(No Model.) 2 Sheets—Sheet 1.

B. MINZESHEIMER.

SPARK ARRESTER.

No. 589,213. Patented Aug. 31, 1897.

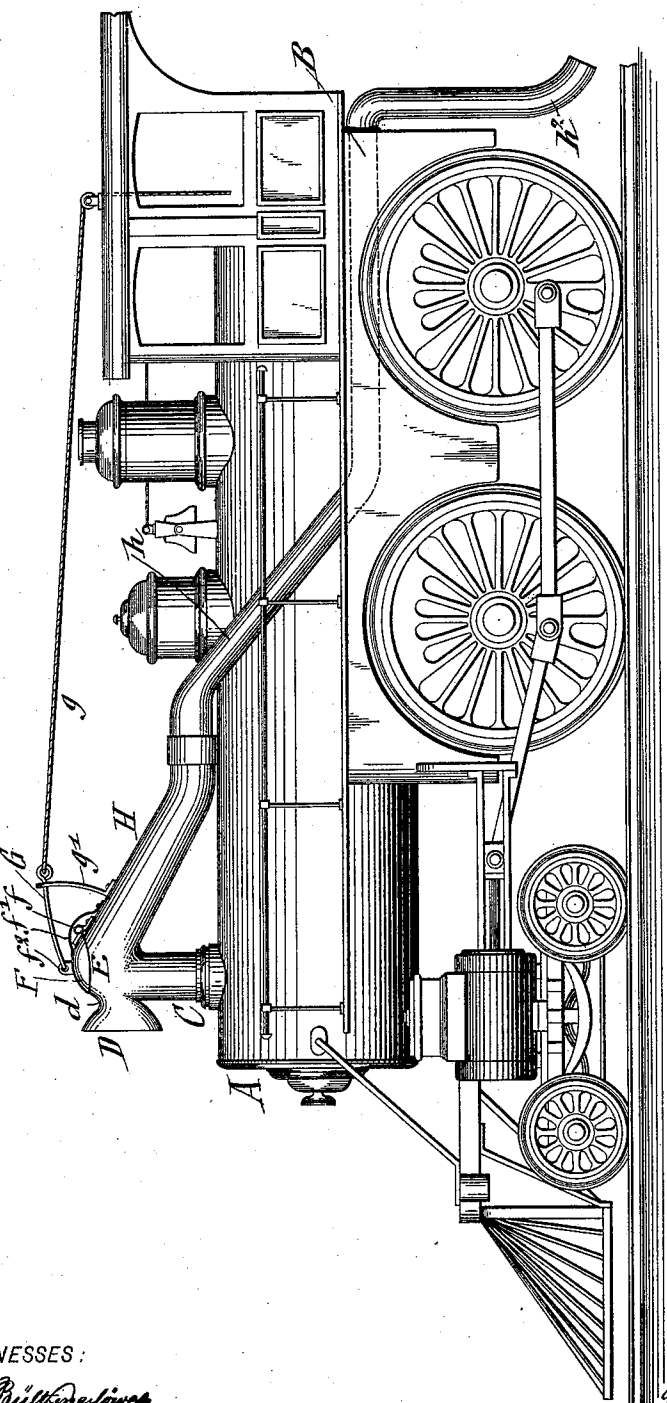


FIG. 1.

WITNESSES:

