

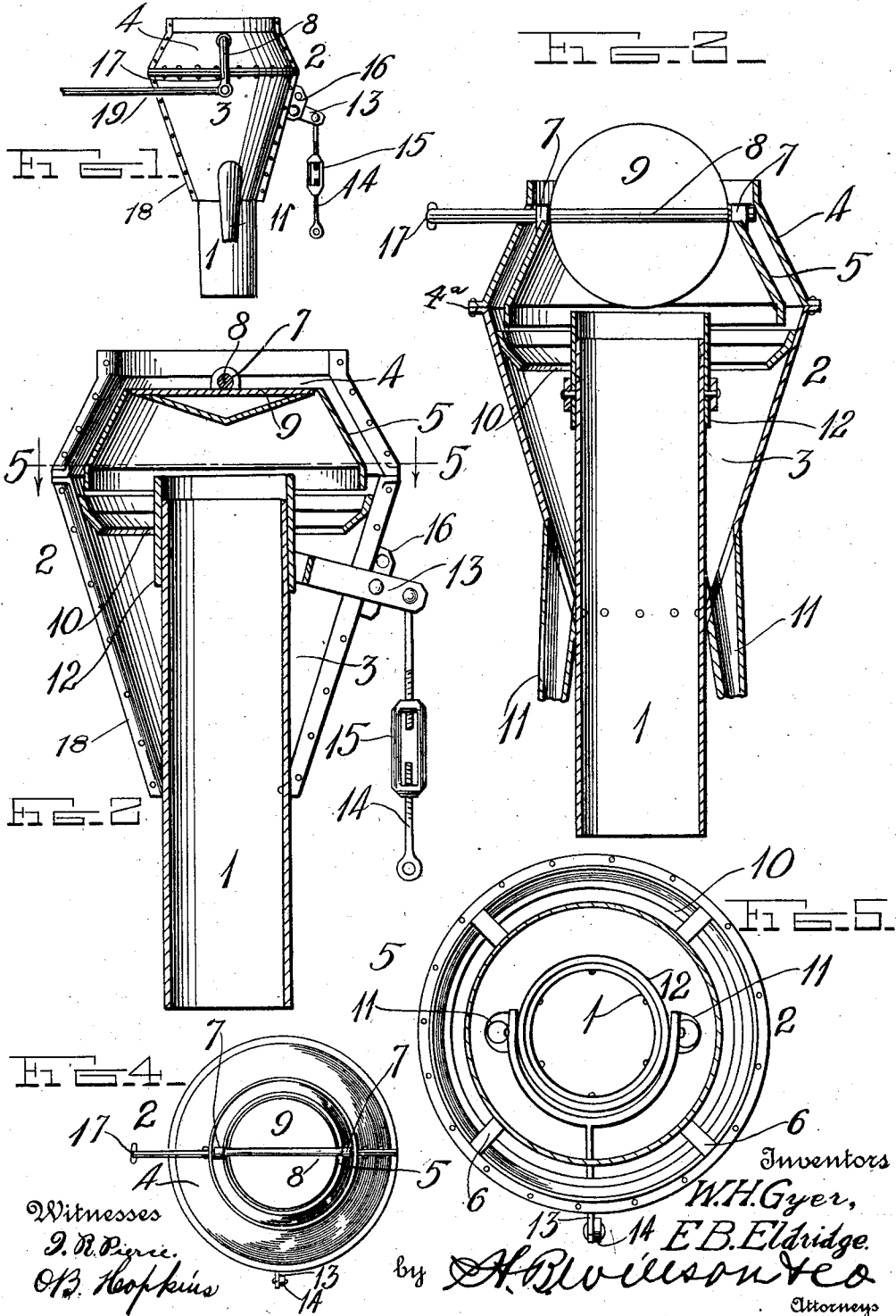
W. H. GYER & E. B. ELDRIDGE.

SPARK ARRESTER.

APPLICATION FILED OCT. 20, 1910.

994,387.

Patented June 6, 1911.



UNITED STATES PATENT OFFICE.

WILLIAM H. GYER, OF SIEGFRIED, AND EDWIN B. ELDRIDGE, OF ALLENTOWN,
PENNSYLVANIA.

SPARK-ARRESTER.

994,387.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed October 20, 1910. Serial No. 588,194.

To all whom it may concern:

Be it known that we, WILLIAM H. GYER, a citizen of the United States, residing at Siegfried, in the county of Northampton and State of Pennsylvania, and EDWIN B. ELDRIDGE, a citizen of the United States, residing at Allentown, county of Lehigh, Pennsylvania, have invented certain new and useful Improvements in Spark-Arresters; and we do 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 improvements in spark arresters.

One object of the invention is to provide a spark arrester which is particularly adapted for use in locomotive smoke stacks and which is provided with an improved construction of draft regulating device.

