W. J. Mehary,

Spark Arrester,

No. 63,411. Patented Apr. 2, 1867.

Fig. 3

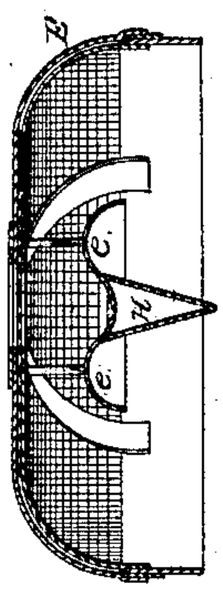


Fig. 4

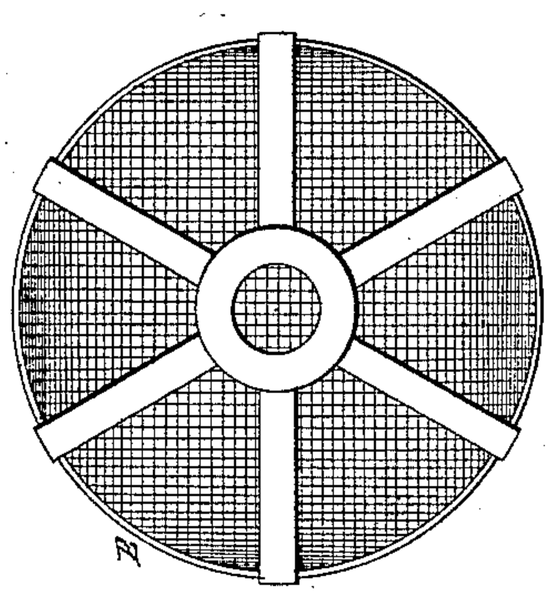


Fig. 2

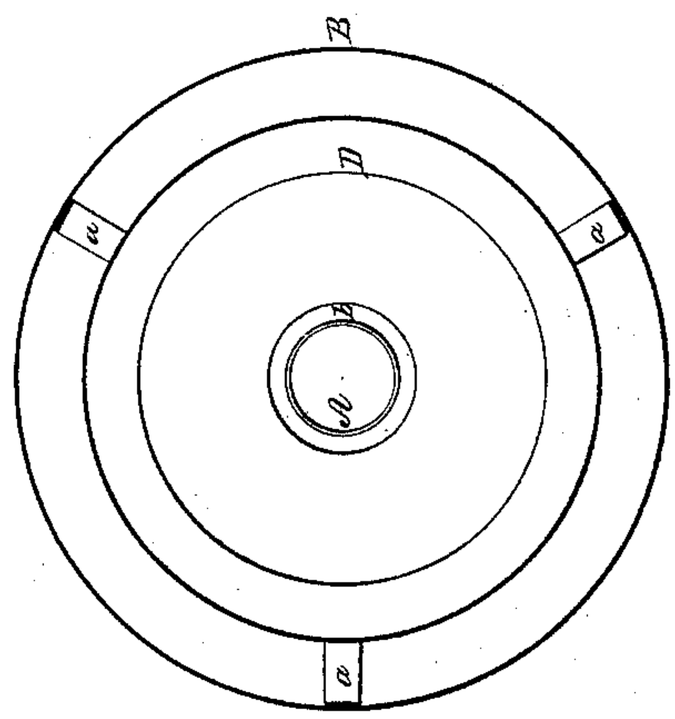
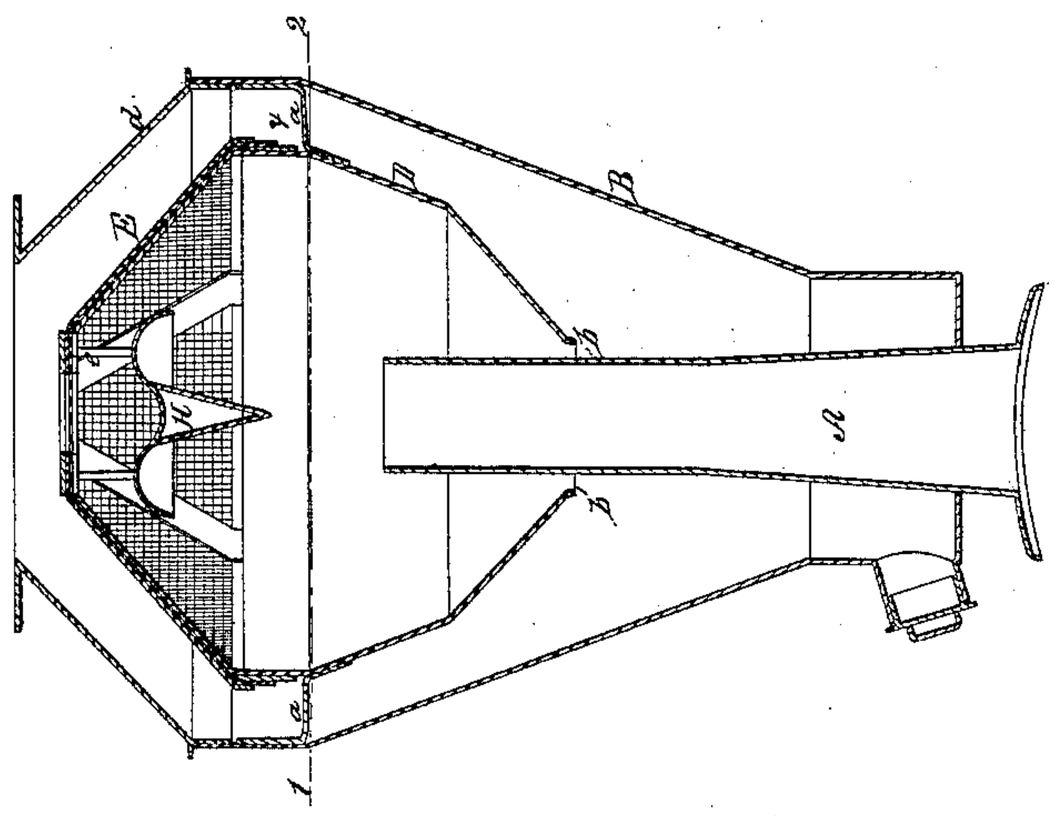


