D. H. COX.

SPARK ARRESTER.

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1,281,142. Patented Oct. 8, 1918.

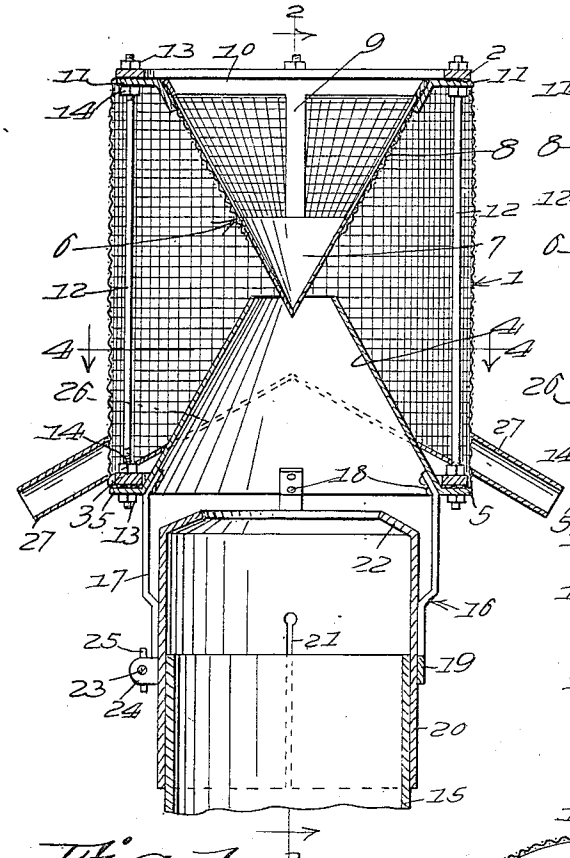


Fig. 1.

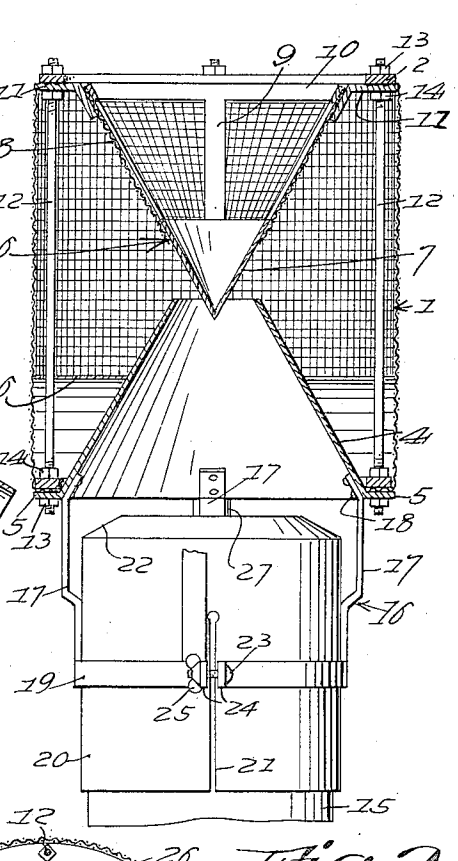


Fig. 2.

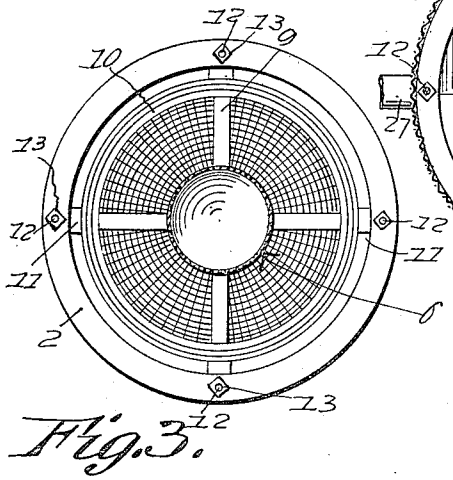


Fig. 3.