With this and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a side view of a locomotive smoke stack having our improved spark arrester applied thereto; Fig. 2 is a central vertical section of the same; Fig. 3 is a similar view taken at right angles to Fig. 2 and showing the damper in open position; Fig. 4 is a top plan view; Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 2.

Referring more particularly to the drawing, 1 denotes a smoke stack on which is arranged our improved spark arrester. The spark arrester comprises a hood 2 mounted on the top of the stack 1. The hood 2 is formed of a lower inverted frusto-conical member 3 and an upper frusto-conical member 4, the said members 3 and 4 having their bases flanged and riveted as at 4^a. Concentrically arranged in the upper member 4 of the hood 2 and above the upper end of the stack 1 is a frusto-conical shaped damper supporting and spark deflecting member 5, said member being secured at its upper end to the upper portion of the upper member 4 of the hood 2 by radially extending supporting bars 6 which are secured to the outer side of the tube and to

the inner side of the hood as shown. On the upper end of the member 5 at diametrically opposite points are formed bearing eyes 7 in which is revolvably mounted a damper supporting and operating shaft 8 on which and in the open upper end of the member 5 is mounted a circular damper plate 9, said plate having a conical lower surface which is adapted to deflect the cinders toward the side walls of the member 5.

On the inner surface of the lower hood member 3 adjacent to its upper end is arranged an annular inwardly projecting downwardly inclined deflecting flange 10 which serves to prevent the escape of light cinders and soot which might have a tendency to blow out through the upper end of the hood. In the lower end of the member 3 of the hood at diametrically opposite points are arranged discharge spouts 11 which preferably connect with the smoke box of the boiler and serve to discharge the cinders and sparks from the hood into the smoke box.

On the upper end of the stack is slidably mounted a draft regulating sleeve 12 which is adapted to be slipped up and down or adjusted on the end of the stack to increase or diminish the length of the latter by means of an operating lever 13 which projects through a slot in one side of the hood and is pivotally connected thereto as shown. The inner end of the lever 13 is forked or bifurcated, and the members of said bifurcated ends are pivotally connected to the opposite sides of the sleeve as shown. The outer end of the lever 13 is connected by an adjusting rod 14 to the boiler or other fixed part and has arranged therein a turn buckle 15 whereby the rod may be lengthened and shortened and the lever 13 thus operated to adjust the sleeve 12 to the desired position on the upper end of the stack. The lever 13 is preferably pivotally mounted in a bearing bracket 16 secured to the outer side of the lower hood member 3, said bracket being provided with a plurality of pivot holes whereby the pivotal connection of the bracket may be adjusted thus permitting the tube to be projected to a greater or less extent above the upper end of the stack.

The damper supporting and operating shaft 8 projects through an aperture formed in one side of the contracted upper end of

the hood member 4 and on the projecting outer end of said shaft is formed a crank arm 17 to which is adapted to be connected an operating rod 19 which extends back to the cab of the locomotive and in convenient reach of the engineer whereby the damper may be opened or closed when desired. When the damper 9 is to be swung to vertical open position to provide a direct draft through the stack, it is necessary that the sleeve 10 first be lowered sufficiently to permit the damper to open, (see Fig. 3). When the damper is closed the draft will be retarded to a certain extent by the damper and deflecting tube 5 and will pass beneath and around the outer sides of said tube to the open outer end of the hood. This indirect draft is intended to be sufficient for ordinary conditions and the damper is only intended to be opened when a fire is being started or an increased draft is needed to revive the same. When the damper 9 is in closed position and the sleeve 10 raised to its full extent the draft will be entirely cut off and the damper 10 locked against opening. The hood members 3 and 4 are each preferably constructed in two longitudinally connected sections the meeting edges of which are provided with ribs or flanges 18 which are riveted or otherwise secured together to form a close smoke tight connection between the sections. (See Fig. 2).

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the

invention will be readily understood without requiring a more extended explanation.

Having thus described our invention, what we claim is:

A spark arrester comprising a smoke stack with an upper frusto-conical hood, and a lower inverted frusto-conical hood thereon, a frusto-conical shaped deflecting member situated within the upper hood and spaced from the walls thereof, bars extending from said upper hood for supporting said member, a circular damper having a conical lower surface revolubly mounted in said member, an annular downwardly inclined deflecting flange supported within the upper portion of said lower hood and spaced from the lower end of said member, a draft regulating sleeve slidably mounted on said stack, a vertically adjustable lever pivoted to the sleeve, said lever extending through the lower hood and pivoted thereto, and an adjustable rod connected to said lever.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM H. GYER.
EDWIN B. ELDRIDGE.

Witnesses to the signature of W. H. Gyer:

RALPH MARLOME,
JESSE GILBERT.

Witnesses to the signature of E. B. Eldridge:

P. W. SPAAL,
JOHN P. LEWIS.