J. H. CARR.

Spark-Arresters.

No. 158,904. Patented Jan. 19, 1875.

Fig. 1.

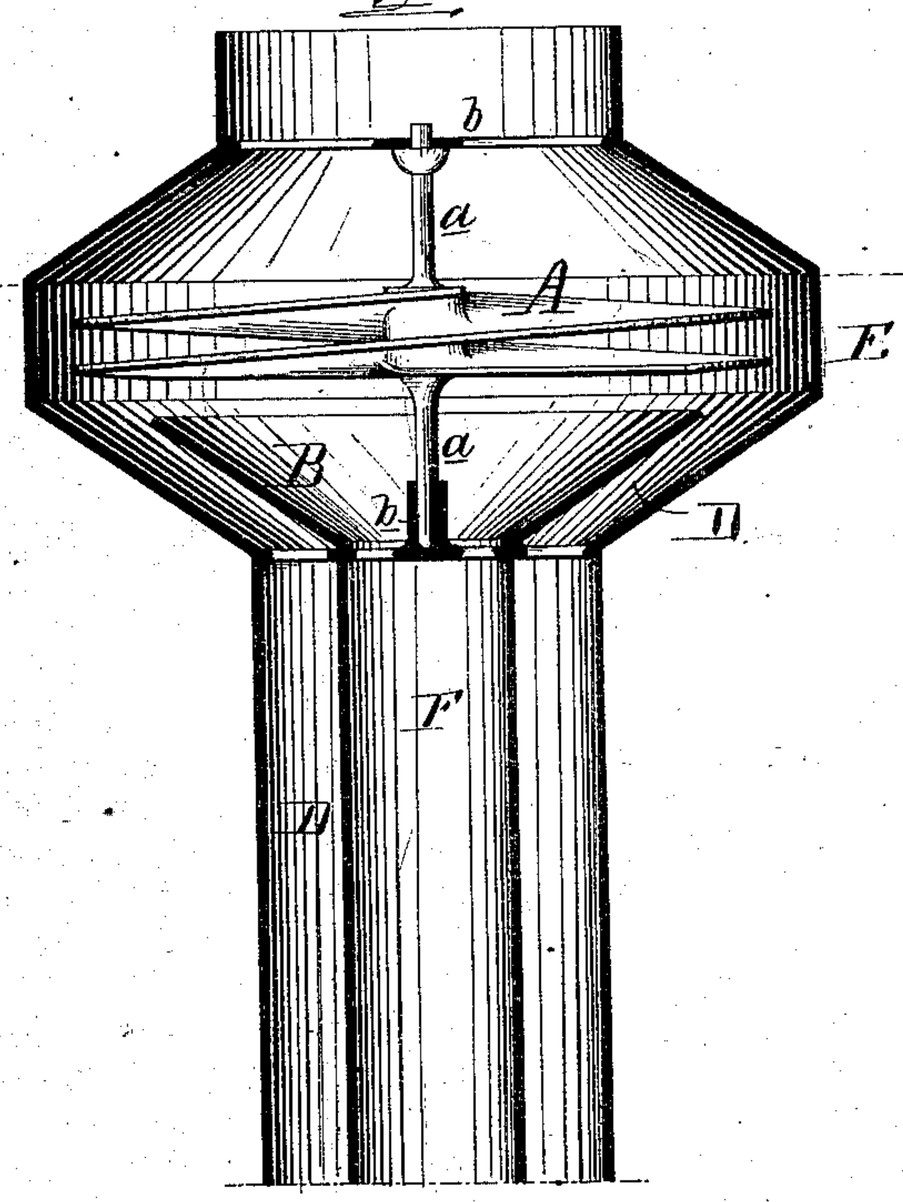
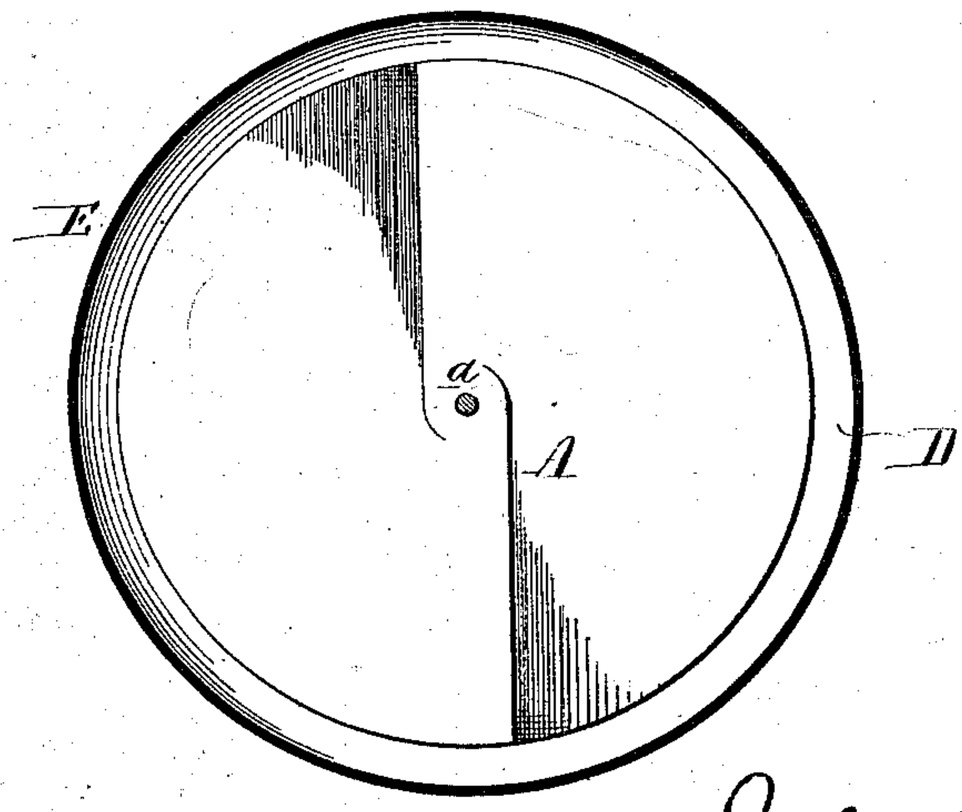


