of the smoke-stack by its base, so as to extend downward therefrom to within a short distance of the base of an inverted funnel used for deflecting the sparks against the top of the stack, arranged suitably therefor, and receiving them from the sides of the screen after the force with which they are carried up is arrested; and below this funnel, which has a hole at the bottom, is an inverted conical cup, into which the sparks are received, to be again delivered to the blast and forced up to the top of the stack, as before, to be extinguished and broken, so as to be carried off through the screen with the smoke, this operation being repeated until the sparks are fine enough for being so carried off and the fire extinguished.

The apparatus is specially designed for application to straight or cylindrical smoke-stacks, which are very much more preferable than those with the flaring tops.

The drawing represents a sectional elevation of my improved spark-arrester.

A is the smoke-pipe or stack, with a flared top, B, on which is a wide ring, C, with a discharge-opening at the center slightly smaller than the pipe A. Said ring slopes upward from the edge B, to which it is joined at the base, so as to be perpendicular to the direction of the blast for imparting the greatest shock to the sparks. D is a wire screen in the form of the frustum of a cone. It is inverted, and its base is attached to the ring C in the discharge-opening, so that said screen extends downward into the smoke-stack. E is an inverted

hollow cone suspended from the ring C by rods or bars F, with its base a little below the mouth of screen D, and it has a small opening, G, at the lower end, below which is suspended a cup, H. These cones H and E spread the blast to the annular space surrounding them, and so that it strikes on the under side of the ring C, and the momentum of the sparks is arrested thereby; they are also at the same time broken up, but the blast has sufficient force to carry them against the sides of the screen D, where they are also broken and, to some extent, extinguished. From the sides of the screen the sparks readily fall into the hollow cone E, there being no upward draught directly over it, and from said cone they are delivered directly in an annular current over the edge of the cup H to the blast from below again, and forced against the ring C and screen to be still further crushed and extinguished, and so on until they are sufficiently pulverized to pass off through the screen with the smoke, at which time they will be wholly extinguished.

By this arrangement of apparatus I produce a most efficient spark-arrester, that will prevent the escape of any considerable sparks or cinders.

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

The wire-screen frustum D, inverted and attached to mouth of a flaring smoke-stack, A B C, in combination with inverted and pendent funnel E and cup H, when all are constructed and arranged as and for the purpose described.

HERMAN F. REINER.

Witnesses:

JOHNSON J. MILLER,
S. R. RUTLEDGE.