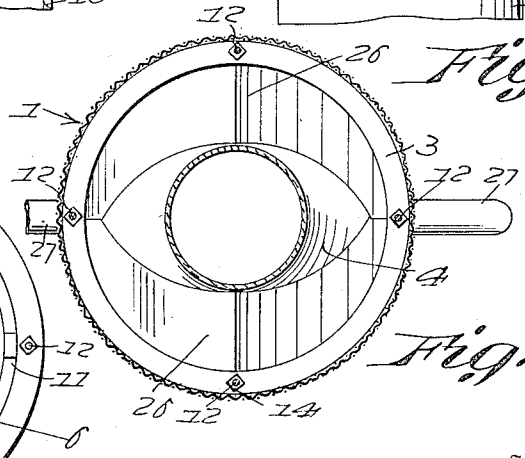


Fig. 4.

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SPARK-ARRESTER.

1,281,142. Specification of Letters Patent. Patented Oct. 8, 1918.

Application filed December 29, 1917. Serial No. 209,446.

To all whom it may concern:

Be it known that DILLARD H. COX, a citizen of the United States of America, residing at Black Rock, in the county of Polk and State of Oregon, have invented new and useful Improvements in Spark-Arresters, of which the following is a specification.

The present invention comprehends generally improvements in stoves and furnaces and more particularly relates to a spark arrester.

As the primary aim and object of the present invention contemplates the provision of a device of the above character designed especially for application on a stack of a locomotive for arresting the sparks which emit from the stack and for delivering the cinders upon the sides of the boiler of the locomotive thereby reducing to a minimum the occurrence of accidental fires, etc.

It is an equally important object of this invention to provide a spark arrester of the above mentioned character wherein the construction is of novel form and embodies a cage into which smoke, sparks, cinders, etc., are delivered and prevented from flying through the atmosphere.

More particularly the present invention includes the provision of a device of the above character wherein improved deflecting means is employed for directing the cinders which fall to the bottom of the cage toward the outlet pipes which conduct the said cinders and deposit them upon the boiler of the locomotive.

As a further improvement the present invention includes the provision of improved means for attaching the device to the smoke stack of a locomotive, the parts being adjustable so that they may be arranged in proper relation with respect to each other.

Among the other aims and objects of the invention may be recited the provision of a device of the character described with a view to compactness, and in which the number of parts are few, the construction simple, the cost of production low and the efficiency high.

Other improvements and novel details in the construction and arrangement of the various parts of the apparatus will be brought out more in detail in the description to follow, which for a clear understanding of the invention should be considered in connection with the accompanying drawings forming a part hereof, and wherein is disclosed for the purpose of illustration a convenient and satisfactory embodiment of the invention. It is to be noted in this connection that minor changes in the construction and arrangement of parts may be made without departing from the principle of operation of the various parts.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical section of the invention;

Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the invention;

Fig. 4 is a transverse section taken on line 4—4, Fig. 1.

Similar characters of reference are employed in all the above described views, to indicate corresponding parts.

Referring now, more particularly, to the accompanying drawings, there is provided a perforated receiving or retaining cage 1 formed desirably of screening the upper and lower edges of which are secured to annular link bands 2 and 3. Disposed in the lower end of the cage is a frusto-conical guide 4 formed of metal while attached to the outer surface of the guide adjacent the lower edge thereof are uniformly spaced laterally extending brackets or ears 5. An inverted conical baffle 6 is now mounted in the open upper end of the cage and has its lower portion 7 adjacent the apex formed of metal while its upper enlarged portion is formed of screening. The screening portion 8 is suitably reinforced by braces 9 the outer ends of which are connected by a band 10. Brackets 11 are secured to the outer surface adjacent the enlarged end of the conical baffle 6 and extend laterally therefrom being of a construction substantially similar to the brackets 5. Elongated rods 12 are now employed and are inserted through the opposed brackets 5 and 11 and have their respective

terminals threaded and engaged by nuts 13 and 14. The nuts 13 and 14 on the upper ends of the rods 12 serve to clamp the brackets 11 and the band 2 together subsequent to passing the bolt therethrough while the nuts 13 and 14 on the lower ends of the rods serve to clamp the lower band and the brackets 5 together.

