C. F. VERMILLION.

SPARK DEFLECTOR.

APPLICATION FILED APR. 13, 1910.

982,318. Patented Jan. 24, 1911.

Fig. 1

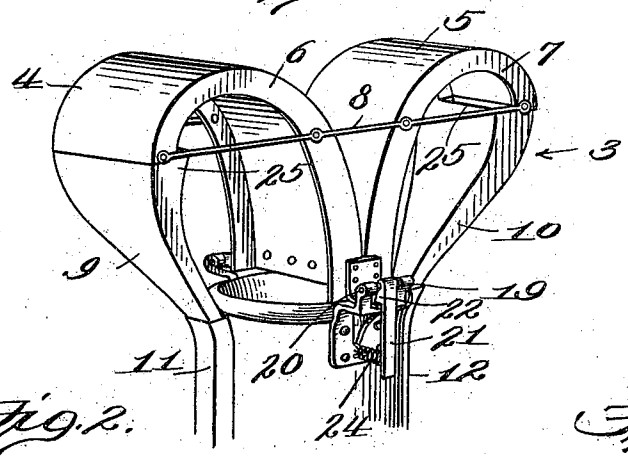


Fig. 2.

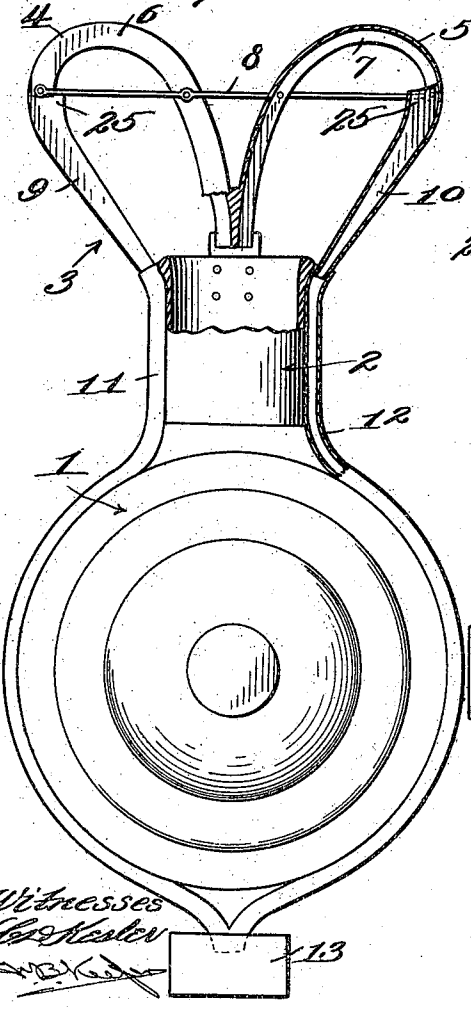
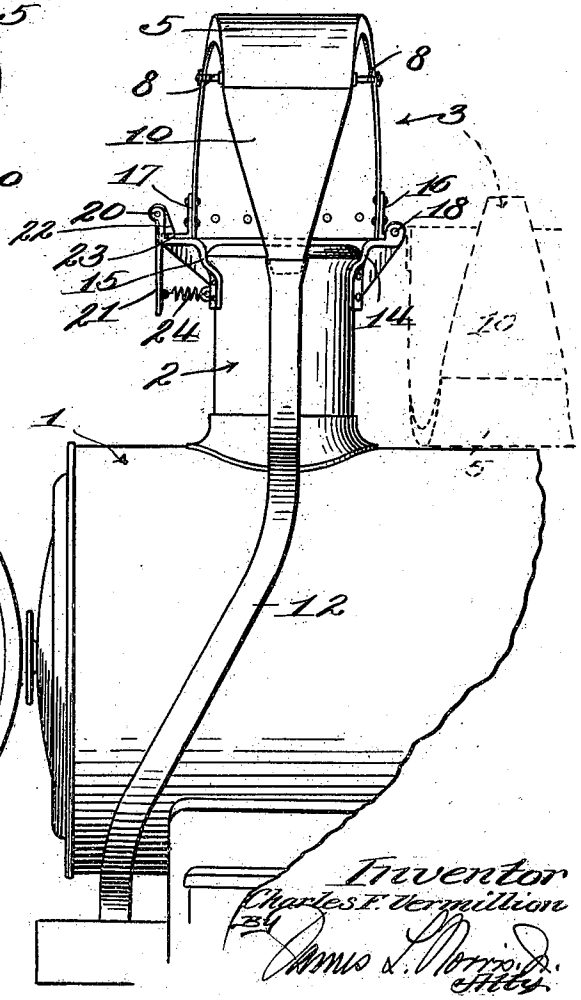