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Geo. W. Jaekel

INVENTOR

Ben Minzesheimer

BY Howson & Sayward

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

B. MINZESHEIMER.

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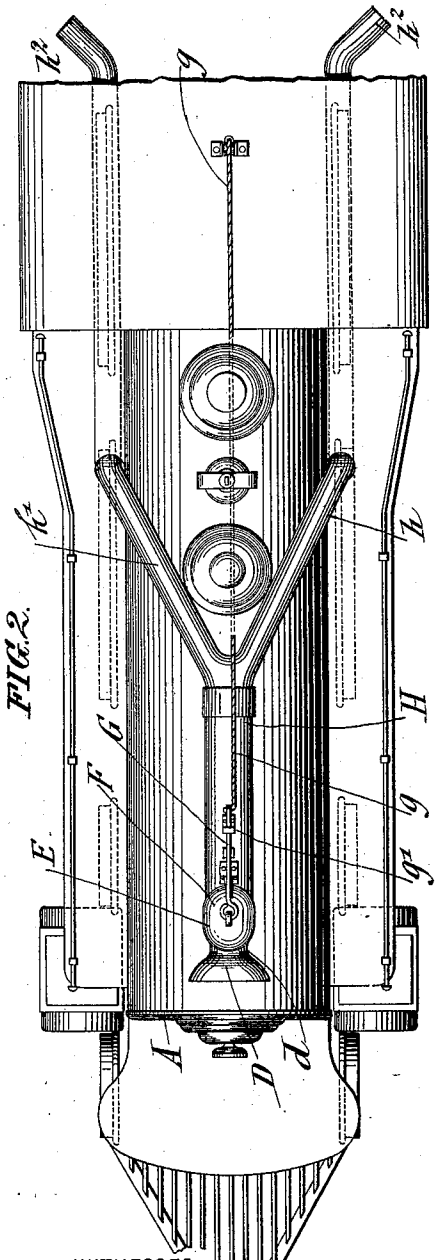


FIG. 2.

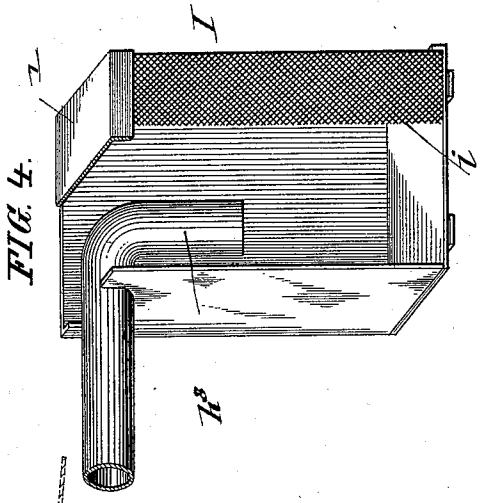


FIG. 4.

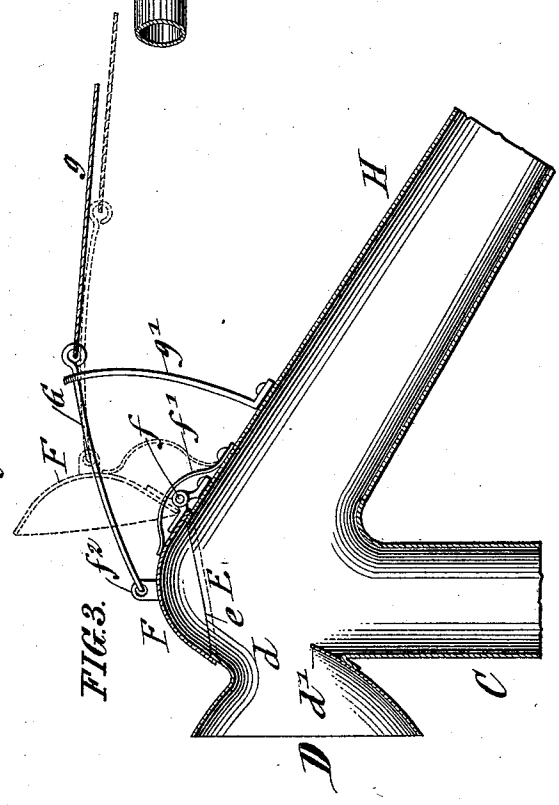


FIG. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

BEN MINZESHEIMER, OF NEW YORK, N. Y.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 589,213, dated August 31, 1897.

Application filed March 24, 1897. Serial No. 629,029. (No model.)

To all whom it may concern:

Be it known that I, BEN MINZESHEIMER, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Spark-Arresters for Locomotives, of which the following is a specification.

