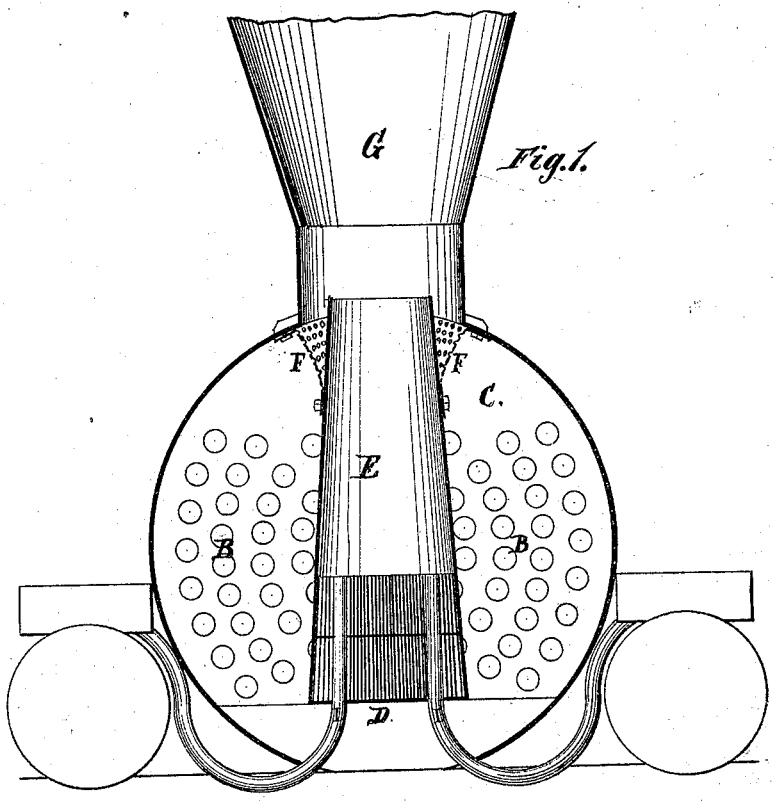
Kearney & Tronson,

Spark Arrester.

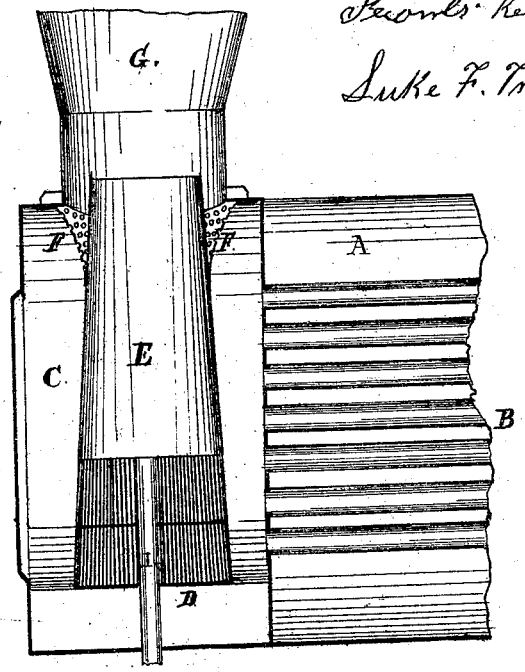
No. 113,528. Patented Apr. 11. 1871.

Fig. 1.



Inventors.
Francis Kearney
Luke F. Tronson

Fig. 2.



Witnesses.
D. H. Crawford } attest
Edward Collver

United States Patent Office.

FRANCIS KEARNEY AND LUKE F. TRONSON, OF NEWARK, NEW JERSEY.

Letters Patent No. 113,528, dated April 11, 1871.

IMPROVEMENT IN SPARK-ARRESTERS FOR LOCOMOTIVES.

The Schedule referred to in these Letters Patent and making part of the same.

We, FRANCIS KEARNEY and LUKE F. TRONSON, of the city of Newark, county of Essex and State of New Jersey, have made certain Improvements in Spark-Arresters in Locomotives, of which the following is a specification.

The improvement relates to effectually preventing hot coals passing from the chimneys of locomotives, arresting them before they get to the chimney.

On the forward end of a locomotive-boiler is an extension, on the top of which is the chimney or smoke-stack.

This receptacle of all that passes through the boiler-flues to the smoke-stack is technically known as the smoke-head. The pipes from the boiler to the engines pass through the smoke-head, and the steam is exhausted thereinto from the cylinders.

In the unoccupied space in this smoke-head we place a grate, the peculiar features of which are its perpendicular bars with fixed apertures sufficiently fine to stop the sparks that come from the fire, the size of the grate being determined by the area of opening needed for the regular draught and escape of smoke on kindling the fire, or when the engine is not in motion.

Upon the top of the grating a tube or pipe is fitted, extending upward a short distance above the top of the smoke-head into the chimney. A space is left around the top of the pipe between the edges of the aperture in the top of the smoke-head and the pipe. This space is covered with netting or grating to prevent sparks or coals from passing through into the chimney.

In the accompanying drawing—

Figure 1 is a view in section of the front of the smoke-head with the gratings and pipe in position.

Figure 2 is a side view of the end of the boiler and of the smoke-head.

A is the boiler.

B, the flues.

C, the smoke-head.

D, the grate.

E, the pipe on the top of the grate.

F is the netting closing the aperture between the pipe and the smoke-head;

G is the chimney or smoke-stack; and

I, the exhaust-pipes from the engines.

It will be seen that nothing but smoke and gas can pass the top netting F, and that no coals or dangerous sparks can pass into the chimney, they being arrested by the grate D without having received any impulse from the exhaust-pipes.

The strong draught created by the exhausting steam up the pipe into the chimney brings the coals and sparks to the grating, against which they strike and fall harmless into the space in the smoke-head.

By our arrangement the gases that are returned by contrivances that turn sparks downward in the smoke-stack, and sometimes force open the fire-door, have a clear passage to the atmosphere.

We disclaim all draught-regulating contrivances, and also all gratings with lateral adjustable openings.

What we do claim as our improvement, and desire to secure, is—

The grate D with longitudinal bars, as and for the purposes specified and shown.

FRANCIS KEARNEY.
LUKE F. TRONSON.

Witnesses:

WM. M. GOODING,
EDWARD COLLVER.