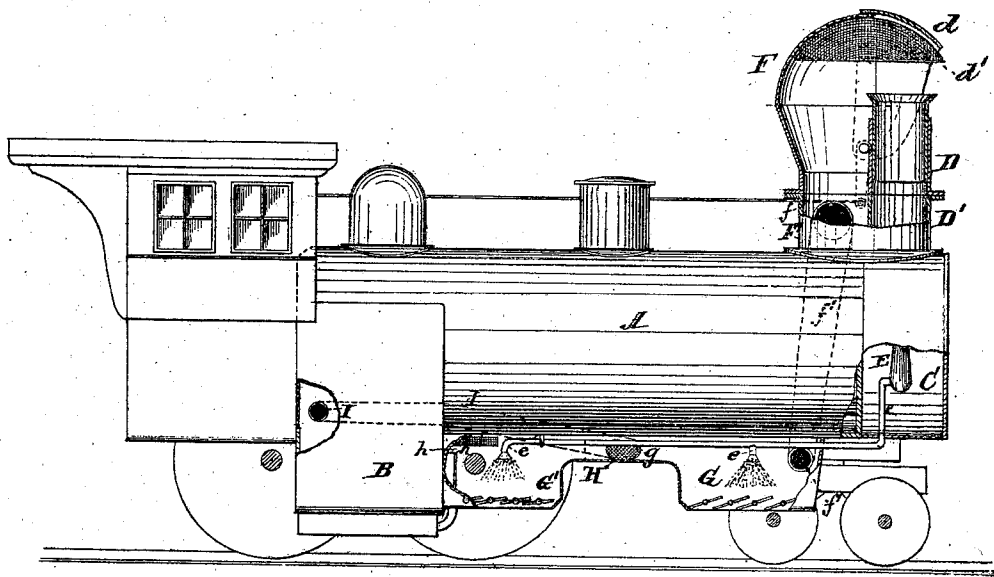


W. MARTIEN.

Spark-Arrester for Locomotives.

No. 133,655.

Patented Dec. 3, 1872.



Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM MARTIEN, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN SPARK-ARRESTERS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. 133,655, dated December 3, 1872.

### CASE A.

*To all whom it may concern:*

Be it known that I, WILLIAM MARTIEN, of Baltimore, in the county of Baltimore and State of Maryland, have invented a Spark-Arrester and Smoke-Consumer for Passenger-Locomotives, of which the following is a specification:

The invention consists in arresting the smoke, sparks, and cinders at the top of smoke-stack and forcing them by an air-draft from front of locomotive down a tube and into a chamber where the cinders are stopped while the smoke is carried around and emptied into fire-box. It also consists in a peculiar construction of cinder-pit and smoke-stack, by which they are better adapted to the purpose in view.

In the drawing, the figure is a side elevation, partly broken out.

A represents a locomotive-boiler; B, the fire-box; C, the smoke-box; D, the ordinary smoke-stack; and E E, the exhaust-pipes, discharging into smoke box or stack to increase draft. F is a hollow head, on which is placed a pivoted and movable hood, *d*, that is shifted from the cab-box of engine by suitable intermediate connections. *d'* is a subjacent screen that arrests sparks and cinders when stack is raised. This head F has a neck, *f*, and a pipe, *f'*, passing around boiler to a cinder-pit, G. The latter connects with another cinder-pit, G', nearer the fire-box. H H are sieves in the sides of part *g* that connect cinder-pits G G', and I I are side pipes leading from these sieve-apertures to the fire-box B. The head F, neck *f*, and pipe D are fitted telescopically on the parts D' F', so that when the fires are being started and the steam raised as great a draft as possible may be secured. *h* is a sieve inside of cinder-box G', which takes off the surplus current of air.

The operation is as follows: The smoke, sparks, and cinders passing from fire-box B move to the smoke-box C, where the draft is

increased by the issue of steam from the exhaust-pipes E E; then, passing up stack D, they are arrested by the hood *d*, met by the counter-draft from front of locomotive, and carried through head F and pipe *f f'* to cinder-pit G, where the coarsest cinders lodge, while the finer ones pass on to pit G'. The smoke, passing through sieves H H and pipes I I, is discharged into fire-box B.

*e e* are pipes communicating with exhaust-pipes E E, and arranged to discharge jets of steam upon the hot cinders in pits G G' so as to extinguish combustion promptly. The cinder-pits are provided with bottom composed of folding slats, which may be opened when it is desired to discharge the cinders.

It will be observed that the air which is gathered in head F by the movement of the locomotive passes into cinder-pit G, divides in the neck *g*, and moves into fire-box in three separate columns through pit G' and pipes I I. Here it forms a junction with the ordinary draft, and augments the force of the circulating current to a very considerable extent.

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

1. The smoke-stack D, combined with hood *d*, head F, pipe *f f'*, cinder-pits G G', sieves H, and pipes I I leading into fire-box, as and for the purpose described.

2. The smoke-stack D and head F telescopically jointed to parts D' F', as and for the purpose described.

3. The arrangement of pipes *e e* in connection with exhaust-pipes E E and pits G G', so as to discharge jets of steam into the latter and promptly extinguish combustion of cinders, in the manner described.

WILLIAM MARTIEN.

Witnesses:

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