Fig. 2.



Witnesses, Hubert Howson
Thomas McIlvain

John H. Carr
by his Attys
Howson and Son.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN H. CARR, OF PALO ALTO, PENNSYLVANIA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **158,904**, dated January 19, 1875; application filed August 12, 1874.

To all whom it may concern:

Be it known that I, JOHN H. CARR, of Palo Alto, Schuylkill county, Pennsylvania, have invented an Improved Spark-Arrester, of which the following is a specification:

The object of my invention is to arrest the sparks in a locomotive smoke-stack without interfering with the draft, by combining with the smoke-stack a deflecting-wheel, A, with spiral vanes, a funnel-shaped guard, B, and an annular passage or receptacle, D, for the sparks, all as fully described hereafter, and as represented by the sectional elevation, Figure 1, and sectional plan view, Fig. 2, of the accompanying drawing.

The deflecting-wheel A may be made of sheet-iron, or other suitable material; has spiral vanes, of the form represented; is arranged within the enlarged upper end or outer casing E of the stack, and is secured to a short vertical spindle, *a*, adapted to suitable bearings *b b*, so that the wheel will turn in a horizontal plane. Immediately beneath this deflecting-wheel is a funnel-shaped guard, B, open at the top, and forming a continuation of the stack proper E, an annular passage or chamber, D, intervening between the inner and outer casings of the stack.

The smoke, sparks, and other products of combustion are impelled upward through the stack F, and strike the under side of the deflecting-wheel A, to which a rapid rotating movement is consequently imparted. The smoke and gases pass upward through the wheel without material interruption, and escape at the top of the stack; but the ignited sparks and heavier particles are thrown outward from the wheel, by centrifugal action, to a point beyond influence of the draft, and consequently fall into the annular passage D, which is provided for their reception, and from which they may be removed from time to time.

The guard B serves to continue the annular passage to a point close up to the wheel, and prevents the sparks and cinders, when once thrown outward, from returning toward the center of the stack, where they would again be brought within the influence of the draft.

By the use of my invention the usual screens of wire-gauze, which soon become clogged, and interfere materially with the draft, may be dispensed with.

I claim as my invention—

The combination, in a locomotive smoke-stack, of the central pipe F, deflecting-wheel A, having spiral vanes arranged above the said pipe, the inner casing E, and the guard B, extending from the mouth of the pipe F to or nearly to the outer edge of the wheel, and forming, with the outer casing, an annular chamber, D, for the reception of sparks thrown outward by the rotation of the wheel, all as set forth.

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

JOHN H. CARR.

Witnesses:

WILLIAM BENSINGER,

WM. F. CHILLSON.