

(No Model.)

J. D. AKLEY.
SPARK ARRESTER.

No. 255,558.

Patented Mar. 28, 1882.

Fig. 1.

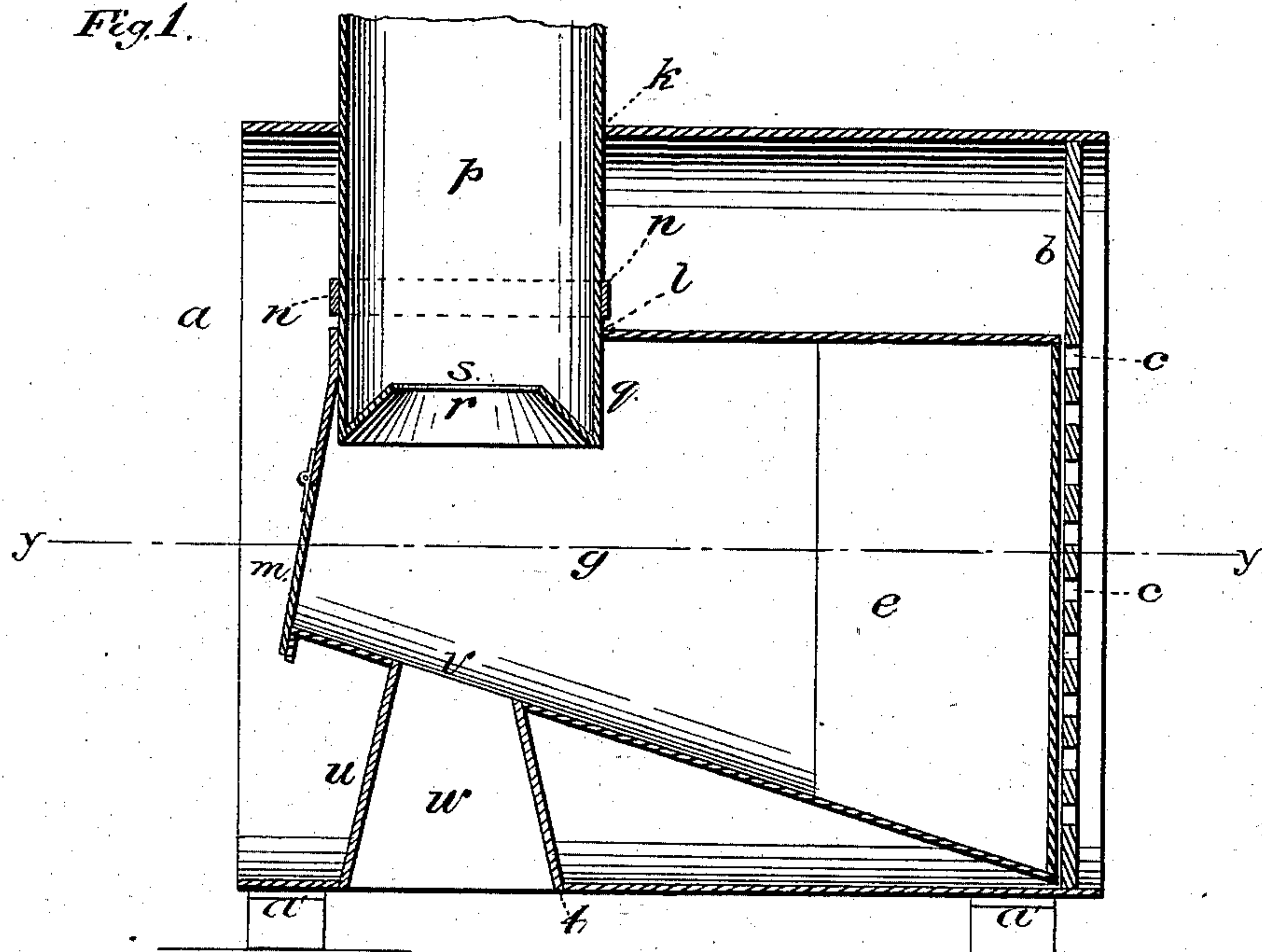
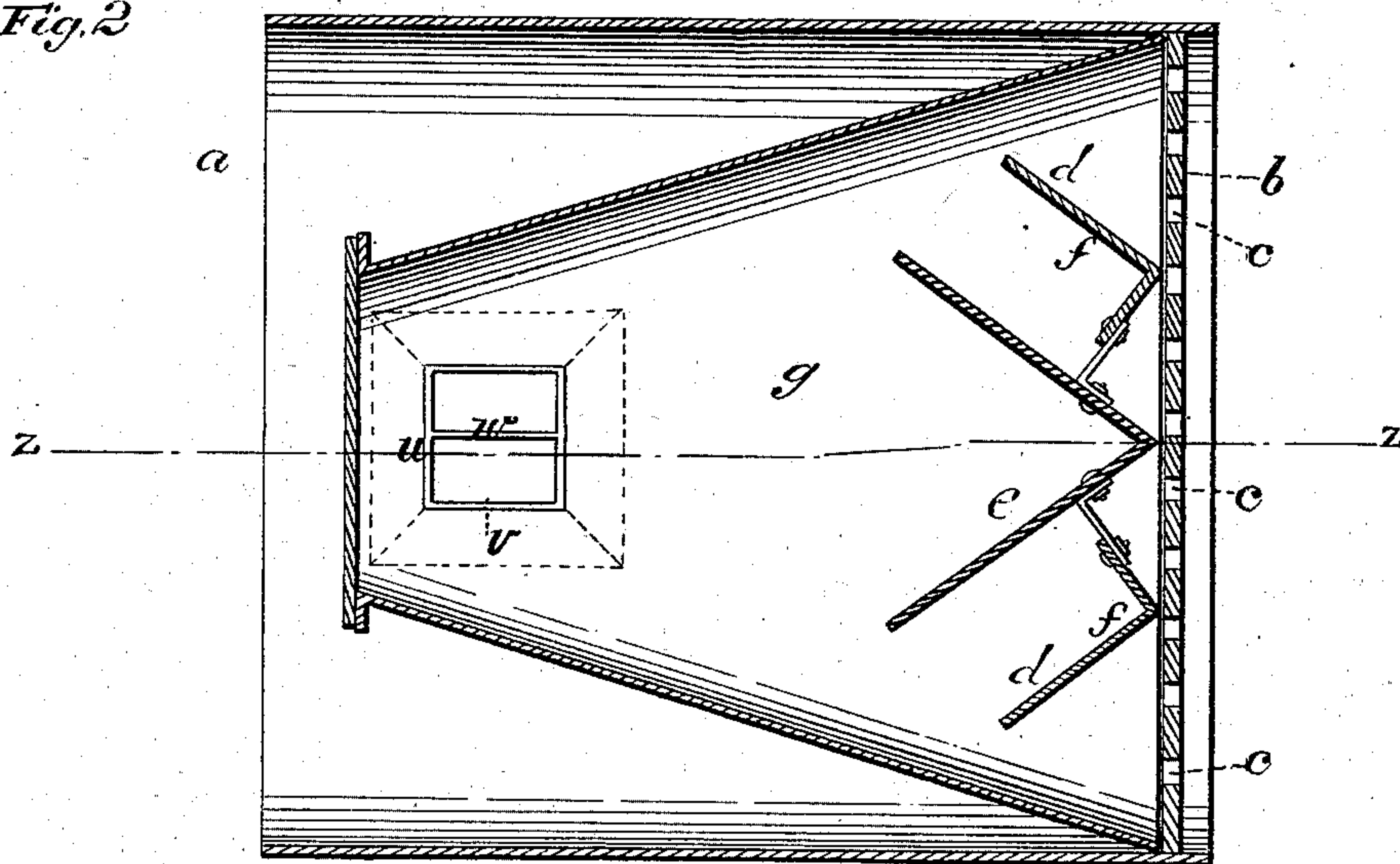


