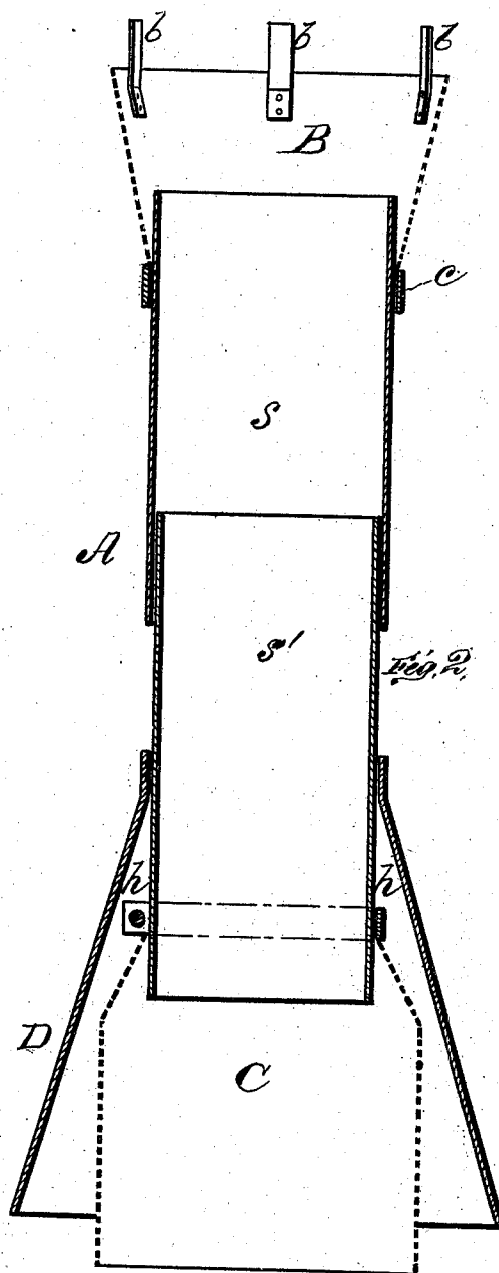
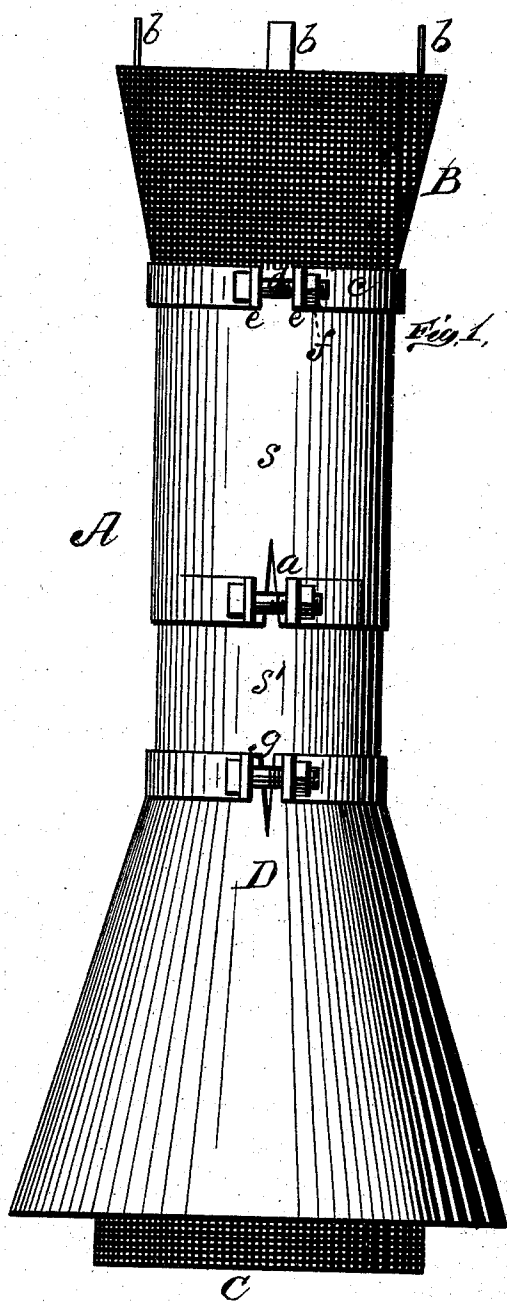


J. D. AKLEY.
 Combined Lift-Pipe and Spark-Arrester.
 No. 211,366. Patented Jan. 14, 1879.



WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES D. AKLEY, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN COMBINED LIFT-PIPE AND SPARK-ARRESTER.

Specification forming part of Letters Patent No. **211,366**, dated January 14, 1879; application filed July 6, 1878.

To all whom it may concern:

Be it known that I, JAMES D. AKLEY, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and valuable Improvement in Combined Lift-Pipe and Spark-Arrester; and I 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.

Figure 1 of the drawings is a representation of a side view of my combined lift-pipe and arrester, and Fig. 2 is a longitudinal section of the same.

This invention has relation to improvements in spark-arresters for locomotive-boilers; and it consists in a lift-pipe arranged within the smoke-box directly under the stack and in line therewith, having at its top and bottom a conical reticulated arrester, of which the lower one rests upon the bottom of the said box and incloses the exhaust-pipes, and the upper against the opposite or top wall of the box and secured thereto, the said lower arrester being inclosed within a sheet-metal hood, as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates a lift-pipe of suitable diameter arranged under the stack inside of the smoke-box. This pipe is made in two sections, *s s'*, telescoping with each other, and adjustable by means of a clamp, *a*, of the usual construction.

At the top and bottom of the lift-pipe are, respectively, the reticulated conical arresters B C, the former resting against the top of the smoke-box, and secured, by means of straps *b* and suitable bolts or rivets, to the base of the stack, and the latter resting upon the bottom of said box, and covering the educts or mouths of the exhaust-pipes.

The smaller ends of the arresters B C are secured to metallic clamp-rings *c*, which latter, being passed around the lift-pipe, are clamped thereon by means of a bolt, *d*, extending through lugs *e* upon the ends of said rings, and a nut, *f*, as shown in Fig. 1.

At the bottom of the lift-pipe is adjustably secured, by means of a clamp device, *g*, a flaring hood, D, of sheet metal, preferably, passing under which into a close chamber, *h*, the sparks will be extinguished. By raising or lowering this hood the dimensions of the extinguisher-chamber *h* are increased or diminished.

The smoke, cinders, and sparks, on issuing from the flues of the boiler, enter the smoke-box.

Smoke and other gaseous products of combustion pass uninterruptedly through the arresters B C; but the sparks and cinders are dashed forcibly by the draft against them, and, being reduced to powder by the shock and extinguished by exhaust-steam constantly discharged from the cylinders, drop back into the bottom of the smoke-box, whence, at suitable intervals, they are removed through a suitable door or chute.

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

The spark-arrester consisting of an adjustable lift-pipe, A, having at its top a flaring reticulated arrester, B, and at bottom a similar arrester, C, and provided near its bottom with an adjustable hood, D, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES D. AKLEY.

Witnesses:

WM. K. GRAY,
WM. H. STERRITT.