This invention relates to a spark-arrester for the smoke-stacks of locomotives and other steam-engines, the object being to conduct the smoke, sparks, and cinders to the rear end of the locomotive and discharge them either at both sides of the same or collect the cinders in receiving-boxes at the rear end of the locomotive.

The invention consists of certain features of construction and combinations of parts, to be hereinafter fully described, and then particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a locomotive, showing the improved spark-arrester applied thereto. Fig. 2 is plan view of the same. Fig. 3 is a detail longitudinal sectional view, enlarged, showing the funnel end or main part of my invention. Fig. 4 is a detail perspective view showing a modification in which the discharge end of the arrester enters a receiving-box for the cinders.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the boiler of a locomotive, B the fire-box, and C the smoke-stack.

At the upper end of the smoke-stack is a forwardly-flaring funnel D, the lower part of which is more flaring or inclined than the upper, and the lower part of the contracted throat portion d of which is provided with an internal upwardly and inwardly inclined deflector d', that projects to a certain extent into the smoke-stack. The top of the smoke-stack is provided with a dome-shaped crown E, that merges into the upper part of the funnel D and contains a top opening e above the smoke-stack, which may be opened or closed by means of a cap F, which is hinged at f to the crown, and is normally closed by a spring f' and opened through the medium of a pull-cord g, leading from the cab of the locomotive and connected with a link G, pivoted to the center shank f^2 of the cap and guided through a fixed guide-arm g'.

The forward enlarged and flaring end of a conducting-trunk H merges into the smoke-stack and its crown and is inclined downwardly therefrom toward the mid-length of the boiler A. At this point the trunk is formed with bifurcated or branch pipes h h', which extend over both sides of the boiler and terminate at the end of the cab. Here the branch pipes are connected with downwardly-extending and rearwardly-opening discharge-spouts h^2, the lower open ends of which are disposed as near to the tracks as permissible. (See Fig. 1.) As shown in Fig. 4, the branch pipes may each terminate in short down-turned spouts h^3, which lead into receiving-boxes I, made of suitable material, having one side open and covered by a wire screen i. The top of each box is closed by a cover I'.

My spark-arrester operates as follows: The smoke, sparks, and cinders issuing out of the furnace of the locomotive or other engine through the smoke-stack are caused to be properly discharged by means of the suction action imparted by the funnel D when the locomotive is in motion. In this latter event, the cap F being closed, the air is sucked in by the funnel, and by reason of the extra inclination of the lower part of the funnel and the arrangement of the deflector d' the tendency of the air is upward as well as backward, so that the smoke, sparks, and cinders are forced back through the main trunk H and branch pipes h h' and discharged through the spouts h^2, when these are used. In case the receiving-boxes are used the spouts h^2 are dispensed with and the sparks and cinders will be discharged into the receiving-boxes I, where they are cooled off, and the smoke will be discharged through the wire screen. From the boxes the cinders are removed from time to time, as required.

When the locomotive is at rest, as at stations, the cap F is opened, so that the smoke can be discharged at the top of the smoke-stack.

My improved spark-arrester can also be used for the smoke-stacks of steamboats,

steam-tugs, &c., and on portable steam-engines, in which latter case a fan for driving off the cinders and smoke would be employed.

Having thus described my invention, what I claim is—

1. In a spark-arrester, the combination, with the smoke-stack, having a dome-shaped crown, of a front funnel, the upper part of which merges into said dome-shaped crown, while the latter rises above said front funnel, a main discharge-trunk leading rearwardly and downwardly from the smoke-stack and merging also into the dome-shaped crown, and means for discharging the products of combustion from said trunk, substantially as set forth.

2. In a spark-arrester, the combination, with the smoke-stack, having a dome-shaped crown and a front funnel, the upper part of which merges into said dome-shaped crown, while the latter rises above the front funnel, of a main discharge-trunk leading from the smoke-stack, and inclined downwardly from its crown portion to the mid-width of the boiler, and branch pipes extending from said trunk on both sides of the boiler and to the rear of the locomotive, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

BEN MINZESHEIMER.

Witnesses:
PAUL GOEPEL,
GEO. W. JAEKEL.