

No. 673,608.

Patented May 7, 1901.

F. M. PHILIP.
SPARK ARRESTER.

(Application filed Jan. 2, 1901.)

(No Model.)

Fig. 1

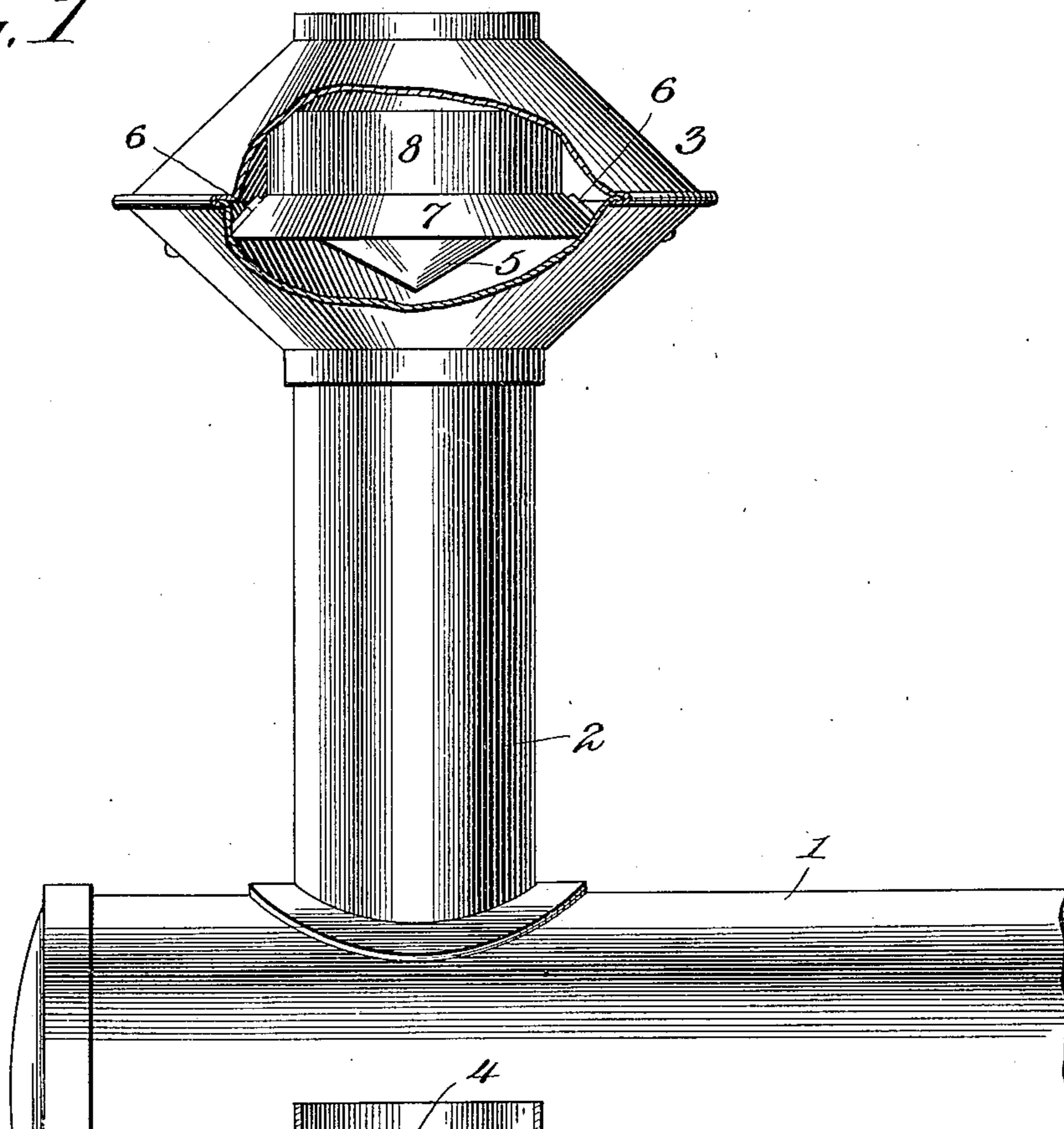
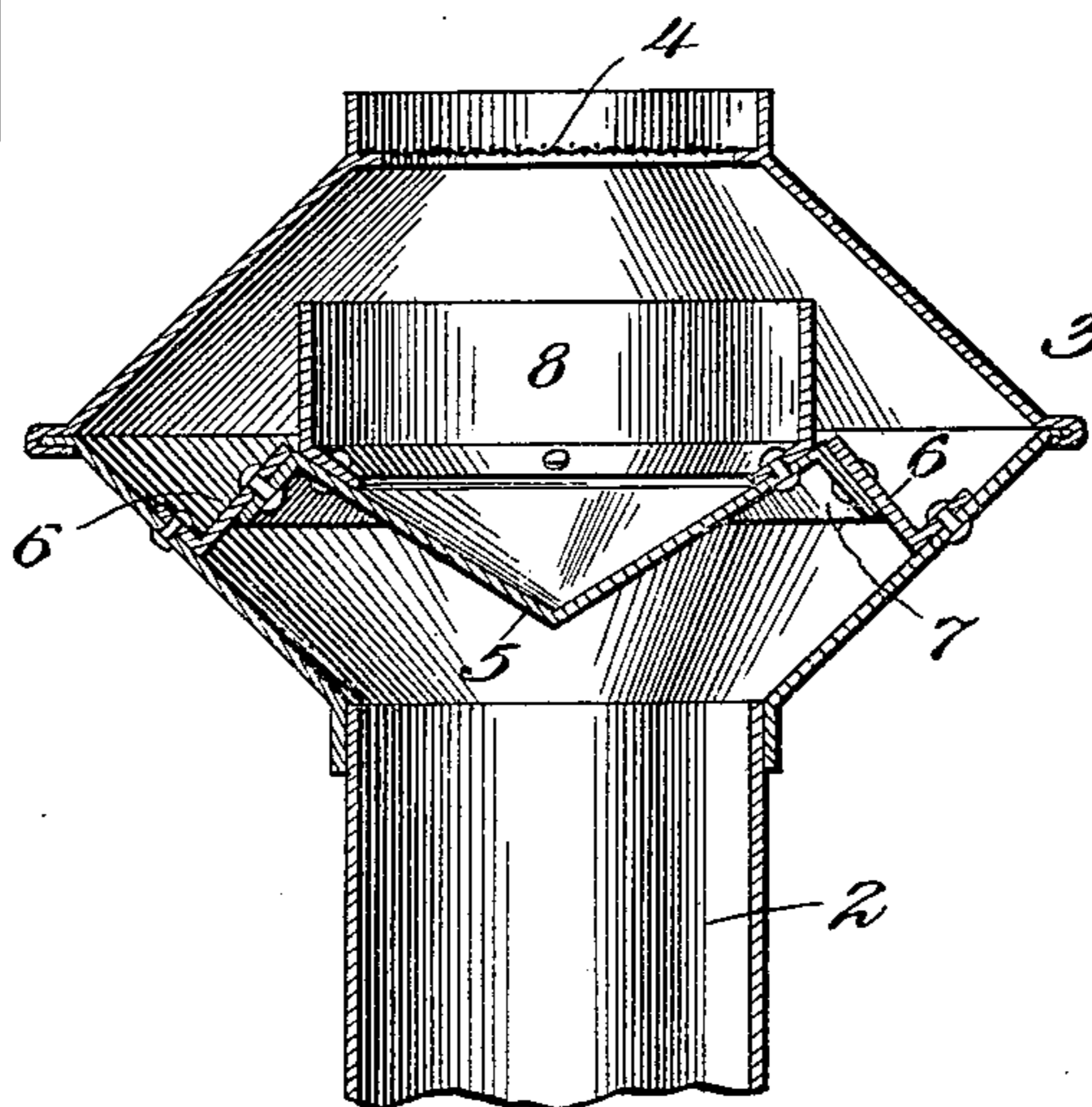


Fig. 2.



