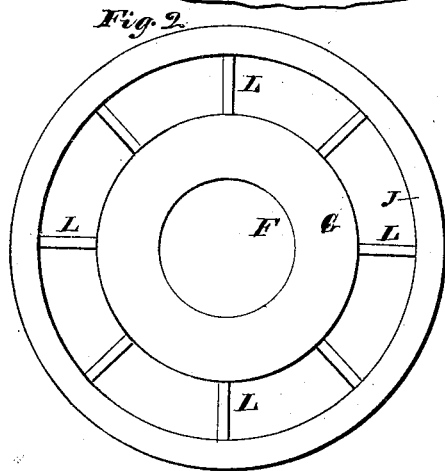
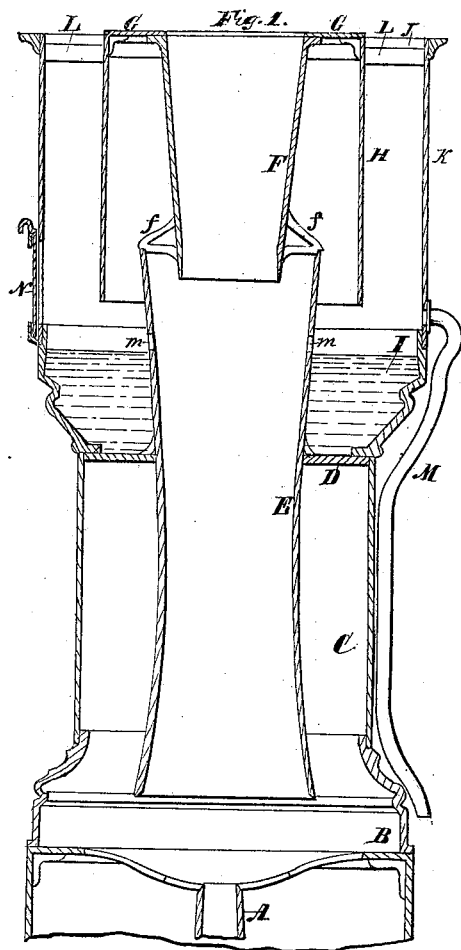


A. Prusmann,
Spark Arrester.
N^o 46,307. Patented Feb. 7, 1865.



Witnesses:
J. W. Coombs
Henry Morris

Inventor:
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per Wm. H. C.
Attorney

UNITED STATES PATENT OFFICE.

AUGUST PRÜSMANN, OF LINGEN, HANOVER, ASSIGNOR TO BERNHARD
SCHAFFER AND CHRISTIAN BUDENBERG, OF NEW YORK, N. Y.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. 46,307, dated February 7, 1865.

To all whom it may concern:

Be it known that I, AUGUST PRÜSMANN, of Lingen, in the Kingdom of Hanover, have invented a new and Improved Spark-Arrester; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical central section of my invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference in both views indicate corresponding parts.

This invention relates to an improvement in that class of spark-arresters in which, by a superincumbent tube, the products of combustion are separated from the jet of steam and returned to the lower space of the spark-arrester without interfering with the free passage of the jet of steam or with the draft of the smoke-stack.

The nature of the invention and its peculiar advantages will be readily understood from the following description.

A represents the exhaust-pipe, the transverse section of which ought to be perfectly circular. Right over this exhaust-pipe, and connected with the smoke-chamber by means of a cast-iron foot, B, is the sheet-metal cylinder C, which is partly covered by the annular plate D, to which the tube or stack E is firmly connected, either by casting said plate and stack solid or in any other desirable manner. The stack E is concentric to the exhaust-pipe, and it may be so constructed that it can be turned out, if desired.

The head of the spark-arrester consists, principally, of the cast-iron funnel or conical tube F, which is provided with three or four knife-shaped brackets, *f f*, arranged in such a manner that they retain said funnel in a concentric position with the stack E and exhaust-pipe A, and support said funnel on the top edge of the stack E.

The funnel F, the lower edge of which is turned sharp, supports the broad sheet-metal flange G, to the outer edge of which the sheet-metal cylinder or deflector H is firmly secured. The outer shell or jacket, K, of the head of

the spark-arrester is secured to the perforated or open ring J, which connects by three or four bridges, L, with the deflector H.

M is a small tube which leads from the pump, and is provided with a faucet for the purpose of admitting water to the tank in the head of the spark-arrester to a level with the holes *m m* in the upper part of the stack E. A sliding door, N, gives access to the interior of the spark-arrester for the purpose of cleaning the same.

The operation is as follows: The jet of steam emanating from the exhaust-pipe propels the surrounding gases and imparts to them a certain velocity. The heavy sparks emanating from the fire-tubes descend while passing through the large cylinder C and are deposited on the bottom of the smoke-chamber. The stack E is so proportioned that the jet of steam, surrounded by gases moving through the same, produces a sucking action, and thereby the desired rarefaction of the air in the smoke-box is effected. If the jet of steam and gases arrive at the top edge of the stack E, the core of said jet, consisting simply of steam, passes off through the funnel F without obstruction, but the gases surrounding the core of steam pass round the top edge of the stack E, down under the edge of the deflector H and up again, and in sweeping over the surface of the water deposit all remaining light sparks. The gases completely deprived of sparks finally escape through the ring J into the open air.

By this arrangement the draft of the smoke-stack is not in the least impaired, and even where peat is used as fuel no sparks are allowed to escape.

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

The arrangement of the inverted conical tube F, cylindrical deflector H, jacket K, and water-tank I, in combination with the smoke-stack E, jacket C, and exhaust-pipe A, all constructed, applied, and operating as and for the purpose herein set forth.

AUGUST PRÜSMANN.

Witnesses:

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ERNST CARL VIETMEYER.