

B. ALBERTSON.

Spark-Arresters for Locomotives.

No. 151,553.

Patented June 2, 1874.

Fig. 1.

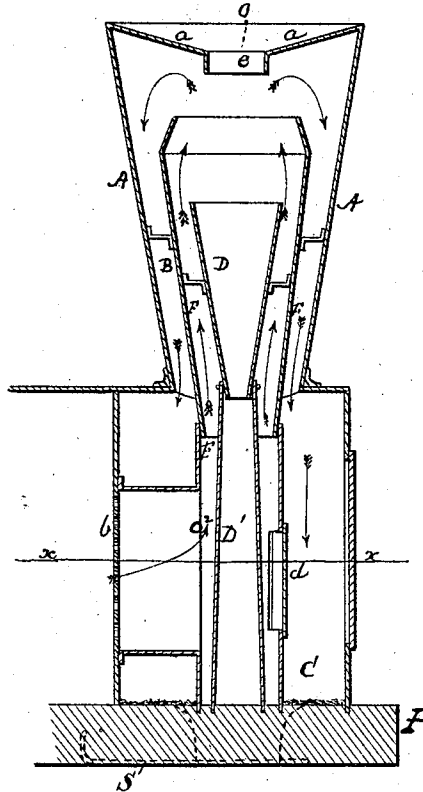
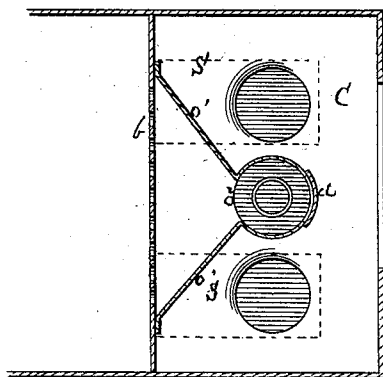


Fig. 2.



Witnesses.

O. T. Brown
Melville Church.

Inventor
B. Albertson.
by his Attys.
Hill & Edwards

UNITED STATES PATENT OFFICE

BENJAMIN ALBERTSON, OF TRENTON, NEW JERSEY, ASSIGNOR TO WILLIAM R. ALBERTSON, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN SPARK-ARRESTERS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. **151,553**, dated June 2, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that I, BENJAMIN ALBERTSON, of Trenton, in the county of Mercer and State of New Jersey, have invented a new and Improved Spark-Arrester for Locomotives; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of my improved spark-arrester, and Fig. 2 is a horizontal section of the same in the line *x x*, Fig. 1.

Similar letters of reference in the accompanying drawings denote the same parts.

The object of this invention is to prevent the escape of sparks from the smoke-stack of a locomotive; and to that end the invention consists in providing the smoke-flue of the spark-arrester with an opening in its side, into which the products of combustion are deflected and concentrated by two inclined planes, arranged at the sides of the opening, and are conducted into the smoke-flue, and between its inner face and an interior hollow deflector, formed of the frustums of two hollow cones in juxtaposition at the smaller ends, and thence upward, where the sparks and cinders are arrested by the inclined faces of the top of the smoke-stack, provided with an orifice for the escape of smoke, and are deflected downward thereby into a chamber at the head of the boiler, the former having sliding doors in its bottom for the removal of the cinders when necessary.

In the drawings, A represents the smoke-stack, covered, except over the center, by an inverted conical top, *a*, which may or may not be turned down around the central opening *o* to form a flange, *e*, as shown. F is the smoke-flue within the stack A, having its upper end somewhat larger than the opening *o*, and its lower end suitably supported and connected with the boiler-flues, so as to give the necessary upward draft through the smoke-flue, and out through the opening *o*; and D is an inverted conical deflector, arranged within the smoke-flue, and having its upper end sufficiently large to guide the rising cinders outward, and cause them to strike against the top *a*, be thrown outward thereby, and fall

through the passage B into the chamber or receptacle C at the head of the boiler. The smaller end of the inverted conical deflector D is supported by the conical deflector D', the ends of the deflectors D D' being connected by a bayonet-joint or other similar fastening. The lower end of the deflector D' is supported by the plate P at the bottom of the chamber C. *o*² is an opening in the smoke-flue F, to the vertical sides of which are suitably attached the inclined planes *o*¹ *o*¹, which extend to the boiler-plate *b*, provided with perforations for the passage of the products of combustion. The inclined planes *o*¹ *o*¹ concentrate and deflect the products of combustion into the opening *o*² in the smoke-flue. S S are sliding doors in the bottom of the chamber C, by means of which the cinders may be removed when desired.

Inasmuch as cinders are liable to collect in the conical deflectors D D', and must occasionally be removed therefrom, I extend the deflector down to the bottom of chamber C, so that the workmen can get at it through such chamber, and through a suitable door, *d*, in the lower end of the smoke-flue, provided for the purpose. I also make the lower end of the deflector in the form of an independent conical segment, D', which, when removed, will allow the accumulated cinders to fall into the lower end of the smoke-flue, whence they may be raked into the chamber C; or, by means of a trap-door at the lower end of flue F, the cinders may be caused to drop directly to the ground.

The elongation of the deflector D not only renders its lower end accessible through chamber C, but diminishes its resistance to the ascending smoke-sparks, &c., and causes it to fulfill simply the purpose of a guide, for which alone it is intended.

The lower end of the deflector may be supported by a tripod placed in the lower end of the smoke-flue, or it may be supported in any other suitable manner.

The exhausts are, of course, directed into the smoke-flue, as usual.

Having thus described my invention, what I claim as new is—

1. The smoke-flue F, provided with an open-

ing, o^2 , in its side, and inclined deflecting-planes $o^1 o^1$, substantially as described, and for the purpose set forth.

2. The smoke-flue F, provided with an opening, o^2 , and inclined planes $o^1 o^1$, in combination with the deflectors D D', smoke-stack A, and chamber C, having sliding doors S S, sub-

stantially as described, and for the purposes set forth.

BENJAMIN ALBERTSON.

Witnesses:

ALFRED REED,

JOHN T. TEMPLE.