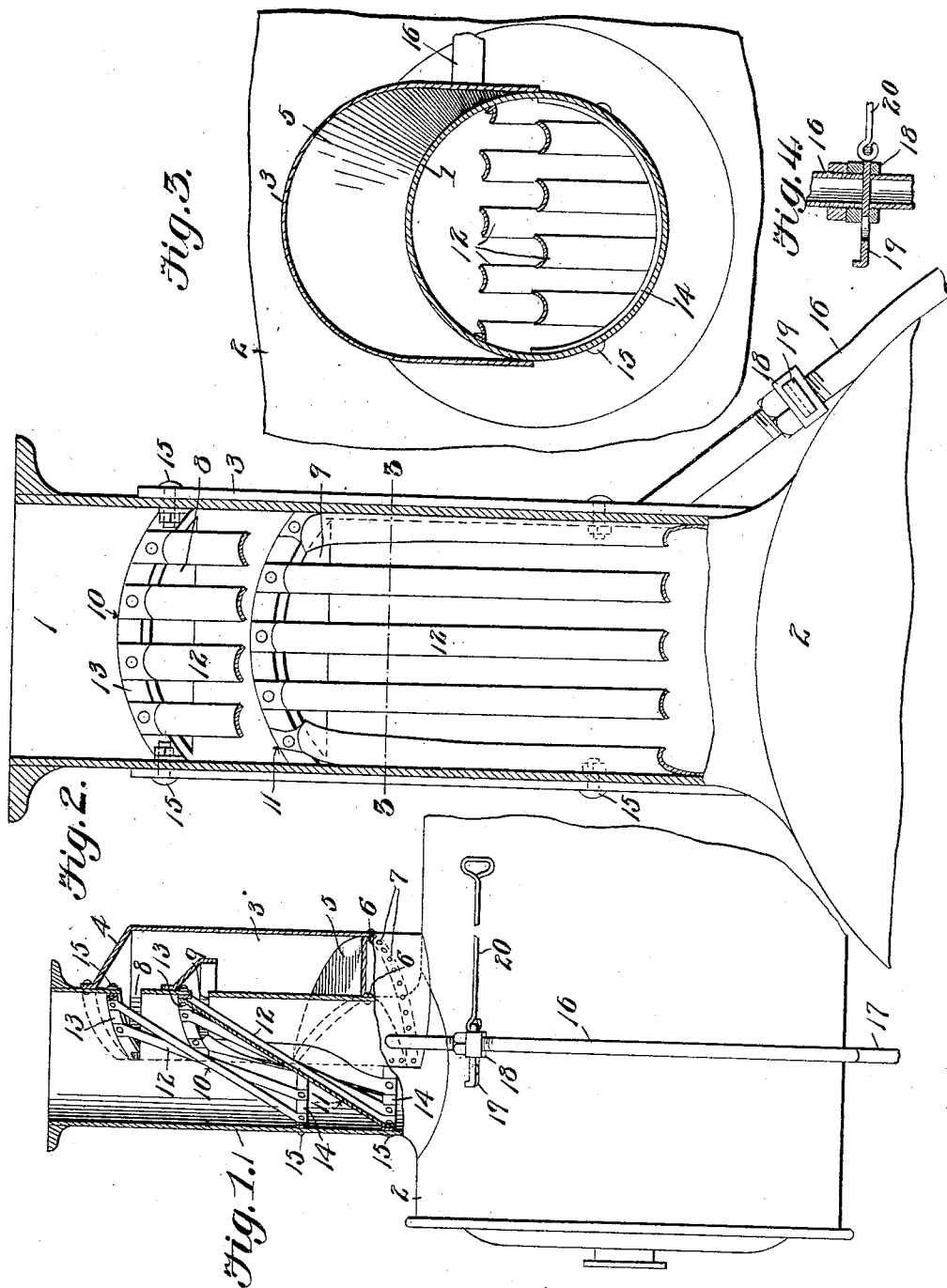


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PATENTED FEB. 27, 1906.

G. FORQUER & A. R. MUSICK.
SPARK ARRESTER.

APPLICATION FILED SEPT. 14, 1905.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE FORQUER AND ALBERT R. MUSICK, OF BRASHEAR, MISSOURI.

SPARK-ARRESTER.

No. 813,493.

Specification of Letters Patent.

Patented Feb. 27, 1906.

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To all whom it may concern:

Be it known that we, GEORGE FORQUER and ALBERT R. MUSICK, citizens of the United States, residing at Brashear, in the county of Adair and State of Missouri, have invented a new and useful Spark-Arrester, of which the following is a specification.

