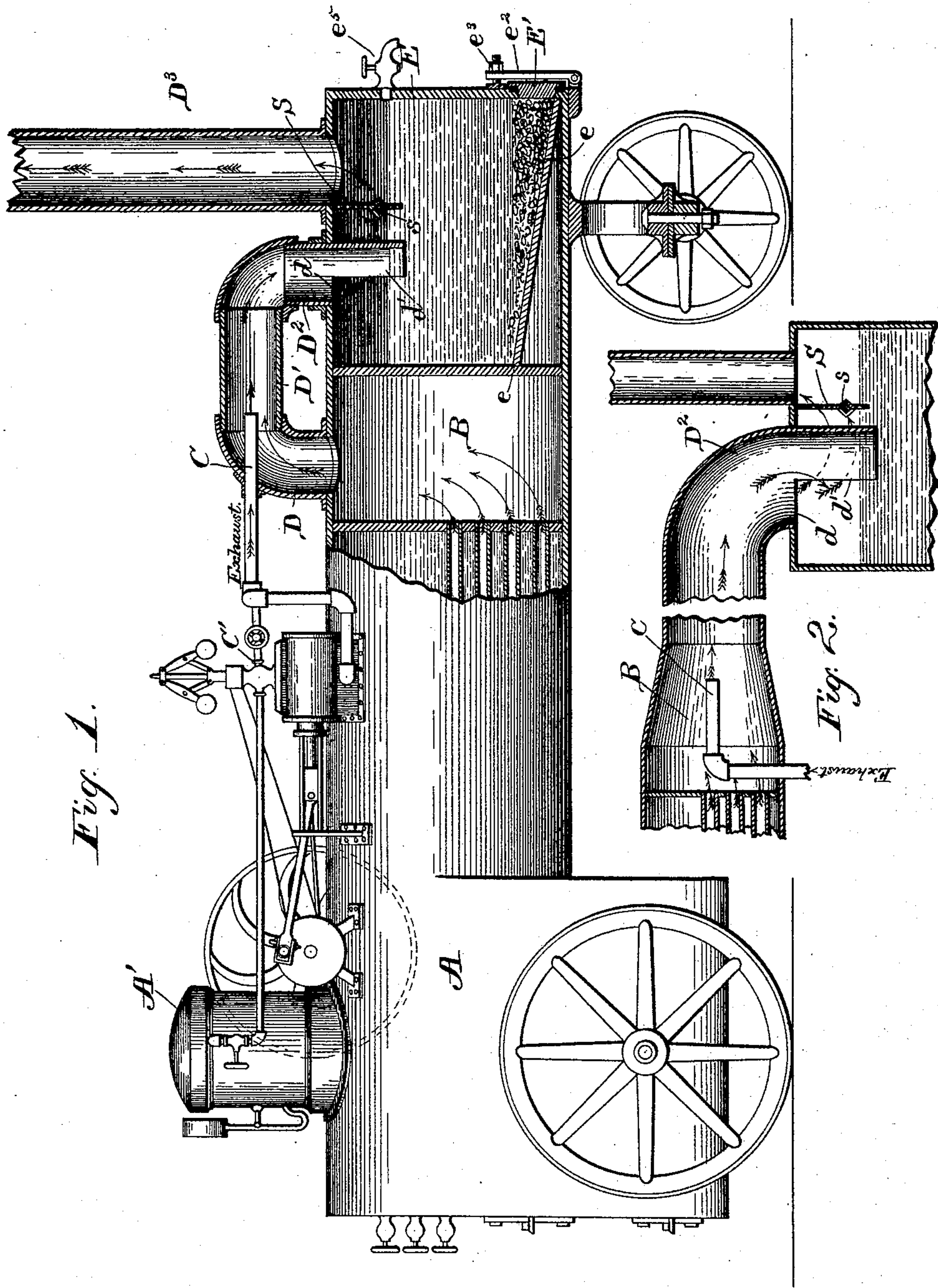


(No Model.)

J. L. OWEN.  
SPARK ARRESTER.

No. 477,954.

Patented June 28, 1892.



Witnesses:

Percy C. Bowen,  
J. L. Wilson

Inventor:

James L. Owen,  
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# UNITED STATES PATENT OFFICE.

JAMES L. OWEN, OF CUMMINGS, SOUTH CAROLINA, ASSIGNOR OF ONE-HALF  
TO JAMES L. JOHNSON, OF SAME PLACE.

## SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 477,954, dated June 28, 1892.

Application filed December 2, 1891. Serial No. 413,800. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES L. OWEN, a citizen of the United States, residing at Cummings, in the county of Hampton and State of South Carolina, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in spark-arresters, and is especially adapted to stationary engines, such as those used in cotton-gins, grain-separators, and other engines where the liability to fire is great; and it consists of the novel features hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are represented by the same letters.

Figure 1 represents a side view, partly in section, of a portable engine and boiler fitted with my device. Fig. 2 represents a sectional view of a modification of the same.

A represents a boiler having a smoke-box B, escape-pipes D, D', and D<sup>2</sup> for the products of combustion, the outer one of which D<sup>2</sup> discharges the said products of combustion vertically downward over the water in the tank E. The rear portion of said pipe D<sup>2</sup> is cut away, as shown at d, and the front portion d' protrudes beneath the surface of the water E and deflects the products of combustion rearward, while the gases circling round the sides of the said portion d' pass up through the smoke-stack D<sup>3</sup>. The draft is augmented by the exhaust-steam from the engine, which goes through the pipe C.

The screen S is pivoted at s, so that it may be raised or lowered at will. This screen may be omitted from the spark-arrester, if desired.

The cinders will settle at the bottom upon the inclined plate e and may be readily removed by allowing the water, cinders, and all to flow out through the door E', normally held closed by the hinge-lever e<sup>2</sup> and the nut e<sup>3</sup>. It will be seen that the steam from the exhaust will more than supply the amount of moisture carried by the gases up the smoke-

stack D<sup>3</sup>, and for this purpose I provide a drain-cock e<sup>5</sup> to keep the water at a constant level.

I have shown a tubular boiler; but it will be evident that the device is applicable to almost any form of boiler. I have also shown the water-tank as permanently attached to the boiler; but this is not essential, and many modifications of the various features of my device would readily suggest themselves to any one skilled in the art which could be used without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a steam-engine, the combination, with the boiler and smoke-box, of the pipe leading from said smoke-box to the upper portion of the tank E, the said pipe being cut away along its rear portion above the surface of the water in the said tank, the tank E, having water therein covering the lower protruding end of the said pipe, the smoke-stack D<sup>3</sup>, opening into the air-space formed by the upper portion of the tank E, and the steam-pipe C, with suitable valves for injecting steam into said pipe leading from the boiler to the tank E, substantially as described.

2. In a steam-engine, the combination, with the tubular boiler and smoke-box, of the pipe leading from said smoke-box to the upper portion of the tank E, the said pipe being cut away along its rear portion above the surface of the water in the said tank, the tank E, having water therein covering the lower protruding end of the said pipe, the smoke-stack D<sup>3</sup>, opening into the air-space formed by the upper portion of the tank E, and the steam-pipe C, with suitable valves for injecting steam into said pipe D', and the rotatable wire screen S, all substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES L. OWEN.

Witnesses:

H. S. CUMMINGS,

WM. R. HAMMOND.