

M. B. MASON.

Spark-Arresters for Locomotives.

No. 142,251.

Patented August 26, 1873.

Fig. 1.

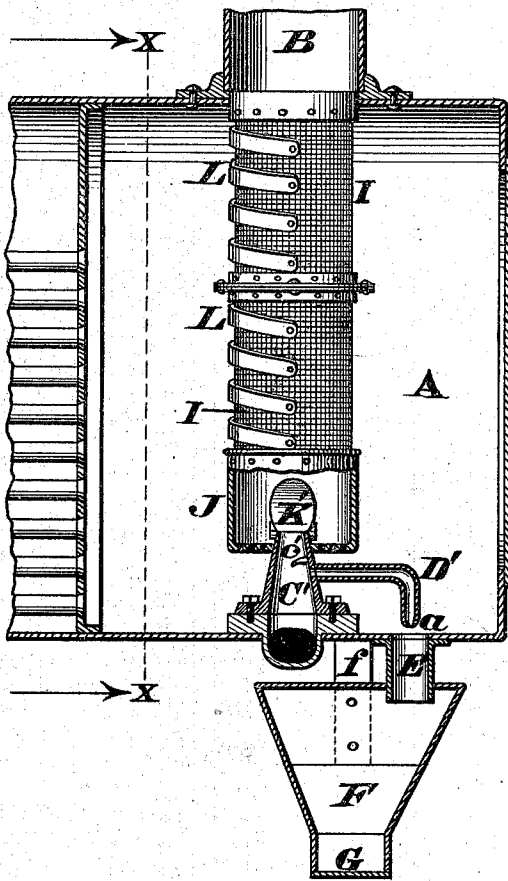


Fig. 2.

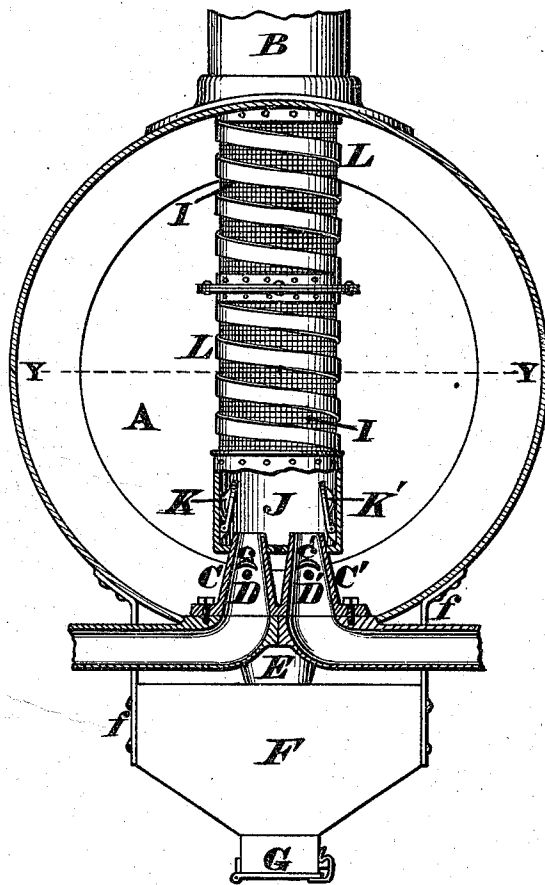


Fig. 3.

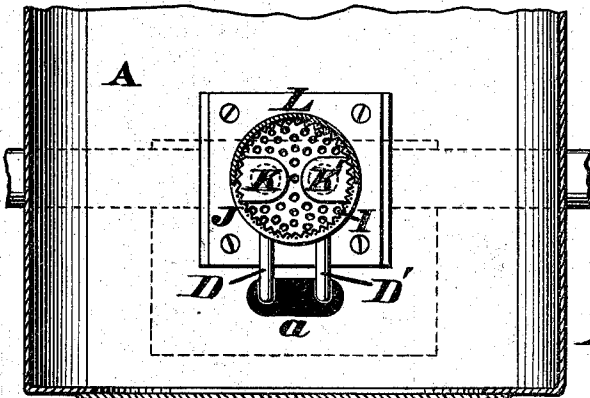
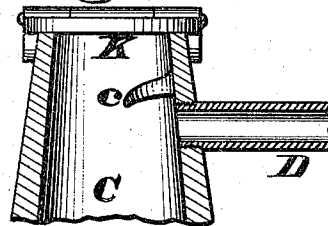


Fig. 4.



