W. L. PEACH.

SPARK AND CINDER ARRESTER.

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1,043,716.

Patented Nov. 5, 1912.

Fig. 1.

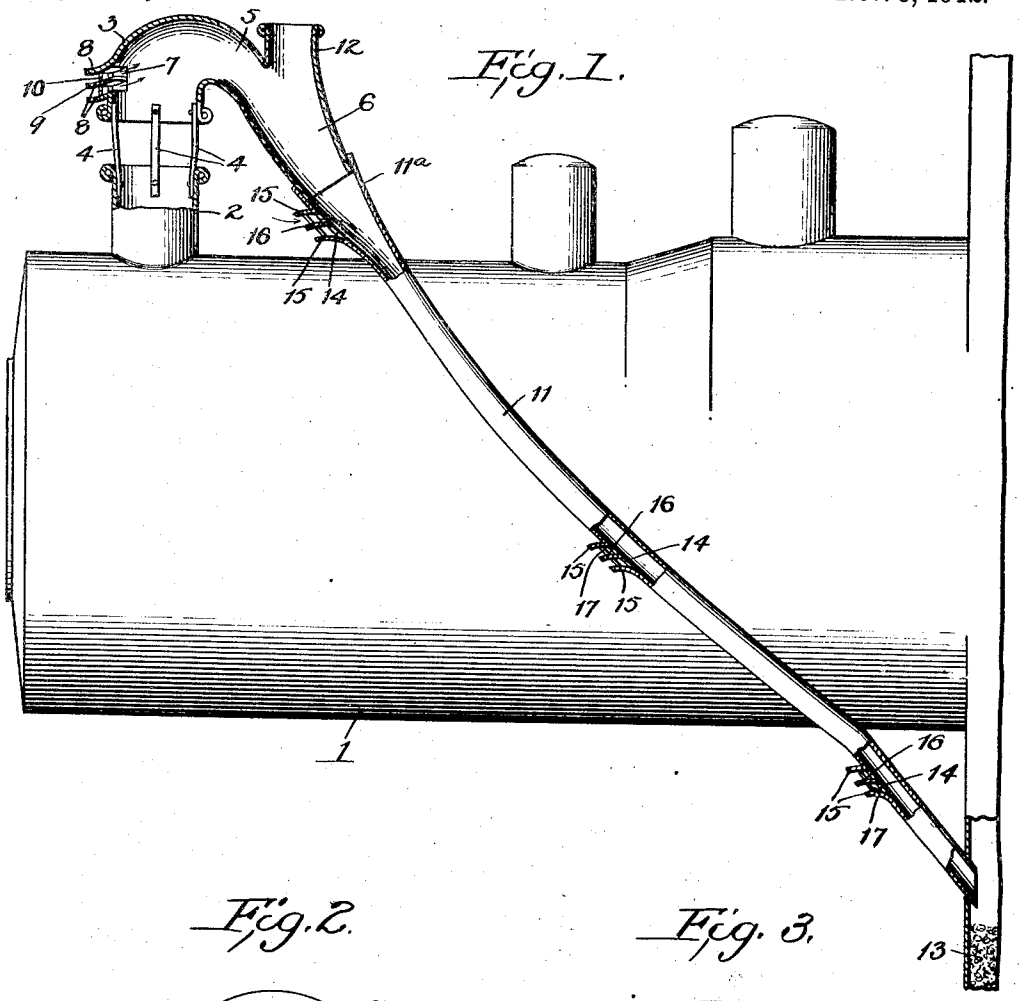


Fig. 2.

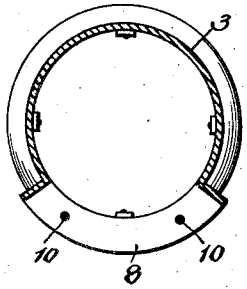
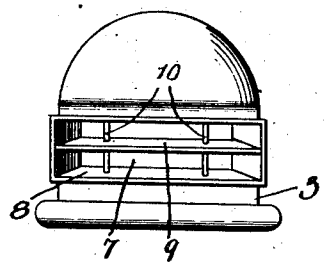


Fig. 3.



WITNESSES

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SPARK AND CINDER ARRESTER.

1,043,716. Specification of Letters Patent. Patented Nov. 5, 1912.

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To all whom it may concern:

Be it known that I, WELCOME L. PEACH, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Spark and Cinder Arresters, of which the following is a specification.

The present invention relates to certain new and useful improvements in the construction of cinder and spark arresters such as are adapted to be applied to locomotives and the like for the purpose of preventing the escape of live sparks and cinders.

Among the objects of the invention is to provide a device of this character which is comparatively simple and inexpensive in its construction, which can be readily placed in position or removed therefrom, and which will operate in a reliable and effective manner to prevent the escape of live sparks and cinders.