Fig. 2



WITNESSES

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SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 255,558, dated March 28, 1882.

Application filed July 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. AKLEY, a citizen of the United States, resident of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and valuable Improvement in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical longitudinal section of my invention, taken through line *z z* of Fig. 2. Fig. 2 is a horizontal section of the same, taken on the line *y y* of Fig. 1.

This invention relates to improvements in spark arresters; and it consists in the construction and novel arrangement of parts, as hereinafter set forth, whereby the sparks are arrested and a better draft provided.

In the annexed drawings, the letter *a* represents a cylinder of sheet or cast metal, which is to be placed within a locomotive smoke-box, and may be supported on feet *a'*. At the end toward the boiler the cylinder has a flue-sheet, *b*, through the holes *c* of which the boiler-flues project.

Within the cylinder, at the middle of the sheet *b*, is placed against the sheet *b* a set of vertical angle-plates, *d*, consisting of a large V-shaped middle plate, *e*, and bolted to this two smaller side plates, *f*. Around these plates is located a flaring or funnel-shaped chamber, *g*, which fits snugly against the sheet *b* at its larger or open end, and comes under the smoke-stack hole *k* at its smaller end. At this end the chamber *g* has a hole, *l*, aligned with the hole *k*, and also a door, *m*, for entrance within.

Secured within the cylinder *a*, just above the hole *l* of the chamber *g*, is a yoke, *n*. Through this yoke *n* and the holes *k* and *l* the smoke-stack *p* passes down into the chamber *g*. At its lower end, *q*, the stack *p* has on the

inside the upward-flaring ring or inverted funnel *r*, which forms an opening, *s*, into the stack, of smaller diameter than that of the stack itself. By the arrangement of the plates, as described and shown, the draft from the flues is equalized, since the presence and position of these plates gives the same distance from the stack to all the flues. At the same time the plates break up the sparks, so that they will be more quickly deadened. The flaring chamber guides the draft and sparks to the stack. The funnel within the stack, by its reduced opening, prevents the back-pressure of the air from above, thus facilitating the draft. To bring the exhaust-steam into this cylinder, two registering openings, *t* and *v*, are made in the bottoms of the cylinder *a* and the chamber *g*, the latter opening being smaller. In these openings is placed the inverted funnel *u*, divided into two compartments by the diaphragm *w*. Through this funnel *u* the exhaust-steam passes, deadening the sparks.

Horizontal angular plates and horizontal tubes and bars or baffles have been employed to arrest sparks and ashes in the smoke boxes and stacks of locomotives. Draft-equalizers have also been employed in various classes of engines. Neither is broadly claimed herein. Protection is asked only for the construction hereinafter claimed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

In a spark-arrester, the combination, with the cylinder *a*, flue-sheet *b*, and smoke-stack *p*, having the inverted funnel *r* at its lower end, of the flaring chamber *g*, the funnel *u*, and the vertical angle-plates *d d* and *e*, constructed and operating substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES D. AKLEY.

Witnesses:

JAS. W. DRAPE,
J. W. FLEMIEKEN.