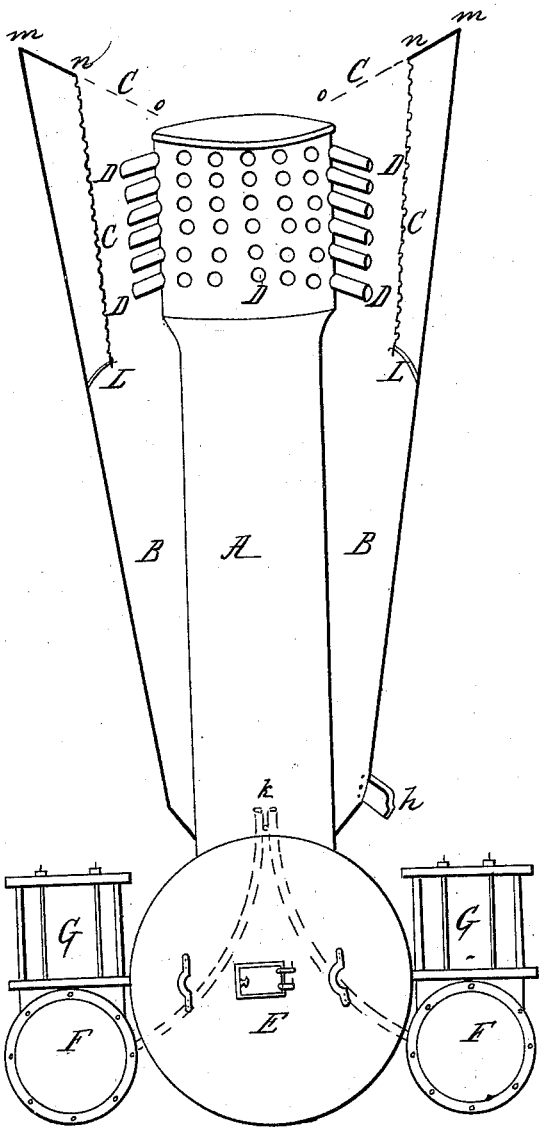
J. Eckler,

Spark Arrester,

No. 2,808. Patented Oct. 7. 1842.



Witnesses:
Jas. D. Pinckney
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UNITED STATES PATENT OFFICE.

JAMES ECKLER, OF CATSKILL, NEW YORK.

SPARK-ARRESTER.

Specification of Letters Patent No. 2,808, dated October 7, 1842.

To all whom it may concern:

Be it known that I, JAMES ECKLER, of Catskill, in the county of Greene and State of New York, have invented a new and Improved Mode of Arresting and Extinguishing Fire-Sparks Proceeding from the Furnaces of Locomotive-Engines; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in attaching to, and enveloping or surrounding the smoke pipe or chimney with a sheet iron shell or case with screws attached inside, also surrounding the pipe, and above it, and also the insertion of pipes or tubes into and around the chimney, through which the sparks necessarily rush and fall to the bottom of the shell or case, either immediately upon leaving the tubes, or after being forced through the screen.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation, referring to the drawings hereto annexed, and the model furnished.

The drawings are marked with letters upon the parts and are thus explained.

A, represents the chimney or smoke pipe, is 16 inches in diameter, until near the top, when it is swelled to 18 inches in diameter by the same height. This enlarged top is perforated with holes 3 inches in diameter, into which are inserted tubes of the same diameter, 6 inches in length, of sheet iron, as is also the chimney. The sparks being forced up the chimney, (which is closed at the top) are driven outward and slightly downward through the pipes marked D, falling to the bottom of the shell B. A portion of the sparks are forced through the screen C, and also fall to the bottom of the said shell, being extinguished by the condensed steam from the exhaust pipes, (marked K, and traced with red ink on the drawing).

B, represents the outer covering or shell completely surrounding the chimney and rising one foot above its top at its extreme height. This shell is of sheet iron, 4 feet in diameter and gradually diminishes to 22 inches near the bottom where it is fastened to the chimney, the lower part of this shell being the depository for the extinguished sparks. The top of this shell is tightly covered from the letters *m*, to *n*, to prevent the escape of the sparks which are forced through the screen C.

C, represents a screen of wire or perforated sheet iron within the shell B, intended to break off the force of the sparks as they rush through the pipes D. This screen is fastened to the shell by means of braces L, and is about equidistant from the shell and the ends of the pipes, it is sufficiently coarse to admit the passage of fine sparks, but is of fine texture on the top from *n* to *o*, so no sparks can escape, while it furnishes assistance to the draft of smoke.

D, &c., are the pipes before mentioned, about 6 inches long and 3 inches in diameter. The sparks arrested in their upward course by the closing of the top of the pipe A, are forced through these pipes D, against the screen C, when they fall to the bottom of the shell either before or after passing through the screen which is open at the braces L, the condensed steam in the shell extinguishing the sparks.

E, represents the head of the boiler of a locomotive engine. F, shows the ends of the cylinders of the same.

G, are the steam chests. These three last are merely drawn to show the connection and relative positions of the improvement for which Letters Patent are claimed.

h, is an aperture through the case or shell, through which the extinguished sparks are removed daily, or as occasion may require.

k, are the exhaust pipes from the cylinders conducting the steam into the chimney A.

L, are brads attached to the lower edge of the screen, and the shell for the support of the screen C.

From *m*, to *n*, is the top of shell B, and is tight to prevent the passage of sparks, which have been driven into the space between the screen C, and the shell B. From *o*, to *n*, is the top of the screen, and is made sufficiently fine or close, to prevent the escape of sparks, while it admits of the passage of air and smoke. From O to the head or top of the chimney (4 inches) is an open space for draft and smoke.

What I claim as my invention is—

The manner in which the pipes D, are placed in the chimney giving direction to the sparks and, in combination therewith, attaching the screens to the outside shell as set forth, so as to produce the effect of ar-

resting the sparks causing them to be extinguished, and to fall to the bottom of the shell or outside case, from which they can be readily removed, and I claim the right to use for such screens either wire or perforated metal, and to vary the proportions of any or all such improvements as different cases may require, without variation of the principles of such improvements.

JAMES ECKLER.

Witnesses:
JAS. D. PICKING,
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