Witnesses
[Signature]
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FRANK M. PHILIP, OF MIDDLETOWN, PENNSYLVANIA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 673,608, dated May 7, 1901.

Application filed January 2, 1901. Serial No. 41,855. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. PHILIP, a citizen of the United States, residing at Middletown, in the county of Dauphin and State of Pennsylvania, 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 appertains to make and use the same.

This invention relates to steam-boiler furnaces, and particularly to that class known as "spark-arresters" for locomotives.

One object of the invention is to provide an attachment for locomotive smoke-stacks designed to arrest sparks or live coals which may be emitted from the furnace.

Furthermore, the object of the invention is to provide such an arrester which will not interrupt or interfere with the draft or discharge of the product of combustion.

Furthermore, the object of the invention is to provide such a spark-arrester applicable to smoke-stacks in common use or those of ordinary construction.

Finally, the object of the invention is to produce a spark-arrester which will possess advantages in points of simplicity, efficiency, and inexpensive structure.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter set forth and specifically claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts in both views, in which—

Figure 1 is a view in elevation of a fragment of a steam-engine boiler, showing the smoke-stack with my invention applied. Fig. 2 is a sectional view of the stack and spark-arrester.

In the drawings, 1 denotes the boiler, 2 the smoke-stack, and 3 the flared hood of the smoke-stack, having the upper end or mouth provided with the usual wire-cloth 4 to act as a further guard, although this may be omitted, as it does not enter into the subject of the present invention.

A baffle-plate 5 in the shape of an invert-

ed cone is secured to the inner wall of the flared section of the smoke-stack by means of brackets 6, which are secured to a depending flange 7, formed with or secured to the baffle-plate. The upper edge of the baffle-plate terminates on a line beyond the vertical plane of the interior of the smoke-stack, and the depending flange extends over a suitable distance to effectually guard the passage between the baffle-plate and the flared hood, so that any sparks which find their way up the smoke-stack will impinge the baffle-plate or its flange and its ascent will be arrested and it will fall back, or, if the draft is sufficient to drive it out again, the heat will have left it sufficiently to remove the dangerous character which it would otherwise possess. I have found in practice that this baffle-plate and its flange positioned with relation to the interior of the smoke-stack as described will prove highly efficient, but not absolutely sufficient in itself. For that reason I have provided an extension 8, having an inturned flange by which it is riveted or otherwise secured to the upper surface of the baffle-plate. This extension 8 is the same size as the baffle-plate at its largest diameter, and it is also larger than the diameter of the opening in the upper end of the hood. The extension terminates a distance below the upper end of the hood to permit a draft-space for the discharge of the products, said products being always on the ascent from the smoke-stack to the mouth of the hood, although caused to pursue a slightly-circuitous course.

In operation, as heretofore stated, nearly if not all of the live coals will be arrested; but should such coals avoid the baffle-plate and pass beyond the edge of its depending flange their course would of necessity cause them to come in contact with the contracted wall of the upper section of the hood or they would come in contact with the extension 8 and their upward course through the opening of the hood would be interrupted. Hence by the combined action of the elements of the invention an efficient and practically unfailing operation will result.

Having fully described the invention, what I claim as new, and desire to secure by Letters Patent, is—

In a spark-arrester, a smoke-stack having

a hood, a baffle-plate in the shape of an inverted cone secured to the hood, a depending flange on the baffle-plate for guarding the space between the lower wall of the hood and
5 the baffle-plate, a cylindrical extension secured on the top of the baffle-plate and extending toward the upper wall of the hood, said extension being of greater diameter than the opening in the hood and terminating a
10 distance below and out of vertical alinement

with the opening of the hood, whereby the products of combustion are deflected against the upper wall of the hood, substantially as described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

FRANK M. PHILIP.

Witnesses:

HARRY E. HOFFMAN,
GEORGE W. LYNCH.