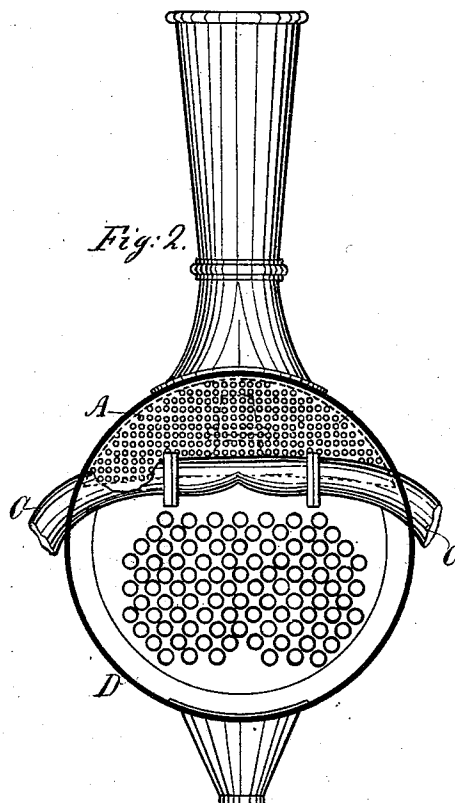
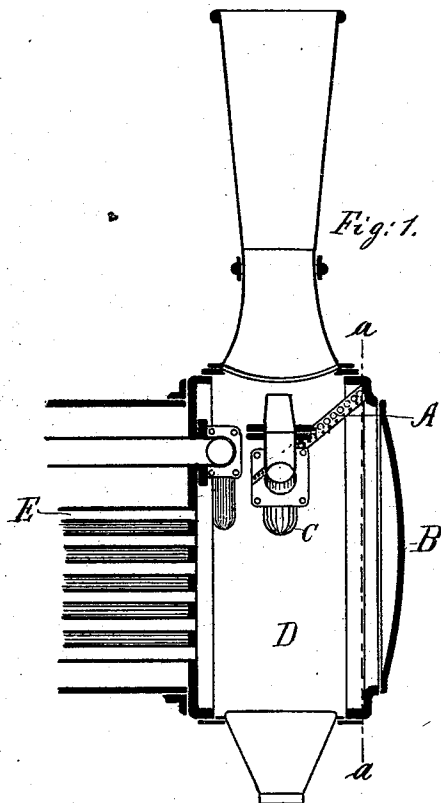


(No Model.)

H. EISENACH & K. COLLMER.  
LOCOMOTIVE SPARK ARRESTER.

No. 538,823.

Patented May 7, 1895.



Witnesses:  
1) A. B. Deppa  
2) L. C. Mills

Inventors:  
Herrmann Eisenach  
and Karl Collmer  
per J. Dittmar  
Attorney.

# UNITED STATES PATENT OFFICE.

HERRMANN EISENACH AND KARL COLLMER, OF KÜSTRIN, GERMANY.

## LOCOMOTIVE SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 538,823, dated May 7, 1895.

Application filed January 28, 1893. Serial No. 459,992. (No model.) Patented in Germany April 14, 1892, No. 65,140.

*To all whom it may concern:*

Be it known that we, HERRMANN EISENACH and KARL COLLMER, subjects of the Emperor of Germany, and residents of Küstrin, Germany, have invented certain new and useful Improvements in Spark-Arresters for Locomotives, (for which we have obtained a patent in Germany, No. 65,140, bearing date April 14, 1892,) of which the following is a specification.

This invention relates to certain improvements in spark arresters such as are usually employed on locomotives and similar engines and the object of the invention is to provide an arrester of the greatest efficiency which shall at the same time offer the least possible resistance to the draft of the furnace.

We have ascertained that in the ordinary operation of locomotive engines and the like wherein a horizontal tubular boiler and a forced draft are employed, the major portion of the cinders or sparks pass through the lower half of the boiler tubes and rise on entering the smoke box, in a curve, passing up along the front wall of the smoke box and out at the chimney. Thus it transpires that the upper half of the boiler tubes and the rear portion of the smoke box or that next the tube plate carry but few cinders or sparks. In carrying out our invention we take advantage of this fact and place a screen or arrester across the forward portion only of the smoke box whereby the sparks and cinders are arrested the remaining rear portion of the smoke box being left free from obstruction.

In order that our invention may be the better understood we have illustrated it in the accompanying drawings, wherein—

Figure 1 is a longitudinal section through the forward part of a locomotive-boiler and smoke-box, showing our improved spark-arrester in position; and Fig. 2 is a transverse section along line *a a* in Fig. 1.

In the views D represents the wall of the smoke box and E the horizontal boiler flues.

A represents the arrester having an upwardly curved form as clearly seen in the drawings. This arrester may be composed of wire netting or perforated metal plate or it may be in the form of a grid composed of metal

bars arranged close together, side by side. The arrester is set in an inclined position, as clearly seen in the drawings with its upper edge just above the door B of the smoke box and its lower rear edge some distance in advance of the boiler tube plate whereby a clear space is left between said plate and the rear edge of the arrester, which is set at a slight distance above the upper tier of tubes in said boiler tube plate. In this manner it will be seen that the rear portion of the smoke box is left free for the passage of the lighter products of combustion which carry but few sparks, and the arrester is placed in such a position as to catch or arrest the major portion of the sparks in their passage through the smoke chamber. Moreover, owing to its curved form and its position immediately over the cleaning door B the arrester may be readily reached and cleaned and being set in an inclined position is better adapted to shed the sparks and cinders so that instead of lodging in the interstices of the arrester and impeding the draft, they will fall to the bottom of the smoke box.

The letter C designates a steam exhaust pipe, the discharge nozzle of which projects upward through the spark-arrester, as shown in Fig. 1.

Having thus described our invention, we claim—

In a spark-arrester, the combination with a locomotive smoke box having a cleaning door in its front, of an upwardly curved and forwardly inclined metal screen, said screen secured within the upper-forward portion of the smoke box, so that its lower edge shall be above the top-most flues of the boiler and sufficiently in advance of same to afford a free escape for the lighter products of combustion, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HERRMANN EISENACH.  
KARL COLLMER.

Witnesses:

W. H. EDWARDS,  
W. HAUPT.