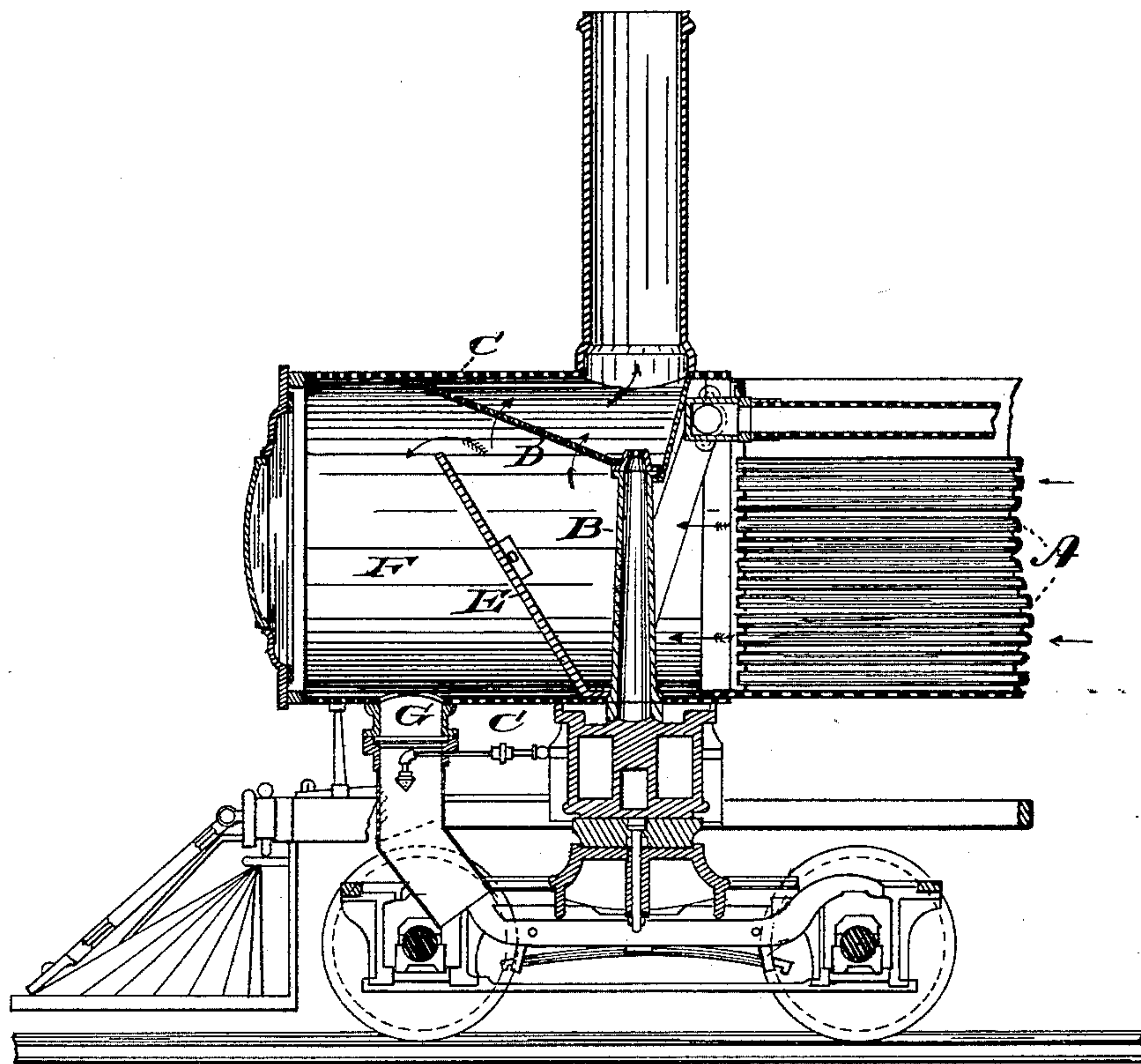


(No Model.)

