N. J. ROETHER.

SPARK ARRESTER.

APPLICATION FILED NOV. 17, 1911.

1,037,326. Patented Sept. 3, 1912.

Fig. 1.

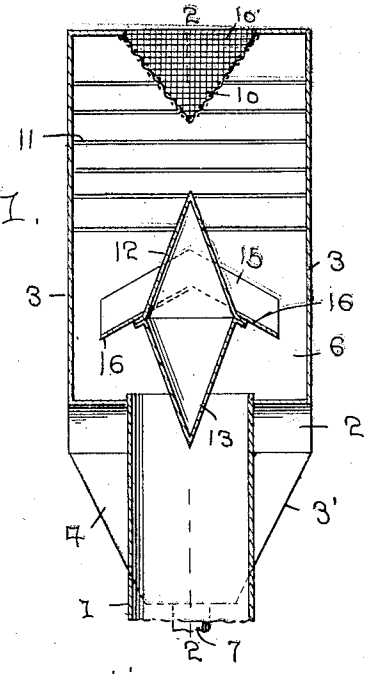
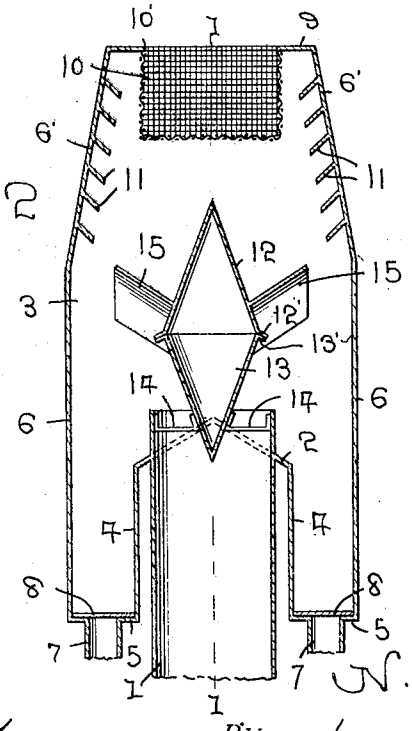


Fig. 2.



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SPARK-ARRESTER.

1,037,326. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed November 17, 1911. Serial No. 660,808.

To all whom it may concern:

Be it known that I, NICKOLAS J. ROETHER, citizen of the United States, residing at Mineral Point, in the county of Iowa and State of Wisconsin, 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.

This invention relates to spark arresters and more particularly to that class of spark arresters adapted for use upon smoke stacks of engines.

An object of the invention is to provide a spark arrester attachment for smoke stacks which will effectively arrest the sparks and prevent escape of the same.

Another object is to devise a spark arrester of this character which may be readily positioned upon the upper end of a smoke stack and which will allow the escape of the smoke, but will prevent the sparks or cinders from escaping and probably causing serious damage.

Another object is to devise a spark arrester of novel form and one which will be extremely effective in the performance of its duties.

Other objects and advantages will be herein after set forth and pointed out in the specification and claim.

In the accompanying drawings which are make a part of this application, Figure 1, is a vertical sectional view through the spark arrester secured upon the upper end of a smoke stack, said view being taken on the line 1—1, Fig. 2, while, Fig. 2, is a similar view, at right angles to Fig. 1, taken on the line 2—2, Fig. 1.

Referring more particularly to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 represents the upper end of an ordinary smoke stack over which the inverted V-shaped bottom 2 of the spark arrester housing is secured, a suitable opening being provided through the center of the bottom 2 to accommodate the smoke stack 1, said stack projecting slightly through the bottom 2. The bottom 2 is preferably made rigid with the upper end of the smoke stack 1 and may, if desired, be formed integral therewith.

The side edges of the converging walls of the inverted V-shaped bottom 2 are connected to the opposite sides 3 of the spark arrester casing. The lower edges of the slanting portions of the inverted V-shaped bottom 2, however, are directed downwardly as shown at 4, adjacent the smoke stack 1, to meet the horizontal portions 5, some distance below the upper end of the smoke stack. Connecting with the horizontal portions 5, opposite the portions 4, are the lower edges of the sides 6, positioned at right angles to and connecting with the sides 3, above the smoke stack 1. Depending from the lower horizontal portion 5 are the pipes 7, beneath which buckets or other suitable means may be placed to catch soot and the like collected between the walls 4 and 6, it being understood that the valve plates 8, resting upon the horizontal portion 6 are drawn outwardly to allow the soot to pass downwardly through the pipes 7.

