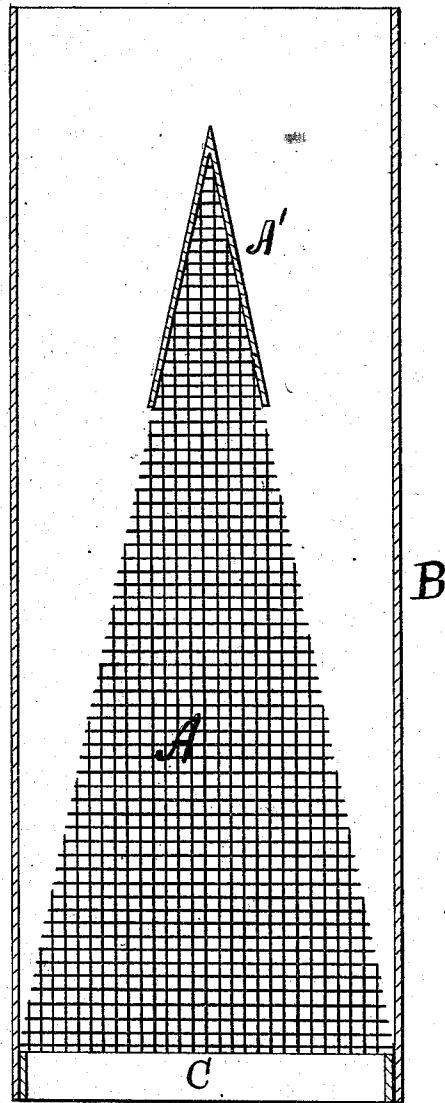


J. SUMMERS & G. W. FAY.
Spark-Arresters.

No. 158,870.

Patented Jan. 19, 1875.



WITNESSES

Mary J. Utley.
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INVENTORS

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UNITED STATES PATENT OFFICE.

JACOB SUMMERS AND GEORGE W. FAY, OF MUNCIE, INDIANA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **158,870**, dated January 19, 1875; application filed June 13, 1874.

To all whom it may concern:

Be it known that we, JACOB SUMMERS and GEORGE W. FAY, of Muncie, in the county of Delaware and State of Indiana, have invented a new and valuable Improvement in Spark-Arresters; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

The figure of the drawing is a representation of a sectional view of our spark-arrester.

This invention has relation to means whereby sparks are arrested in their progress up a flue, and are extinguished without materially interfering with the passage of the products of combustion from a fire-chamber of a furnace up a flue into the open air.

The nature of our invention consists in a wire-cloth arrester of conical shape, surmounted by a close metal conical cap, applied in the smoke-stack of a locomotive, in a chimney-flue, or in a stove-pipe, whereby sparks in their upward course are carried into said arrester, and are thoroughly disintegrated and extinguished, thus removing all danger of setting fire to surrounding objects, and avoiding much discomfort to travelers by rail.

In the annexed drawings, A designates our improved spark-arrester, as applied to a section of a stove pipe, which arrester is of conoidal or conical form, and is constructed of wire-cloth, having its meshes of suitable size.

A' designates a close, conical, metallic cap, which is applied over the arrester A, which is kept fully charged with carbonic-acid gas produced by the incandescent sparks themselves, or evolved in the combustion of fuel in the furnace, and which is carried into it along with the other heated products of combustion, and kept there by the accelerated draft, due to the gradual narrowing of a flue, or to the waste steam escaping from the exhaust-pipe of an engine, and seated upon the

apex thereof, and which serves as an extinguisher to any sparks which may be borne upward therein. B designates a section of a stove-pipe, of the customary form and construction, into which is applied, apex upward, the arrester A, and to which the said arrester is secured by means of an annular collar, C, which embraces, between it and the inner surface of the stove-pipe B, the lower flaring end of the arrester.

When a fire has been lighted in a furnace, the sparks and heated products of combustion are carried by the draft into the said arrester, from which gases and smoke readily find an exit through the meshes thereof; but sparks or burning particles of fuel are rubbed forcibly against the rough surfaces of the wire arrester, and completely disintegrated or reduced to powder. If any fiery particles still remain, they will be finally put out by the extinguisher A'.

It will be seen, from the above description, that we have invented a spark arrester and extinguisher of the simplest construction, which may be applied, with equal success in operation, to a smoke-stack of a locomotive, to a chimney-flue, or to a stove-pipe, and that it is capable of being readily removed for the purpose of cleaning the flue, and reapplied with equal dispatch and facility.

What we claim as new, and desire to secure by Letters Patent, is—

The combination, with the smoke-flue B, of the inner wire-cloth cone A, attached by its base to the wall of said flue, point upward, and the close cone-shaped extinguishing-cap A', surmounting the apex of said cone A, as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JACOB SUMMERS.
GEORGE W. FAY.

Witnesses:

CHARLES W. MOORE,
DANIEL F. RUSSEY.