W. MEIER.
SPARK ARRESTER.

No. 318,573.

Patented May 26, 1885.



Attest:

Frederick F. Campbell.
Edward G. Kempf.

Inventor:

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attys.

UNITED STATES PATENT OFFICE.

WILLIAM MEIER, OF NEWARK, NEW JERSEY.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 318,573, dated May 26, 1885.

Application filed June 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MEIER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide an improved device whereby the sparks are effectually prevented from passing out of the smoke-stack of a locomotive or other engine, by the appliances hereinafter described, without obstructing the draft.

20 The invention consists in the arrangement and construction of the several parts of my invention, substantially as illustrated in the drawing and described and finally claimed hereinafter.

25 The figure in the accompanying drawing is a vertical section taken centrally through the forward part of a locomotive, showing the relation of my improvement to the various parts thereof.

30 In carrying out my invention I extend or enlarge the smoke-box or that part of the locomotive forward of the flues, so as to provide space enough for the proper arrangement of my device; yet, by reducing the parts, it
35 may be used in locomotives as ordinarily constructed.

As illustrated in the drawing, A are the tubes or flues of the boiler, and B the exhaust-tube, constructed as ordinarily used. From
40 the exhaust-tube or the end of the boiler, and extending at angle forward, being secured to the top of the shell C of the engine or in any suitable manner, is a perforated plate, D, forming a trap. In the construction shown in the
45 drawing a plate, H, is used to close the back of the chamber or pocket above the perforated plate.

E is a deflecting-plate, secured, preferably, to the shell of the locomotive at the bottom,

and inclined at an angle upward and away 50 from the boiler toward the perforated plate, leaving an opening between communicating with the chamber or pocket F. As will be understood, the plates E, D, and H extend from side to side of the shell. 55

G is a conveyer or tube communicating with the pocket F and provided with valve therein, whereby the dead sparks are removed from the pocket F at stated intervals.

The exhaust mechanism is similar to that in 60 common use.

The operation of the spark-arresting mechanism is as follows: The gases, &c., from the furnace pass through the tubes A, as indicated by the arrows, and by the force of the draft 65 are carried against the plate E and deflected thereby through the perforated plate, whence they pass into the atmosphere through the smoke-stack. The live sparks and cinders do not pass through the perforations, but rebound 70 and fall behind the plate E into the pocket F, where they are extinguished, because of the vacuum or partial vacuum maintained therein, and, collecting, are removed at intervals through the conveyer G, falling upon the track 75 or in a suitably-prepared place. The plate E, being placed at a distance from the ends of the flues in the boiler and inclining upward and away therefrom, does not break or obstruct the draft in the least, but serves to direct it in the proper direction through the perforated plate and smoke-stack. The cinders, being behind the plate, are away from the influence of the draft, and do not, as occurs in some spark-arresters, keep constantly 85 agitated and liable to clog and seriously impair the successful operation of the device.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is— 90

The combination, with the smoke-box of an engine, of a spark-arrester consisting of a deflecting-plate, as E, extending from the bottom of said smoke-box near the boiler-tubes, and inclining forward and upward toward the top of the smoke-box, dividing said box into two divisions connected over the top of said plate, and a perforated deflecting-plate, as D, 95

arranged between the smoke-stack and said
deflecting-plate E, being secured to the top
of the smoke-box forward of the smoke-stack,
and extending backward and downward to-
5 ward the boiler-tubes, which, together with the
plate H, forms a pocket under the foot of the
smoke-stack, said plate D being arranged at
an angle to the plate E adapted to direct the
sparks deflected against the same by the said

plate E into the pocket F, substantially as set forth.

In testimony that I claim the foregoing I
have hereunto set my hand this 27th day of
May, 1884.

WILLIAM MEIER.

Witnesses:

OLIVER DRAKE,
F. F. CAMPBELL.