I. B. SMITH.

SPARK-ARRESTER.

No. 191,187. Patented May 22, 1877.

Figure 1

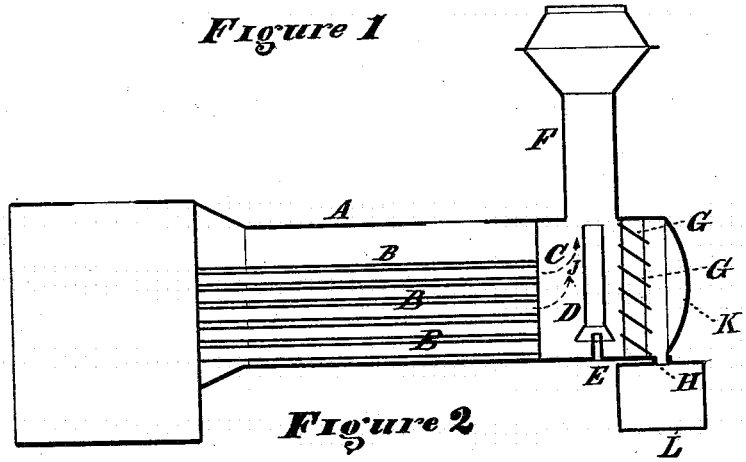
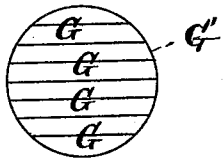


Figure 2



Witnesses.
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UNITED STATES PATENT OFFICE.

ISAAC B. SMITH, OF HORNELLSVILLE, NEW YORK.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **191,187**, dated May 22, 1877; application filed March 6, 1877.

To all whom it may concern:

Be it known that I, ISAAC B. SMITH, of Hornellsville, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Spark-Arresters, which improvements are fully set forth in the following specification and accompanying drawing, in which—

Figure 1 is a vertical longitudinal section through a locomotive-boiler, and Fig. 2 represents a front view of the deflecting-plates.

The sparks, as they issue from the tubes of a locomotive-boiler, are projected with such force that they pass almost in a straight line with said tubes through the course of the air and gases leading up through the smoke-stack, and strike the inner wall of the chamber at the front of the boiler with sufficient force to rebound into the current passing up and out of the smoke-stack.

The object of my invention is to turn the course of the sparks or cinders downward, and prevent as many of them from getting into said current as possible, without in any way obstructing or interfering with the draft; and it consists in the combination of a locomotive-boiler and a series of removable deflecting-plates arranged within the chamber at or near the front of the boiler, beyond the natural course of the draft and below the smoke-stack, so as to receive the sparks and deflect them downward, as will be more clearly hereinafter shown by reference to the drawing, in which—

A represents the boiler, and B the boiler-tubes. The ordinary chamber at the front of the boiler is shown at C.

The letters D E represent the usual pipes for conducting the exhaust steam to the smoke-stack F. G represents the deflecting-plates arranged in front of the chamber C. H is an outlet-pipe for the escape of the cinders or sparks. It may be made so as to be conveniently opened or closed if required.

The operation of my invention is as follows: The sparks or cinders (especially the larger ones) are projected with such force that the momentum acquired carries them straight through the natural course of the draft (which is in the direction of the arrows J) until they strike against the deflecting-plates G, (instead of striking the front wall K, and rebound, as by the ordinary construction,) from which they are deflected down, so as to pass out through the opening H, or be taken out when required.

If desired, a tube for conducting a jet of steam, under the control of the engineer, may be arranged for the purpose of dampening the cinders. L is a box for receiving the cinders.

The deflecting-plates G are connected to a rim, G′, and arranged so as to be easily removable, thereby providing the means for easily reaching and repairing the chamber C when required.

The front wall K is made in the usual way, as a door, so as to be readily opened when necessary.

I claim as my invention—

The boiler A, provided with the tubes B, in combination with a series of deflecting-plates connected to a removable rim, G′, arranged within the chamber C, beyond the course of the natural draft and the opening leading to the smoke-stack, for the purposes described.

ISAAC B. SMITH.

Witnesses:

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