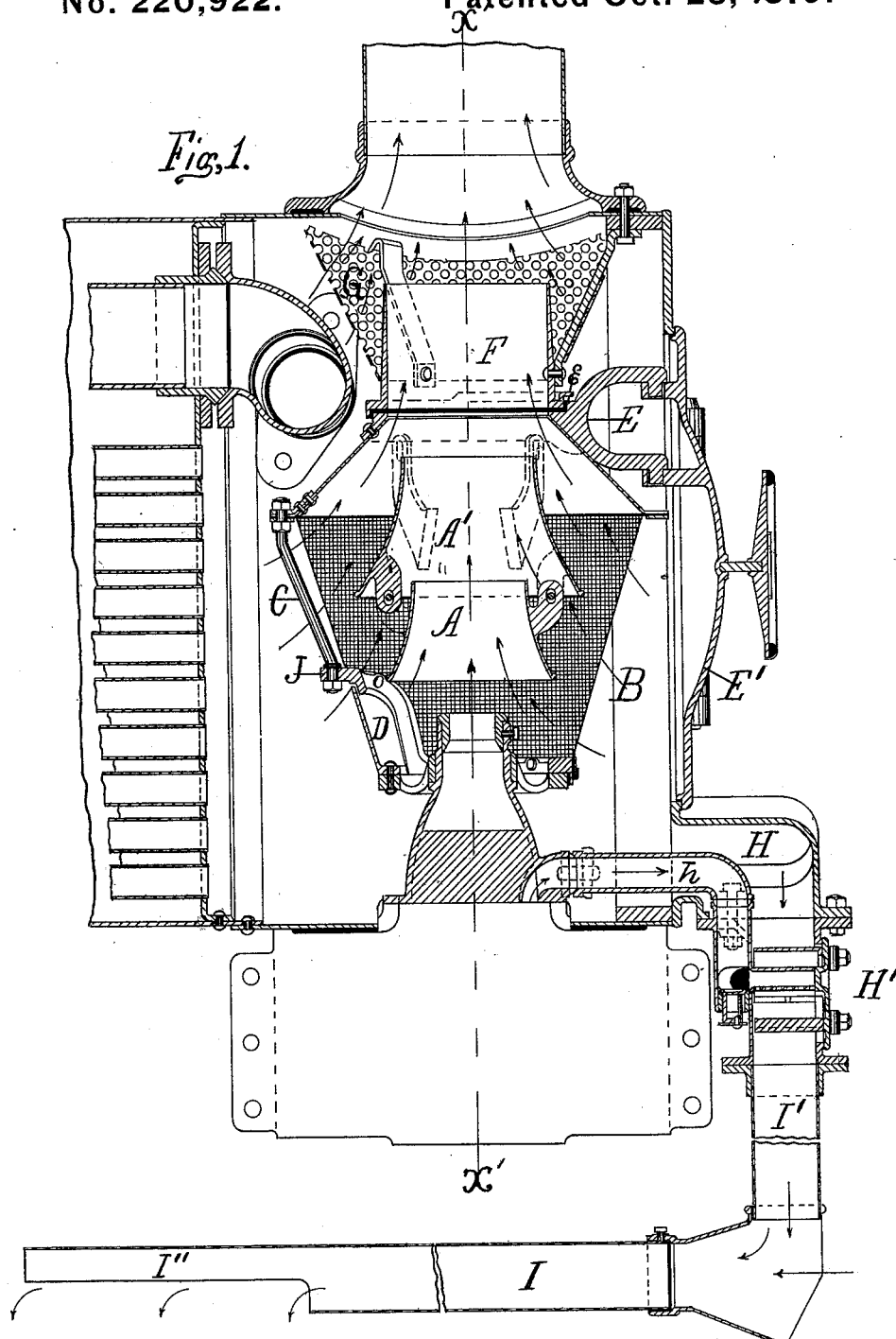


G. D. HUNTER.
Spark-Arrester.

No. 220,922.

Patented Oct. 28, 1879.



