

(No Model.)

P. MURRAY.
SPARK ARRESTER.

No. 292,760.

Patented Jan. 29, 1884.

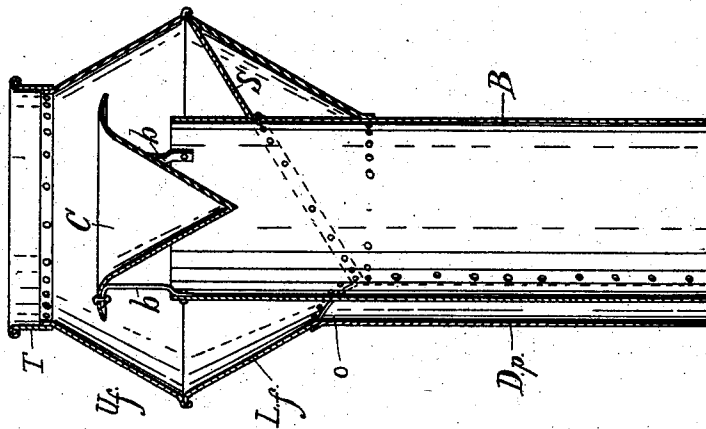


Fig. 2 -

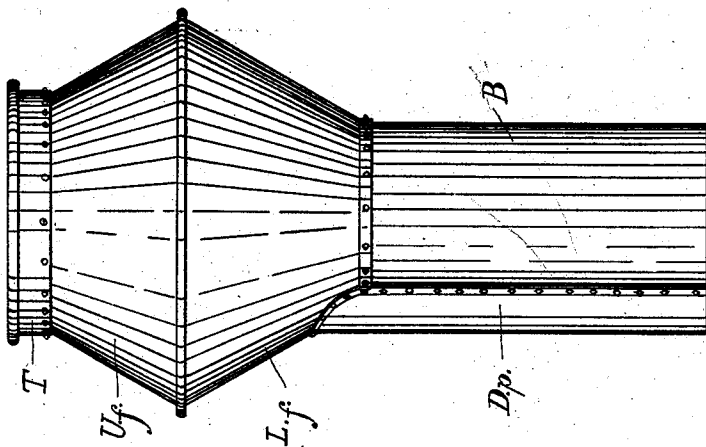


Fig. 1 -

WITNESSES.

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UNITED STATES PATENT OFFICE.

PETER MURRAY, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO
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SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 292,760, dated January 29, 1884.

Application filed August 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, PETER MURRAY, a resident of Indianapolis, Indiana, have made certain new and useful Improvements in Spark-Arresters for Locomotive-Engines, a description of which is set forth in the following specification, reference being made to the accompanying drawings, in the several figures of which like letters indicate like parts.

My invention is designed to provide a simple and efficient means of arresting the sparks and cinders and turning them downward into the smoke-arch without impairing the draft of the engine, and will be readily understood from the following explanation.

In the drawings, Figure 1 is a side view of my stack, and Fig. 2 is a vertical section, showing the internal construction and arrangement of parts.

B is the barrel of the stack; C, a cone secured to and over the top of the barrel by braces or bolts *b*.

Lf is the lower, and *Uf* the upper, flare, and *T* the top of the stack.

S is a shelf inclined from the joints of the flares to the opening *o* of *Dp*, which is a discharge-pipe leading from the bottom of the flare *Lf* to the smoke-arch below, being outside the barrel *B*. This shelf *S* fits closely around the outside of the barrel, and serves to carry down to the top of the discharge-pipe all the ashes and cinders which fall upon it. The cone *C* is of somewhat greater diameter than the barrel, as shown in Fig. 2, and the draft passes out between the top of the barrel and the top of the cone, the sparks and cinders striking against the sloping sides of the upper flare above the line of union of the two flares and about midway between this line and the point where the upper flare joins the top *T*. It will also be noticed that the barrel *B* extends above the line of union of the two flares.

I am aware that cones have been used over the barrel of a smoke-stack, but they have been so placed that they did not arrest the sparks, and the latter were carried out the top, and various devices—such as wire-nettings—have been used to detain them; but these nettings

interfere with the draft, and after repeated experiments I have discovered that if the top of the barrel *B* be brought up to or extended slightly above the joint of the two flares, and the cone be then raised up above this, so that the draft will strike about the center of the upper flare, that no wire gauze or netting is necessary, and that all, or nearly all, the sparks and cinders will fall downward upon the shelf *S*, and the smoke and steam alone be carried out at the top *T*. Upon a recent and severe trial with an old locomotive the device was completely successful, and no sparks or cinders whatever were carried out the top by the draft, which was perfect, and the engine made more steam and worked better than she ever had before; and in the location and elevation of the barrel *B* and its cone *C*, as described, lies the essence of my invention. If the cone be dropped down to the level of the line of junction of the flares, or raised too high, it will not arrest the sparks, and they will pass out the top *T*, carried upward by the draft.

I am aware that spark-arresters have been constructed with the top of the barrel below the union of the flares, and am familiar with the device shown in Nesmith's patent of August 25, 1874; but all these devices are encumbered with parts which, in my judgment, prevent their successful operation; and I disclaim any and all such forms of construction, and only claim as my invention the points herein show and described.

What I claim as my invention, and desire to secure by Letters Patent, is the following:

1. A smoke-stack for locomotive-engines, having a double-flaring head, wherein the barrel extends slightly above the line of union of the upper and lower flares, and is provided with a cone-cover of greater diameter, so arranged and sustained by braces at such a point above the mouth of the barrel that the up-going draft diverted by the cone will strike the upper flare at a point about midway between the junction of the flares and the top, substantially as described.

2. In a smoke-stack for locomotives, a barrel extending above the line of union of the flares, an inverted cone of greater diameter,

sustained by braces at such a point above the
mouth of the barrel that the draft diverted by
the cone will strike about middle of the up-
per flare, a top composed of two flaring parts
5 connected at their widest bases, an inclined
shelf surrounding the barrel and connected to
the sides of the lower flare, and a discharge-
pipe outside the barrel and opening above into
the bottom of the lower flare and below into

the smoke-arch, all combined substantially as 10
described.

In witness whereof I have hereunto set my
hand this 30th day of July, 1883.

PETER MURRAY.

Witnesses:

C. P. JACOBS,
E. E. SICKLER.