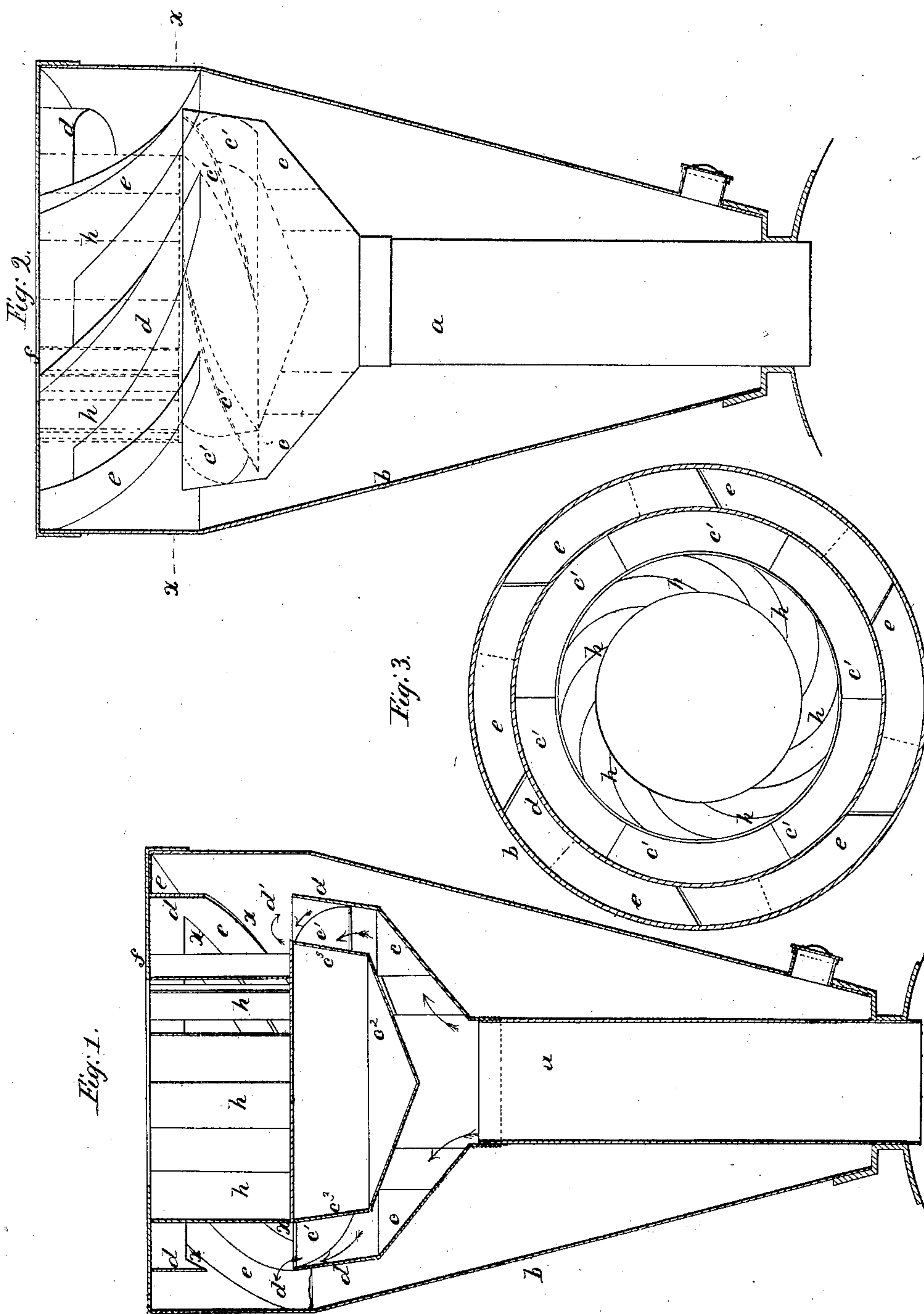


*A. McCleary,*

*Spark Arrester.*

*N<sup>o</sup> 6,187.*

*Patented Mar. 13, 1849.*



# UNITED STATES PATENT OFFICE.

ANDREW McCLEARY, OF PHILADELPHIA, PENNSYLVANIA.

## SPIRAL SPARK-ARRESTER.

Specification of Letters Patent No. 6,187, dated March 13, 1849.

*To all whom it may concern:*

Be it known that I, ANDREW McCLEARY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spark-Arresters, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawing, in which—

Figure 1, is a vertical section through the axis of the pipe. Fig. 2 a section of the outside pipe with the interior portions transparent in blue, red and black lines. Fig. 3, is a sectional plan on line  $x, x$ .

The construction and operation of my improvement are contained in the following description, the parts being, first, an inside or smoke pipe ( $a$ ,) similar to that used in ordinary engines, around which there is an outside pipe or jacket ( $b$ ,) in the form of an inverted cone which in connection with the inside pipe ( $a$ ,) forms a reservoir for sparks and cinders, such as is found in many structures for the same purpose. At the top of the inside pipe ( $a$ ,) there is an expansion ( $c$ ,) that extends out to a proper distance, and the sides ( $d$ ,) again rise nearly perpendicular, but a little flaring to the top of the outer jacket, with which they are joined by a flat ring ( $f$ ,) leaving an equal space all around between them. Over the center of the pipe ( $a$ ,) and within the enlargement just named, an inverted obtuse cone ( $c^2$ ,) is suspended, with its vertex directly over the center of the pipe ( $a$ ,); from the base of the cone a projection ( $c^3$ ,) in the form of an acute truncated cone, rises about one third the distance toward the top, upon the top of which the lower ends of a series of wings ( $h$ ,) are fastened, and extend up to the top in a straight line, their faces being curved and overlapping, as seen in the red lines Fig. 3, their elevation being repre-

sented at Figs. 1 and 2. The space between the cone ( $c^3$ ,) and the lower part of the partition ( $d$ ,) outside of it, is occupied by inclined wings ( $c'$ ,) formed like the thread of a screw, and winding around from the bottom to the top of the cone, so as to give the smoke and sparks a gyrating motion, and thus cause the sparks to be thrown outward; from the top of the cone ( $c^3$ ,) and opposite the wings ( $h$ ,) the partition ( $d$ ,) is pierced with oblong openings ( $x$ ,) cut in an inclined position, said inclination being in a direction opposite to the inclination of the wings ( $c'$ ,) that are just below; these are for the purpose of receiving the sparks through into the outer jacket, the direction being shown in Fig. 1, by arrows; when the sparks are in the said jacket, they become deposited below, being aided in their downward course by the wings ( $e$ ,) formed somewhat similar to those lettered ( $c'$ ,) before described, and placed just behind the openings ( $x$ ,) between partition ( $d$ ,) and the outer jacket. The smoke, thus deprived of the sparks, turns inward toward the center, passing through the upright wings ( $h$ ,) and escapes. By this construction of parts a peculiar direction is given to the currents, counter currents, and eddies, so that the cinders and sparks are all thrown outward, and lodged in the outer jacket; and the smoke turning inward freely passes off.

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

The combination of the chamber containing the wings ( $c'$ ) and wings ( $h$ ) with the openings  $x$  and volutes ( $e$ ), in the manner and for the purpose described, by means of which I am enabled to make sufficient eddies and throw down the sparks more perfectly than by any other arrangement with which I am acquainted.

ANDREW McCLEARY.

Witnesses:

O. A. NORRIS,  
MARK HARPER.