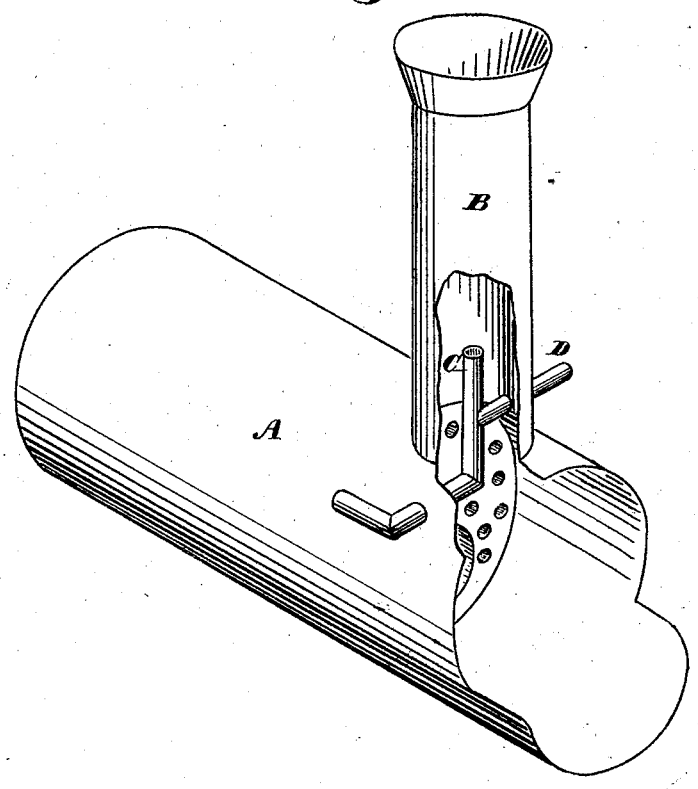
J. W. DONALDSON & A. C. MILLER.

SPARK-EXTINGUISHER.

No. 184,351. Patented Nov. 14, 1876.

*Fig. 1.*




Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES W. DONALDSON AND ALLEN C. MILLER, OF FAIRFIELD, CALIFORNIA.

## IMPROVEMENT IN SPARK-EXTINGUISHERS.

Specification forming part of Letters Patent No. **184,351**, dated November 14, 1876; application filed August 25, 1876.

*To all whom it may concern:*

Be it known that we, JAMES WM. DONALDSON and ALLEN C. MILLER, of Fairfield, county of Solano and State of California, have invented an Improved Spark-Extinguisher for Engines; and we do hereby declare the following description to be a full, clear, and exact description thereof, reference being had to the accompanying drawing.

Our invention relates to a novel means for extinguishing sparks and cinders which escape from the furnaces of engines, and by its use the danger which arises from fire in harvest-fields and other places is avoided.

Our invention consists in the application of a jet or spray of vapor within the smoke stack or chimney through which the sparks escape, and by this means they are all extinguished before leaving the chimney.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a perspective view.

A is the boiler of an engine, and B is the chimney or smoke stack, into which the exhaust steam from the engine-cylinder is discharged through the exhaust-nozzle C for the purpose of creating an artificial draft; or, in some cases a blower or other device may be used. This artificial draft makes such a forcible discharge that sparks and cinders are thrown out, and all the devices for retaining, deflecting, or otherwise hindering them, have only been measurably successful.

Our invention consists in the introduction of a jet or spray of water or other liquid which will serve to extinguish the sparks before they leave the chimney.

In the present case we have shown this jet or spray to be introduced through a small pipe, D, which leads from the pump which supplies the engine and passes directly into the exhaust-nozzle C. The supply of water to this pipe is regulated by a cock, and it ceases as soon as the engine stops running. This water is allowed to pass from the pipe D by one or more small openings, and the strong blast of the exhaust steam will shatter it into a minute spray, which will fill the entire chimney and thoroughly extinguish all sparks and cinders which may be passing. In some cases the jet-tube D may open into some other part of the chimney, and it may be found desirable to employ a separate pump to supply it, but we believe that the construction here shown will be the most efficient, and when the steam is very dry or superheated, with no power to extinguish the sparks, the amount of water can be increased, and, if desirable, to such an extent as to moisten the ground around the engine.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The water-supply tube D entering into and in combination with exhaust-pipe C in the smoke-stack B, substantially as set forth.

In witness whereof we have hereunto set our hands.

JAMES W. DONALDSON.
ALLEN C. MILLER.

Witnesses:
GEO. H. STRONG,
OLWYN T. STACY.