(No Model.)

M. GOETZE.

SPARK ARRESTER.

No. 606,134. Patented June 21, 1898.

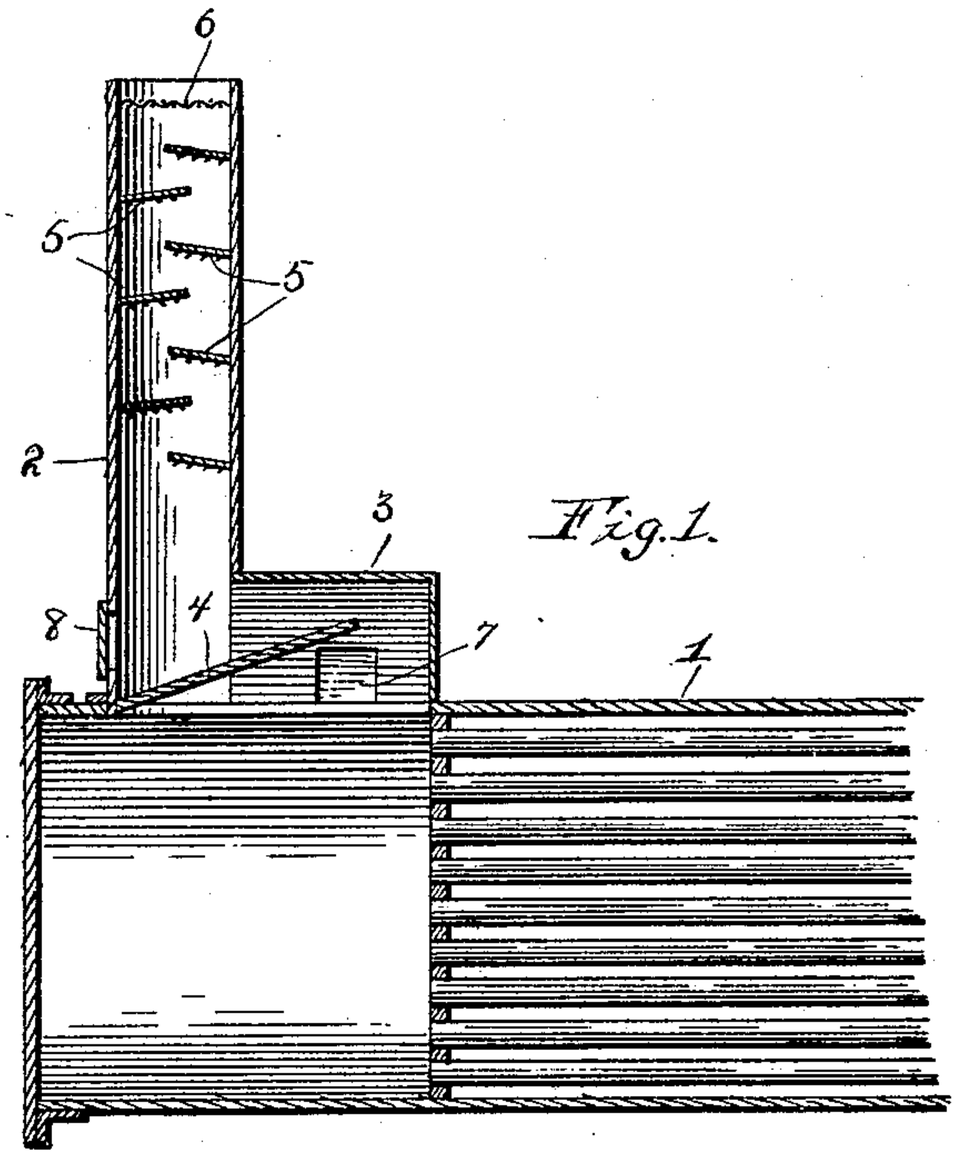


Fig. 1.

Fig. 2.

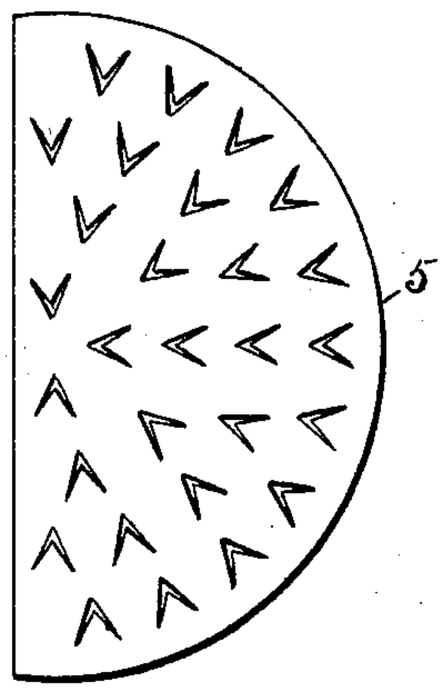
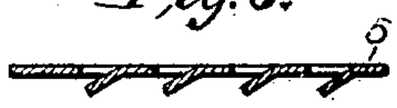


Fig. 3.