The upper end of the casing is closed by a cover or top 9 secured upon the upper edges of the sides 3 and 6, and depending from the edges of a central opening in the top 9 is a screen 10 which is preferably wedge shaped and has its opposite ends 10′ closed by screens. This will prevent any sparks or cinders, reaching the upper end of the casing, from escaping through the central opening therethrough.

Projecting inwardly and downwardly from the inner surface of the side 6, near the upper ends thereof, are the deflecting plates 11.

The sides 6 may be sloped inwardly, as shown at 6′, near their upper ends, if desired, and the edges of the sides 3, below the inverted V-shaped central portion 2 of the bottom of the casing, may be converged slightly, as shown at 3′, toward the lower horizontal portions 5, upon opposite sides of the smoke stack.

Above the smoke stack 1 are the the oppositely disposed hollow cone members 12 and 13, the bases of said cones being disposed in a horizontal plane and secured together by the flanges 12′ and 13′ respectively. The point of the inverted cone 13 extends into the upper end of the smoke stack 1 and is supported in position by means of the supporting straps 14, having their opposite ends bent and secured to the cone 13 and to the interior of the smoke stack 1, adjacent the upper edge of the latter. Directed outwardly and upwardly from opposite sides

of and secured to the upper cone 12 are the baffle plates 15 which are bent to dispose one portion at an angle to the other and converging upwardly. The plates 15 are connected at their lower portions and upon opposite sides of the cone 12 by the integral portion 16.

Thus it will be seen that when this arrester is in use, smoke, sparks and cinders pass out of the upper end of the smoke stack 1 and are guided by the lower cone 13 against the baffle plates 15 which will serve to retard the same and deflect the sparks and cinders and cause them to drop between the sides 3 and walls 4 and 6 until they fall upon the valve plates 8. Should any sparks or cinders pass around and above the baffle plates 15, they will be thrown against the under faces of the deflecting plates 11 and by said plates be further interrupted in their travel toward the upper end of the casing. Owing to the slant at which the deflecting plates 11 are directed, any cinders arrested thereby will readily slide off of said plates and drop downwardly upon the valve plates 8. The smoke will continue upwardly through the casing and travel out through the screens 10, which will also serve to prevent any small cinders or sparks, which may succeed in passing the baffle plates 15 and deflecting plates 11, from escaping through the upper end of the device.

It will thus be seen that, by using this spark arrester, the sparks and cinders traveling upwardly through the smoke stack will be prevented from escaping to the atmosphere and probably causing a fire or other serious damage. It will also be evident that, as the lower portions of the casing, between the portions 4 and side walls 6 and 3, are filled with cinders and soot, suitable receptacles may be placed beneath the pipe 7 and the valve plates 8 withdrawn to allow the cinders and soot to drop downwardly through the pipe 7 and into the receptacle, thus cleaning the casing. It will also be evident that this spark arrester may be employed upon any smoke stack and will be highly efficient and effective in the performance of its duties.

Owing to the extremely small number of parts and the comparatively simple formation thereof, it will be evident that the spark arrester may be manufactured at a reasonable cost and will be substantial in use.

What I claim is:—

A spark arrester comprising the combination with a smoke stack, oppositely disposed cone members having their bases secured together and disposed in a horizontal plane, and baffle plates secured to the upper of said cones and disposed upwardly and outwardly therefrom; of a casing secured over the upper end of the smoke stack, said casing having a screened opening in the upper portion thereof and deflecting plates near its upper end, said casing depending below the upper end of the smoke stack and upon opposite sides of the latter, an inverted V-shaped bottom disposed between said depending portions and provided with a circular opening for receiving said smoke stack, pipes projecting from said depending portions, valve plates within said depending portions to cover the open upper ends of the pipes.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NICKOLAS J. ROETHER.

Witnesses:
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