Witnesses:
G. P. Atkinson
Wm. P. Downing

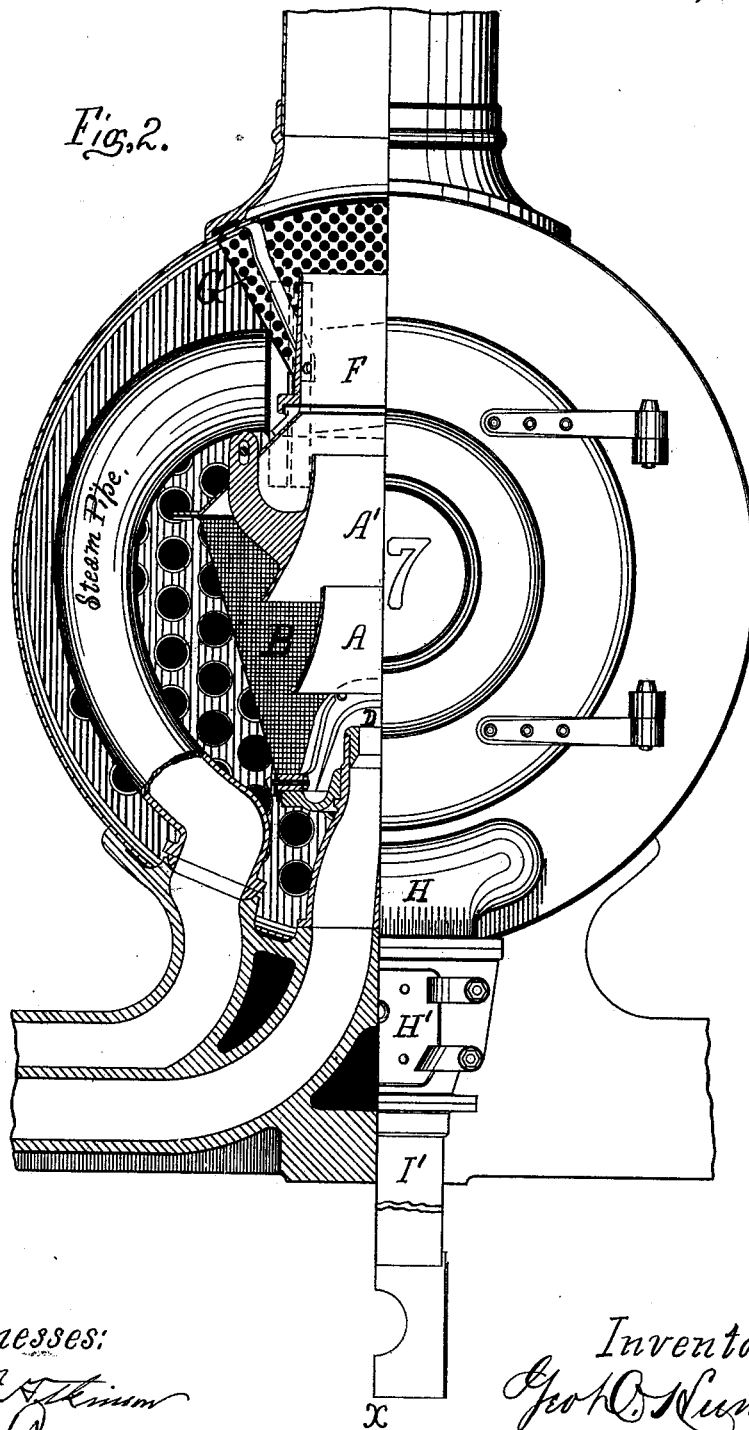
Inventor:
Geo. D. Hunter.

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Fig. 2.



Witnesses:
E. J. Atkinson
W. A. Downing

Inventor:
Geo. D. Hunter.

UNITED STATES PATENT OFFICE.

GEORGE D. HUNTER, OF BLOOMINGTON, INDIANA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **220,922**, dated October 28, 1879; application filed March 20, 1879.

To all whom it may concern:

Be it known that I, GEO. D. HUNTER, of Bloomington, in the county of Monroe and State of Indiana, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a longitudinal section of my improved spark-arrester on line *x x* in Fig. 2. Fig. 2 is a one-half ($\frac{1}{2}$) cross-section on line *x' x'* in Fig. 1 and front end view of the smoke-box.