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SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 606,134, dated June 21, 1898.

Application filed August 26, 1897. Serial No. 649,624. (No model.)

To all whom it may concern:

Be it known that I, MAX GOETZE, a citizen of the United States, residing at Sturgis, in the county of Meade and State of South Dakota, 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 improvements in spark-arresters.

The object of the invention is to provide a spark-arrester which is adapted to be used with locomotives and other engines, whereby live sparks and small cinders shall be effectually prevented from leaving the smoke-stack and thus insuring a high degree of safety from fire and its destructive influences.

The invention further aims to provide an arrester which is simple, durable, and cheap and one which may be readily cleaned of substances lodging therein from the combustion of the fuel.

With these objects in view the invention consists, substantially, in the construction, combination, and arrangement of parts, as will be hereinafter fully illustrated, described, and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a portion of a boiler having the herein-described arrester applied thereto. Fig. 2 is a top plan view of one of the screen-plates. Fig. 3 is a cross-section on the line *x x* thereof.

Similar numerals of reference designate corresponding parts in the figures of the drawings.

Referring to the drawings, 1 designates a boiler which is provided with a smoke-stack or chimney 2, the latter being secured thereto in any desired manner, and secured to the stack 2 and opening into one side thereof is a smoke-box 3.

The smoke-box 3 may be of any desired dimensions, and, as will be observed, projects from the stack 2. Secured within said stack 2 and extending from one side thereof into the smoke-box 3 is an inclined deflecting-plate 4, the latter being formed, preferably, of iron, and it will be noted that as the products of combnstion pass from the boiler into the stack 2 cinders and live sparks strike against said deflecting-plate 4 and are thereby caused to rebound into the boiler.

Disposed within the stack 2 and above the deflecting-plate 4 at suitable intervals is a series of inclined perforated deflecting screen-plates 5, said plates being oppositely arranged and each having its inner straight edge projecting beyond the vertical center of the stack 2, whereby the screens are caused to overlap one another and thereby secure a more positive and effective separation of the live sparks and small cinders from the remaining portion of the products of combustion. The perforations in the screen-plates 5 are preferably formed in a triangular shape, and the portion of the screen-plates which is punched in order to form the perforations is bent downwardly, thus enabling the free egress of the smoke, but preventing the sparks and small cinders passing through the perforations.

Arranged above the uppermost of the perforated screen-plates 5 is an ordinary sieve 6, the latter being secured to the inner side of the stack 2 and in close proximity to said uppermost screen-plate, thus serving to prevent any sparks which may pass the top screen-plate 5 being discharged from the stack 2.

For the purpose of cleaning the smoke-box 3 of any cinders which may lodge therein said box is provided with a sliding door 7, the latter being of any approved construction and preferably arranged at one side of the smoke-box. If it is further desired, the stack 2 may also be provided with a similar door 8, whereby a ready entrance to said stack may be effected for the purpose of cleaning the same.

From the foregoing the advantages of the herein-described arrester will be readily understood by those skilled in the art. As before stated, the products of combustion pass into the lower end of the stack 2 and contact with the deflecting-plate 4, the cinders and live sparks being caused thereby to rebound into the boiler; but it is apparent that the smoke may readily pass around the end of the deflecting-plate 4 which projects within the smoke-box and by means of the draft continues its passage through the stack 2, the perforated screen-plates 5 and the sieve 6

serving to further separate any destructive particles of the products of combustion, and thus render a simple, cheap, and efficient arrester.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a spark-arrester, the combination, with a boiler, of a smoke-stack, a smoke-box secured to the base of the stack on the outer side of the boiler and in communication with both the boiler and stack, said stack and box being provided with doors, an inclined deflector located in the base of the stack and projecting upwardly therefrom into the smoke-box, and a series of perforated screen-plates secured in said stack, said screen-plates being alternately arranged at opposite sides of the stack and each having its inner edge projecting beyond the vertical center of the stack, whereby said screen-plates are caused to overlap each other and thereby effectually prevent the escape of live sparks and the like from the stack, substantially as described.

2. In a spark-arrester, the combination with a stack, of a smoke-box projecting therefrom and opening thereinto, a deflector disposed at the base of the stack and projecting into the smoke-box, and a series of perforated screen-plates secured in said stack, said screen-plates being alternately arranged at opposite sides of the stack and each having its inner edge projecting beyond the vertical center of the stack, whereby said screen-plates are caused to overlap each other and thereby effectually prevent the escape of live sparks and the like from the stack, substantially as described.

3. In a spark-arrester, the combination, with a stack, of a smoke-box projecting therefrom and opening therein, an inclined deflector secured within said stack and projecting into the smoke-box, and a series of inclined perforated screen-plates also arranged within the stack, the perforations of the said screen-plates being formed by punching the plates and bending the punched portion downwardly to permit of the free passage of the smoke but effectually preventing the egress of live sparks and the like, substantially as set forth.

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

MAX GOETZE.

Witnesses:
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