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES F. VERMILLION, OF LEMONVILLE, MISSOURI.

SPARK-DEFLECTOR.

982,318. Specification of Letters Patent. **Patented Jan. 24, 1911.**

Application filed April 13, 1910. Serial No. 555,129.

To all whom it may concern:

Be it known that I, CHARLES F. VERMILLION, a citizen of the United States, residing at Lemonville, in the county of Putnam and State of Missouri, have invented new and useful Improvements in Spark-Deflectors, of which the following is a specification.

The present invention has reference to improvements in spark deflectors.

It comprehends, generally, the production of a device of the type specified which is designed primarily for attachment to the smoke stack of a locomotive to arrest the passage of the sparks issuing from the mouth thereof and to deflect the same into a plurality of pipes associated with said stack, whence they are discharged into a place of safety, the various parts of the device being so constructed and arranged as to effect this object.

The invention further and more especially contemplates the pivotal mounting of the deflector upon the stack in such a manner as to admit of its being swung backwardly upon the boiler of the locomotive, whereby both it and the stack may be inspected and cleaned, while at the same time it is prevented from coming into contact with the top of the door of the round-house during the entrance of the locomotive thereinto, and the strain upon its pivot-joint or hinge is relieved.

A structural embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a fragmental perspective view showing the improved deflector in use. Fig. 2 is a front elevation, with parts in section, showing said deflector and also the arrangement of the discharge pipes. Fig. 3 is a side elevation of Fig. 2.

In said drawings, 1 designates in a general manner the boiler, and 2 the smoke stack of a locomotive of conventional type, the deflector 3 being mounted upon the top of the latter element.

The deflector consists essentially of a pair of oppositely-arranged wing-like sheet metal members 4 and 5, which are rigidly connected together in any suitable manner at their lower edges and in the present construction, curve upwardly and away from each other, as shown. These wings are formed at their edges with depending flanges 6 and 7, co-extensive therewith, said flanges decreasing gradually in width from their lower to their upper ends, at which latter point they are connected and braced by a pair of rods 8 arranged directly against said flanges and riveted or otherwise securely fastened to the same. Said wings themselves likewise have a gradually-decreasing width, and are rigidly connected at their upper ends to a pair of downwardly-extending chutes 9 and 10 which constitute continuations of the wings and are correspondingly curved and tapered, their lower portions projecting inwardly toward the side wall of the stack. The outlet ends of these chutes are designed for reception in the open mouths of a pair of vertical discharge pipes 11 and 12 arranged against the stack wall at diametrically opposite points. In the construction illustrated, said pipes are continued downwardly around opposite sides of the boiler 1, their lower ends being brought together and introduced into a suitable closed receptacle 13 mounted beneath the boiler and supported in any desired manner. They may be rigidly connected to the boiler or stack, or to both, according as may be preferred. The afore-mentioned chutes 9 and 10 are open at their upper ends, as will be understood, and the width of their sides at such point considerably exceeds that of the flanges 6 and 7 of the wings 4 and 5, the arrangement being such that while the corresponding outer walls of the chutes and wings are approximately flush at their meeting edges, the inner walls of the chutes having a slight curvature away from the outer walls thereof, thereby providing enlarged mouths 25 for said chutes, the purpose of which construction will be explained hereinafter.