Similar letters of reference indicate corresponding parts.

The invention is an improvement in the class of spark-arresters placed within the smoke-box of the locomotive.

The object of my invention is to construct a spark-arrester, using the series of cones or injector principle caged in connection with the exhausted steam.

The nature of said improvements I shall now proceed to describe more fully.

In the drawings hereto annexed, A A' represent the series of cones to catch or form sufficient draft.

B is a netting or screen to prevent the sparks from coming in contact with the exhausted steam on entering the stack, which is of any suitable construction—straight, if desired.

C is a brace, three (3) in all, secured to both top and bottom parts of the arrester, to which the netting is fastened, and thereby prevents the netting from warping.

D is a solid sheet or casting, perforated, if desired, riveted to or made solid with the arrester, and placed where the netting is cut away to pass the exhaust-nozzle.

E is a shoulder-casting, with hook-projections, which secure the arrester to the door E', and a raised rim, *e*, extending one-half ($\frac{1}{2}$) around said casting, to guide and hold the arrester in place when the door is closing and closed.

E' represents the smoke-box door, and is

provided with recesses made solid with or fastened to the same, for the casting E to hook or set in.

F is a casting, supported solid by three (3) braces riveted or made fast to it, said braces extending upward and fastened to the top of the smoke-box by bolts passing through the saddle supporting the stack, so that a part or parts of the arrester can be removed without interference.

G is a flaring perforated conical sheet or screen placed in the top of the smoke-box, and supported with the casing F to prevent the exhaust-steam raising the sparks to the top of smoke-box and escaping; also, to let the gases pass out readily.

H is an extension made on the front casting (on which the door E' is supported) under the door, as an outlet for the sparks from the smoke-box, and for the support of the extinguisher H'.

H' represents the extinguisher, fastened to the extension and connected with the exhaust-nozzle by a pipe, *h*, to convey a portion of the exhausted steam to extinguish the sparks before passing out; and as I send at the same time with this an application for patent on the extinguisher, I think it not necessary to describe the extinguisher more fully in this specification.

I is a conveyer, supported independent from the extinguisher and placed under the front truck, extending from the pipe I' as far back as may prove best or desired in both freight and passenger engines. If extended under or beyond the fire-box the ash-pan may be raised or sunken, as preferred. With a tapering casting on the front end, and the back or other end cut away, as shown at I'', so the sparks may fall from the current of air passing through the conveyer, instead of being blown or lifted, as would be the case if dropped direct to the track from the pipe I'.

The castings F and J have each a flanged cover to prevent the sparks from entering between the castings where separated, and to allow the arrester to swing out readily, and also jar by the exhaust-steam, to prevent clinking if so desired.

The spark-arrester is constructed so as to admit of ready access to the boiler-tubes when.

ever it may be required, and a part swings outward when the door is opened, and into place when closed.

The netting is fastened at the bottom of the arrester by a band placed around and fastened to the casting J, and the netting is bent around at the bottom of said band, as shown.

I do not confine myself to the single exhaust-nozzle, as shown in drawings, for the double may be used with equal advantages.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of a spark-arrester with the series of cones A A', arranged within the screen B to receive the exhaust-steam, in the manner and for the purpose hereinbefore set forth.

2. The combination, in a spark-arrester, of the cones A A', screen B, braces C, and casting E, all constructed and arranged to operate substantially in the manner and for the purpose hereinbefore set forth.

3. The combination, in a spark-arrester, of the casting E, the raised rim e, and the smoke-box door E', all constructed and arranged to operate substantially in the manner and for the purpose hereinbefore set forth.

4. The combination, in a spark-arrester, of the casting F, perforated sheet G, and braces supporting the same, constructed and arranged to operate substantially in the manner and for the purpose hereinbefore set forth.

5. The combination, in a spark-arrester, of the door E', boiler-head and smoke-box, and front casting, with extension H, substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE DUNN HUNTER.

Witnesses:

GEORGE T. ATKINSON,
WM. F. BROWNING.