In attaching the device to a smoke stack 15 a suitable stand indicated in its entirety by the numeral 16 is employed and consists of depending legs 17 the upper ends of which are secured by suitable fastening devices 18 to the inner surface of the frustoconical guide adjacent the lower end thereof as indicated while an annular clamping band 19 is carried by the lower ends of the legs. This band is disposed about a guiding sleeve 20 the lower portion of which is slit longitudinally as at 21 while the upper end is flared inwardly as at 22. The sleeve is also disposed about the upper end of the stack 15 and subsequent to arranging the upper end 22 of the sleeve in close relation with the lower end of the guide 4 the annular band is tightened about the sleeve to consequently clamp the sleeve on the stack as indicated. This tightening of the sleeve is preferably effected through the instrumentality of a bolt 23 which is passed through the ears 24 formed at the terminals of the band while the said bolt is adjustably engaged by a wing nut 25. By this arrangement as the smoke, cinders, sparks, etc., emit from the stack the sleeve 20 directs the same into the conical guide 4 which in turn directs them against the baffle. The baffle serves to throw the sparks, and cinders against the inner surface of the cage and owing to the fact that the latter is reticulated smoke will be allowed to pass through while the cinders and sparks will be prevented from passing into the atmosphere and will fall through the bottom of the cage.

As intimated, suitable means have been employed for directing the cinders, etc., exteriorly of the cage. In reducing this feature of the invention to practice a deflecting plate 26 which is substantially V-shaped in cross section is formed with an opening and is straddled about the guide 4 so that the outer edges of the plate 26 rest upon the lower band 3 and owing to the fact that the portions of the plate are inclined in opposite directions cinders will be directed toward opposite sides of the cage. Suitable outlet pipes 27 are mounted in the cage, suitably and rigidly connected to the adjacent lower ends of the inclined portions of the plate 26 as indicated in the drawings. By the provision of this deflecting plate 26 when the cinders fall toward the bottom of the cage the latter serves to deflect the cinders through the inclined outlet pipes 27 which in turn deposit the cinders on the upper surface of the boiler, not shown, of the locomotive.

It is believed that in view of the foregoing description, a further detailed description of the operation of the invention is entirely unnecessary. Likewise it is believed that the advantages of the invention will be readily apparent.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof and it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limited sense. It is also to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:—

1. A spark arrester of the character described including a reticulated cage, a frustoconical guide mounted in the lower end thereof, an inverted conical baffle mounted in the upper end of the cage and having its apex disposed partially within the restricted end of the guide, means for attaching the guide to a smoke stack, a deflecting pipe mounted in the bottom of the cage, and outlet pipes mounted in the lower end of the cage.

2. A device of the character described including a reticulated cage, a frustoconical guide mounted in the lower end of the cage, an inverted conical baffle mounted in the upper end of the cage and having its apex disposed slightly within the restricted open end of the guide, supporting legs depending from the guide, an annular clamping band carried by the lower ends of the legs, an attaching and guiding sleeve slidably disposed in the clamping band and adapted for telescoping a smoke stack, means for adjusting the band and clamping the sleeve in position, and means for deflecting cinders exteriorly of the cage.

3. A device of the character described including a cage embodying a cylindrical reticulated body and annular bands to which the upper and lower edges of the body are secured, a frustoconical metallic guide disposed in the lower end of the body, an inverted conical baffle disposed in the upper end of the body of the cage, brackets projecting from the guide and the baffle, elongated supporting rods passing through the opposed brackets and bands, means adjust-

ably engageable on the rods for clamping the adjustable bands and brackets together to consequently maintain the body of the cage rigid, a deflecting plate mounted in the bottom of the cage of V-shaped configuration in cross section and straddled about the guide, outlet pipes connected to the respective ends of the deflecting plate and projecting exteriorly of the cage, and means for attaching the cage above the smoke stack of a locomotive.

In testimony whereof I affix my signature.

DILLARD H. COX.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."