A further object of the invention is to provide a device of this character which will not interfere with the draft of the engine and which permits the usual smoke to escape, the sparks and solid particles being separated from the smoke and carried to some safe depository such as the ash pit of the engine.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a side elevation of a spark and cinder arrester constructed in accordance with the invention and applied to a conventional form of locomotive, parts being broken away and shown in section to more clearly illustrate the details of construction. Fig. 2 is an enlarged horizontal sectional view through the hood which is arranged over the smoke stack, and Fig. 3 is a front elevation of the said hood.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

For the purpose of illustration the spark and cinder arrester is shown as applied to a locomotive 1 which is of the conventional construction and is shown as formed with a smoke pipe 2. A hood 3 is arranged above and in a spaced relation to the smoke stack 2, a series of upright rods or braces 4 being utilized for retaining the hood rigidly in position. The smoke as it emerges from the smoke stack will escape between the top of the smoke stack and the hood 3 and float back over the locomotive and train in the usual manner. The draft of the boiler will, however, carry the live sparks and cinders upwardly into the hood 3 where they will meet a draft of cold air and be carried rearwardly and downwardly through the neck 5 into a separating chamber 6 which is arranged to the rear of the hood 3.

The front of the hood 3 is formed with a transverse slot or opening 7 which is surrounded by a forwardly projecting lip 8, the portions of the lip at the top and bottom of the slot being curved forwardly and downwardly so as to tend to deflect upwardly the air entering the hood through the slot 7. A deflecting plate 9 is arranged between the upper and lower portions of the lip 8, the said deflecting plate 9 being curved longitudinally to correspond to the transverse curvature of the hood, and being also curved transversely in a manner corresponding to the curvature of the lip 8. Intermediate portions of the deflector plate 9 are supported by the vertical braces 10 so that the deflector plate is held rigidly in position, and it will be obvious that the transverse curvature of the deflector plate will coöperate with the upper and lower portions of the lip 8 to deflect upwardly the air which enters the hood through the slot 7. A current of air is thus provided within the hood for carrying the sparks, cinders, and hot air from the engine rearwardly and downwardly into the separating chamber 6. The lower end of the separating chamber 6 communicates with the flared upper end 11^a of a cinder pipe 11, while the top of the separating chamber 6 is formed with an upright pipe 12 through which the hot air from the engine is permitted to escape. The cinders and heavy particles pass from the separating chamber 6 into the cinder pipe 11, the lower end of the cinder pipe discharging into some suitable depository such as the ash pit 13 of the locomotive.

The cinder pipe 11 is provided at suitable intervals in the length thereof with the forwardly facing transverse slots 14, the said

slots being provided at the top and bottom thereof with forwardly projecting lips 15 which are curved forwardly and upwardly. A deflector plate 16 is arranged between each pair of the lips 15, the said deflector plates being curved in a similar manner to the lips and being held in position by means of the brace rods 17. Owing to the fact that the lips 15 and deflector plate 16 are curved upwardly and forwardly, it will be apparent that air entering the cinder tube 11 through the slots 14 will be deflected downwardly and will tend to carry the cinders and solid particles downwardly through the tube until they are finally discharged from the lower end thereof in the ash pit 13.

In the operation of the device, the smoke escapes between the upper end of the smoke stack 2 and the hood 3 and floats rearwardly over the train, while the draft from the boiler causes the hot air, cinders and live sparks to pass upwardly into the hood 3. The current of air in the hood 3 which enters the same through the slot 7 and is deflected upwardly by the plate 9 tends to carry the hot air, cinders and sparks rearwardly and downwardly into the separating chamber 6. The hot air rises from this chamber, and escapes through the pipe 12, while the cinders and solid particles are carried downwardly through the cinder pipe 11 and discharged into the ash pit 13.

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

1. A spark and cinder arrester including a hood, means for supporting the hood above and in a spaced relation to a smoke stack, a separating chamber communicating with the hood and provided at the upper end thereof with a hot air discharge pipe, a cinder pipe communicating with the lower end of the separating chamber, and means for producing an air current through the hood and cinder pipe for carrying the cinders through the same.

2. A spark and cinder arrester including a hood provided in the front thereof with a slot, means for supporting the hood over a smoke stack and in a spaced relation thereto, lips projecting forwardly from the edges of the slot of the hood, a deflector plate arranged between the lips and coöperating therewith to deflect air upwardly within the hood, a cinder pipe in communication with the hood, and means for producing an air current within the cinder pipe for carrying the cinders through the same.

3. A spark and cinder arrester including a hood, means for supporting the hood above a smoke pipe and in a spaced relation thereto, a cinder pipe in communication with the hood, said cinder pipe being formed at the front thereof with a series of openings, lips projecting forwardly from the edges of the openings, deflector plates arranged between the lips of the openings, said deflector plates coöperating with the lips to deflect air through the cinder pipe for carrying cinders through the same.

4. A spark and cinder arrester including a hood provided at the front thereof with a transverse slot and at the rear thereof with a downwardly curved neck, a separating chamber communicating with the neck and provided at the top thereof with a hot air outlet pipe, means for supporting the hood above and in a spaced relation to a smoke stack, downwardly and forwardly projecting lips at the top and bottom of the before mentioned slot in the hood, a deflector plate arranged between the lips and coöperating therewith to deflect air upwardly within the hood, a downwardly extending cinder pipe communicating with the lower end of the separating chamber, said cinder pipe being provided at intervals in the length thereof and in the forward face thereof with slots, upwardly and forwardly projecting lips at the edges of the slots, and deflector plates arranged between the plates and coöperating with the lips to produce a downward air current in the cinder pipe.

In testimony whereof I affix my signature in presence of two witnesses.

WELCOME L. PEACH.

Witnesses:
WILLIAM CALETZ,
JOHN SHUTT.