The deflector as a whole is arranged upon the top of the stack in such a manner that the meeting lower edges of its wings are arranged diametrically thereof, and, hence, will divide the issuing column of sparks and cinders into two streams; said deflector is so mounted as to permit it to be swung backwardly for the reasons originally stated, means being also provided for securely locking said deflector in upright or operative position. The preferred form of mounting comprises a hinge joint arranged at the rear side of the deflector, and a lock at the opposite side thereof. In constructing the joint and lock, a pair of plates 14 and 15 is riveted to the upper end of the stack

at diametrically-opposite points, and a second pair, indicated by the numerals 16 and 17, to the meeting lower ends of the flanges 6 and 7, the several plates being all more or less of angular or angle-iron construction. The two rear plates 14 and 16 are formed with coöperating knuckles through which a hinge or pivot bolt 18 is inserted. The lower front plate 15 is formed with a bifurcated upward extension 19 wherein is pivoted as at 20 a catch 21 whose finger 22 is normally held in engagement with the horizontal portion of lip 23 of the upper front plate 17 by means of a spring 24. When the catch is released from such engagement, the deflector may be swung backwardly, so as to permit the crown portions of its two wings to rest directly upon the boiler, as shown in dotted lines in Fig. 3, the height of the deflector being such as to permit this action.

When the deflector is in its working position, and the locomotive is in motion, the forced draft through the stack will obviously drive the cinders and sparks against the curved under faces of the two wings, which faces will constitute deflecting surfaces and will cause the cinders and sparks to travel into the chutes 9 and 10, whence they are discharged into the pipes 11 and 12 and finally into the receptacle 13. The flanges 6 and 7 assist in directing the two streams of cinders and sparks toward the chutes, by causing the convergence of said streams, as will be apparent, while the enlargement of the chute mouths serves to insure the entrance of said streams into the chutes. The employment of the hinge joint described enables the deflector to be swung rearwardly into position upon the boiler, thereby preventing it from striking against the door of the round-house, when the locomotive enters the same, and also relieving the strain upon the hinge, while the lock utilized admits of the deflector being securely maintained in working position.

I claim as my invention:

1. The combination, with a smoke stack, and a pair of pipes connected to opposite sides thereof, of a spark deflector hinged to said stack for bodily swinging movement and comprising a pair of diverging wings, and a discharge chute rigidly attached to each wing for movement therewith, the outlet ends of said chutes being adapted for reception in the inlet ends of said pipes when said deflector is in its operative position.

2. A spark deflector for smoke stacks comprising a pair of upwardly-extending diverging members having their lower edges meeting and connected together, said edges projecting over the mouth of the stack, a hinge connection between one end of said edges and said stack, for permitting a bodily swinging movement of the deflector, a plate secured to the opposite end of said edges, a plate secured to the stack adjacent the first-named plate and adapted to support the latter when the deflector is in operative position, and a catch carried by one of said plates and adapted to engage the other plate, to retain said deflector in such position.

3. A spark deflector comprising a pair of connected divergent wings, and a tubular discharge chute rigidly connected to the outer end of each wing and constituting a continuation of the same, the inner wall of each chute being directed away from the outer wall at the inlet end thereof to provide an enlarged mouth overhung by the wall of the corresponding wing adjacent its point of connection thereto.

4. A spark deflector for smoke stacks comprising a pair of upwardly-extending diverging members having their lower edges meeting and connected together, said edges projecting over the mouth of the stack, and a tubular discharge chute rigidly connected to the upper end of each member and constituting a continuation of the same; a hinge connection between one end of said edges and said stack for permitting a bodily swinging movement of said members and their chutes, and means for locking the opposite end of said edges to said stack.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES F. VERMILLION.

Witnesses:

J. W. JONES,

J. R. MITCHELL.