Fig. 1



Witnesses;
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By his attorney
H Howson

United States Patent Office.

WILLIAM J. MEHARY, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 63,411, *dated April* 2, 1867.

IMPROVEMENT IN SPARK ARRESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. J. MEHARY, of Philadelphia, Pennsylvania, have invented an improved Spark Arrester; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists of a spark arrester, constructed in the peculiar manner fully described hereafter, in order that the sparks may at once reach the reservoir, and in order that they may present no obstruction to the free escape of the steam.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation. On reference to the accompanying drawing, which forms a part of this specification—

Figure 1 is a vertical section of my improved spark arrester.

Figure 2, a sectional plan on the line 1–2, fig. 1; and

Figures 3 and 4, views illustrating a modification of part of the spark arrester.

Similar letters refer to similar parts throughout the several views.

A represents the chimney of a locomotive, and B the outer casing of the spark arrester, this case being similar in form to those of ordinary construction. Within the outer casing is secured, by any suitable number of strips, *a*, an inner casing, D, which is of the tapering form represented, and terminates at the lower end in an opening for the reception of the upper end of the chimney A, there being between the latter and the edge of the opening an annular space *b*, two inches wide, or thereabouts, for a purpose rendered apparent hereafter. The inner casing D is surmounted by a frame, E, covered with wire gauze; this frame being made either in the form represented in fig. 1 or that shown in figs. 3 and 4. From the apex of this frame, and within the same, is suspended, by rods *e*, the deflector H, which is situated directly above the chimney. Of the sparks discharged with other products of combustion, and with the waste steam, the majority will be impelled with violence against the deflector H, will rebound therefrom against the sides of the inner casing, and, sliding down the latter, will pass through the annular space *b* into the reservoir below. Other ignited particles will strike the gauze covering of the inner casing, and will take the same course. Others again will pass through the meshes of the wire gauze, strike the upper portion *d* of the outer casing B, and pass down the annular space between the inner and outer casings to the reservoir below. It is important, in constructing spark arresters, that while there is a free escape for the exhaust steam, there should be the least opportunity for an escape of the sparks. In many spark arresters a lodgment is afforded for the sparks on the wire gauze, the meshes of which are "gummed up," as it is technically termed, thereby obstructing the free escape of the steam. In my improvement the sparks after escaping from the chimney are at once disposed of, such as fall within the inner casing passing directly through the annular opening *b*, and such as pass through the gauze having a free and open annular space between the inner and outer casings through which to fall to the reservoir.

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

The inner casing D, its wire gauze cover E, deflector H, the casing B, chimney A, and the annular opening *b*, the whole being constructed and arranged substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM JAS. MEHARY,

Witnesses:

WM. HALL WAXLER,

W. J. R. DELANY.