M. B. Mason
by Knight Bros.
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 Jas. H. Gayman,
 John H. H. H.

UNITED STATES PATENT OFFICE.

MATTHEW B. MASON, OF KANSAS CITY, MISSOURI, ASSIGNOR TO HIMSELF
AND JOHN S. MCCRUM.

IMPROVEMENT IN SPARK-ARRESTERS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. 142,251, dated August 26, 1873; application filed
July 25, 1873.

To all whom it may concern:

Be it known that I, MATTHEW B. MASON, of Kansas City, Jackson county, Missouri, have invented an Improved Spark-Arrester for Locomotives, of which the following is a specification:

My invention is designed to arrest and precipitate into a hopper or other suitable receptacle, by means of down-turned spouts leading from the exhaust-nozzle, all cinders and other solid particles which the force of the draft shall carry forward into the smoke-arch, and, by so doing, prevent their escape into the chimney; and, for additional safeguard, I cause all the smoke not so precipitated to traverse the meshes of a gauze "petticoat," which depends from and guards the chimney-entrance, and receives at its lower end the discharge-nozzles of the exhaust-pipes, said end being otherwise closed. I further provide, opposite the ventages of the exhaust-nozzles, valves or flaps, which prevent the said nozzles throwing out dirty water when the engines are first started, yet yield readily to the issue of steam from the full exhaust. I further provide on the rear side of the petticoat a series of guards or fenders, which prevent injury to the flue side of the petticoat by the contact of particles of coal or other hard matters projected against it by the force of the draft.

Figure 1 is a longitudinal section through the smoke-arch of a locomotive provided with my improved spark-arrester. Fig. 2 is a transverse vertical section of the same at the line *x x*. Fig. 3 is a horizontal section at the line *y y*; and Fig. 4 is an enlarged axial section through the upper portion of one of the exhaust-nozzles, the valve thereof being closed.

A may represent a smoke-arch of customary form; B, lower portion of the chimney leading from the same; C C', discharge-nozzles of steam-exhaust; D D', spouts which conduct from nozzles C C' downward over an opening, *a*, in the floor of the arch. Projecting a suitable distance into the nozzle C, and located above the pipe D, is a plate, *c*, which serves to arrest a portion of the escap-

ing steam and deflect it into said pipe D. By this means a sufficient blast is obtained through pipe D to insure all of the sparks and cinders being carried down through opening *a* into the receptacle provided for them beneath the smoke-arch. The nozzle C' is also provided with a deflecting-plate, *c'*, for a similar purpose; E, neck to said opening, which enters a receptacle or hopper, F, which converges at bottom to a discharge-trap, G. This hopper may be suspended from the smoke-arch by bars *f*, or otherwise. Depending from the saddle H of chimney is a cylindrical wire-gauze petticoat, I, which terminates at bottom in a cylindrical shoe, J, pierced to receive the tips of the exhaust-nozzle. Over the ventage or outlet of each nozzle is arranged a hinged flap or valve, K or K', which is of sufficient weight and of such position as to deflect and beat down any water that may escape from the cylinders at the first turning on of the steam, but to yield to the full head of exhaust steam when under complete headway. L are guard-pieces of wrought-iron plate to protect the petticoat from being dented or broken in by the violent impact of coal and other hard fragments from the flues. These curved guard-plates or ribs may extend horizontally around the petticoat; but I prefer to arrange them in the spiral or helical manner shown. It is not necessary for them to entirely surround the petticoat, as it is only the rear portion of the latter that requires their protection.

The petticoat is preferably made in sections, as represented, so as to be easily removed for cleansing, inspection, or renewal.

A sufficient quantity of condensed steam is discharged through the pipes D D' to extinguish all the sparks and cinders contained within the receptacle F, from which the deposits can be removed, when necessary, by simply opening the trap G, and without detaching any part of the apparatus from the boiler.

It is evident that my spark-arrester can be applied to portable and stationary engines as readily as to locomotives.

I claim as new and of my invention, and desire to secure by Letters Patent—

1. The down-turned spouts D D' from the exhaust-nozzles O c C' c', arranged to discharge through aperture *a* in the smoke-arch into a hopper or receptacle, F, having a discharge-trap or valve, G.

2. The combination, with the petticoat-pipe I, of iron guards L to protect it from denting

or breaking by coal or other fragments from the flues striking against it, as set forth.

In testimony of which invention I hereunto set my hand.

MATTHEW B. MASON.

Attest:

GEO. H. KNIGHT,
JOHN KILOH.