This invention relates to spark-arresters, especially adapted to be used in connection with locomotives; and it consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

One object of the invention is to provide improved means whereby the cinders and sparks shall be deflected into a receptacle provided for the same.

Another object is to provide means of an improved nature for discharging the contents of the receptacle about centrally upon the track.

Other objects of the invention are to simplify and improve the general construction and operation of that class of devices to which the present invention belongs.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a locomotive smoke-stack equipped with the invention, a portion of the boiler being also shown. Fig. 2 is a vertical transverse sectional view, enlarged. Fig. 3 is a horizontal sectional view taken on the plane indicated by the line 3-3 in Fig. 2. Fig. 4 is a perspective detail view, partly in section, illustrating the construction of the valve whereby the escape of the cinders from the receptacle is controlled.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Upon the rear side of a smoke-stack 1, the lower end of which is in communication with the smoke-arch at the front end of the boiler, the casing of which is indicated at 2, is formed a chamber or receptacle 3, closed at its upper end by an inclined top member 4 and provided with a spirally-disposed bottom member 5, which is provided with depending

flanges 6 6 for the reception of rivets or other fastening means 7, whereby it is secured to the walls of the smoke-stack 1 and of the receptacle 3. The latter communicates with the interior of the smoke-stack through slots 8 9 near the upper end of the receptacle, the slot 8 being disposed above the slot 9. An apron or deflector 9^b is extended downwardly into the chamber 3 above the slot 9, as shown.

Within the smoke-stack are mounted grates 10 and 11, one above the other, and each composed of a plurality of transversely-curved or concavo-convex bars 12, connected at their upper and lower ends by means of cross-pieces 13 and 14, said cross-pieces being curved in opposite directions so as to fit interiorly upon opposite sides of the smoke-stack or funnel within which the said grates are secured in inclined positions by means, such as bolts 15, passing through the cross-pieces 13 and 14 and through the walls of the funnel. The upper end of the upper grate 12 is disposed adjacent to the upper edge of the upper slot 8, and the upper end of the lower grate 11 is placed adjacent to the upper edge of the lower slot 9. The convex sides of the bars constituting the grates are uppermost, and the grate-bars of the several grates are placed staggering or intercurrently with each other, as will be clearly seen by reference to Figs. 2 and 3. It will also be observed that the grate-bars are preferably made of such a width that the interspaces between the bars of the lower grate will be overlapped by the grate-bars of the upper grate.

Connected with the lower portion of the receptacle 3, adjacent to the lower end of the spirally-disposed bottom member 5, is a pipe 16, which is curved half-way around the boiler-casing and provided with a downward extension 17, disposed about centrally beneath said casing, so that cinders and the like discharged through said pipe will fall centrally upon the track, thus improving the ballasting of the latter. The pipe 16 is provided with a casing 18, in which is disposed a slide-valve or cutter 19, operable by means of a rod 20, which extends rearwardly within reach of the fireman. This valve or cut-off may be manipulated to stop the flow of the contents of the receptacle 3, thus enabling cinders and sparks to be accumulated in the latter until extinguished, when by shifting the position of the valve the contents of the receptacle will be discharged.

When the smoke rises through the funnel,

the sparks and cinders will strike upon the under concave sides of the grate-bars and will be guided through the slots 8 and 9 into the receptacle 3, while the smoke freed from the objectionable particles of unconsumed material will be free to rise and pass upwardly through the funnel.

It is obvious that when desired more than two grates may be employed, the number used being governed mainly by the dimensions of the smoke-stack or funnel.

The inclined top 4 of the chamber 3 and the apron 9^b within the latter serve to deflect the cinders and heavy substances within the chamber, while the smoke freed from the heavy and objectionable particles is free to rise through the smoke-stack or funnel.

Having thus described the invention, what is claimed is—

20 1. A smoke-stack having a plurality of transverse slots disposed in vertical series, a receptacle adjacent to the stack and communicating therewith through the slots, a

plurality of grates supported one above another in an inclined position within the stack and having their upper ends secured adjacent to the upper edges of the slots, said grates having intercurrently-disposed bars concave in their under sides, and deflecting means within the receptacle.

2. A smoke-stack, a receptacle adjacent to said smoke-stack and communicating with the latter through transverse slots, and a plurality of inclined grates disposed within the funnel and having their upper ends connected with the latter above the several slots; in combination with an apron or deflector within the receptacle, above one of the slots.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE FORQUER.
ALBERT R. MUSICK.

Witnesses:

JOHN V. HINES,
MAURICE FOWLER.