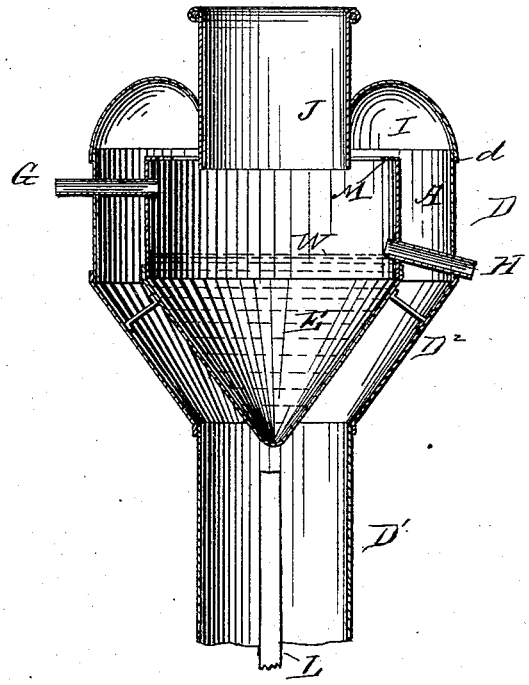
(No Model.)

A. B. BENJAMIN.

SPARK ARRESTER.

No. 307,165. Patented Oct. 28, 1884.



Witnesses:
E. W. Johnson
H. C. Taylor

Inventor
Ammi B. Benjamin
Attorney

UNITED STATES PATENT OFFICE.

AMMI B. BENJAMIN, OF KELLOGGSVILLE, OHIO.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 307,165, dated October 28, 1884.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, AMMI B. BENJAMIN, a citizen of the United States of America, residing at Kelloggsville, in the county of Ashtabula and State of Ohio, 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, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of spark-arresters in which a body of water is arranged to catch the sparks, which are carried into it by suitable deflectors of the draft.

The object of my invention is to simplify the construction of this class of spark-arresters and render them more efficient and reliable than heretofore; and with these objects in view my improvement consists in certain novel constructions and combinations of parts, which will be hereinafter particularly described, and pointed out in the appended claim.

In the accompanying drawing the figure is a vertical section of a smoke-stack and spark-arrester constructed according to my invention.

My spark-arrester is intended especially for use in connection with farm or road engines and the like, but may of course be used in connection with any apparatus to which such a device is applicable.

In the drawing, D designates the upper part or head of the smoke-stack, under which is the cylindrical portion D′, hinged to the smoke-box in the usual manner, and connected with the flaring or funnel-shaped portion D^2, a curved angular deflector or flange, I, surrounding the head and supporting the central tube, J, which extends slightly into the head a few inches, has its lower end projecting below the same. Within the flaring portion D^2 of the stack is centrally arranged a reservoir, E, the lower portion of which has the form of an inverted cone, while its upper portion is cylindrical and surrounds the lower end of the pipe J, being separated therefrom by an intervening space, which is about equal in width to that of the space between all parts of the reservoir and the smoke-stack, this space forming an annular flue, A.

L indicates the exhaust-pipe, which terminates in the smoke-stack directly under the pointed lower end of the reservoir.

G is a supply-pipe through which water may be furnished to the reservoir, and H is an overflow-pipe by which the water in the reservoir is prevented from rising higher than a proper level. The inner rim or flange, M, on the upper edge of the reservoir prevents the water from splashing over into the flue A.

The operation of the apparatus is as follows: The blast from the exhaust-pipe L drives the smoke and sparks forcibly upward through the flue A, surrounding the reservoir E, and the sparks striking the deflector I are carried against the pipe J and into the water W, while the smoke rises and passes off through the pipe J. The upper portion of the stack, which carries the flange I and pipe J, is connected by a slip-joint at *d* to the lower portion, so that it may be readily removed therefrom to permit the reservoir to be inserted or removed, said reservoir being held in place by suitable braces, as shown.

I am aware that smoke-stacks have been provided with annular reservoirs through the center of which the draft passes and is deflected thereinto by suitable deflecting-plates, and I lay no claim to such construction.

What I claim is—

The combination, in a spark-arrester, of a smoke-stack, D, having the cylindrical portion D′, flaring portion D^2, and inward and downward bent flange I, of the smoke-pipe J, secured to said flange and within the central opening surrounded by the same and projecting below said flange, and of the conical reservoir E, removably arranged within the smoke-stack and provided with a rim, M, and having its open upper end terminating under said flange and surrounding the lower portion of the pipe J, substantially as set forth.

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

AMMI B. BENJAMIN.

Witnesses:
J. H. BROWN,
E. F. WILEY.