E. & C. S. OSBORN.

Spark-Arrester for Locomotives.

No. 205,806. Patented July 9, 1878.

Fig. 1.

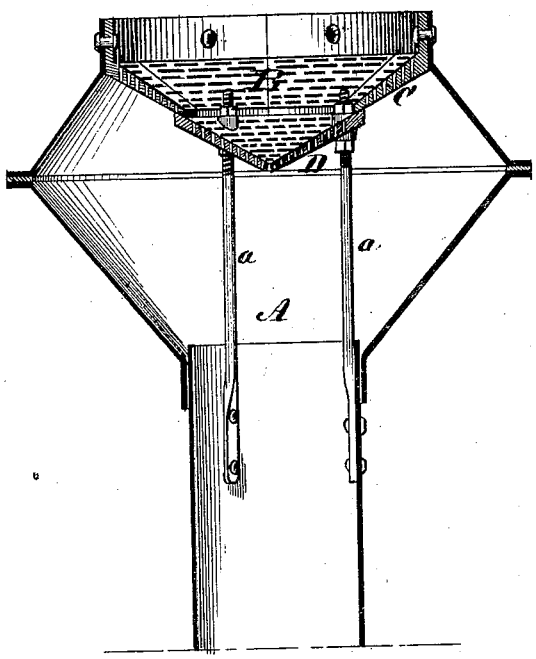


Fig. 2.

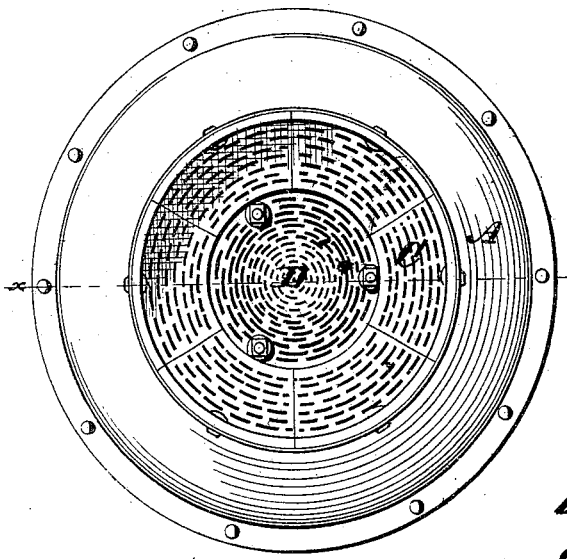


Fig. 3.

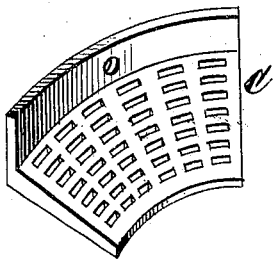
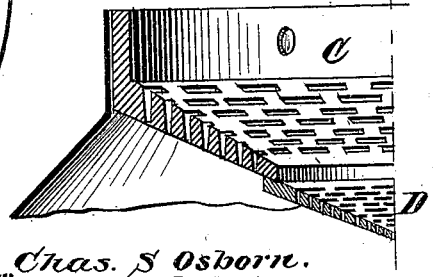


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD OSBORN AND CHARLES S. OSBORN, OF NEWTON, NEW JERSEY.

IMPROVEMENT IN SPARK-ARRESTERS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. **205,806**, dated July 9, 1878; application filed November 1, 1877.

To all whom it may concern:

Be it known that we, EDWARD OSBORN and CHARLES S. OSBORN, of Newton, Sussex county, New Jersey, have invented an Improvement in Spark-Arresters for Locomotives; and we do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of our invention. Fig. 2 is a top view. Fig. 3 is a view of one of the sections; and Fig. 4, an enlarged vertical sectional view, showing the perforations more clearly.

Our invention relates to an improvement upon the device secured to us by Patent No. 160,614, dated March 9, 1875; and it consists in forming a spark-arrester of an inverted truncated cone secured in the exit-orifice of a smoke-stack with an inverted conical point, adjusted in place by means of rods secured to the cylindrical part of the smoke-stack, the whole provided with inverted conical rectangular holes graduated in size from the center to the circumference.

In the drawings, A represents the smoke-stack of a locomotive, and B the spark-arrester. The spark-arrester B is an inverted cone consisting of the truncated part C and point D. The base or truncated part C is secured in the top or exit-orifice of the smoke-stack, and it may be cast in six or more sections, as shown, or it may be cast in one piece. It must, however, fill the exit-orifice in the top of the smoke-stack, and may be secured by bolts to the flange or rim of the top of the stack. The point D is secured in place, and adjusted upon rods *a a* extending up from the sides of the cylindrical part of the smoke-stack, and provided with screw-thread washers and nuts, as shown.

It will be observed that when the parts C and D are properly secured in their places there is no exit for the smoke and sparks except through the conical orifices entirely filling the cone B. The form of these orifices is rectangular, and they increase in size from the center or apex of the point D to the circumference of the base C. The size and proportion of increase of said holes are about as follows: The center ones may be about one inch long, one-sixteenth of an inch wide, and the outer ones four inches long and three-sixteenths of an inch wide, the intermediate ones being in the above proportion. The orifices are also conical in form—that is, smaller on the inside than on the outside surface of said cone B—forming inverted rectangular conical orifices when in use.

The advantages of our improved spark-arrester are, that as the arrester completely fills the exit-orifice of the smoke-stack all the sparks are compelled to go through the tapering holes of the cone, and as the tapering holes prevent clogging they always afford sufficient draft, and yet allow said holes to be so small that what sparks do escape can do no damage, the force of the exhaust sending them so far into the air above the engine that they are soon extinguished.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In a spark-arrester, the combination of the inverted truncated cone C, secured in the exit-orifice of a smoke-stack, with the inverted conical point D, adjusted in place by means of the rods *a*, the whole provided with inverted conical rectangular orifices graduated in size from the center to the circumference, substantially as described.

The above specification of our said invention signed and witnessed at Newton this 20th day of October, A. D. 1877.

EDWARD OSBORN.
CHARLES S. OSBORN.

Witnesses:
CHARLES ARVIS,
S. S. COOK.