

Brooks & Ball,

Spark Arrester,

No 59,175

Patented Oct. 30, 1866.

Fig. 3.

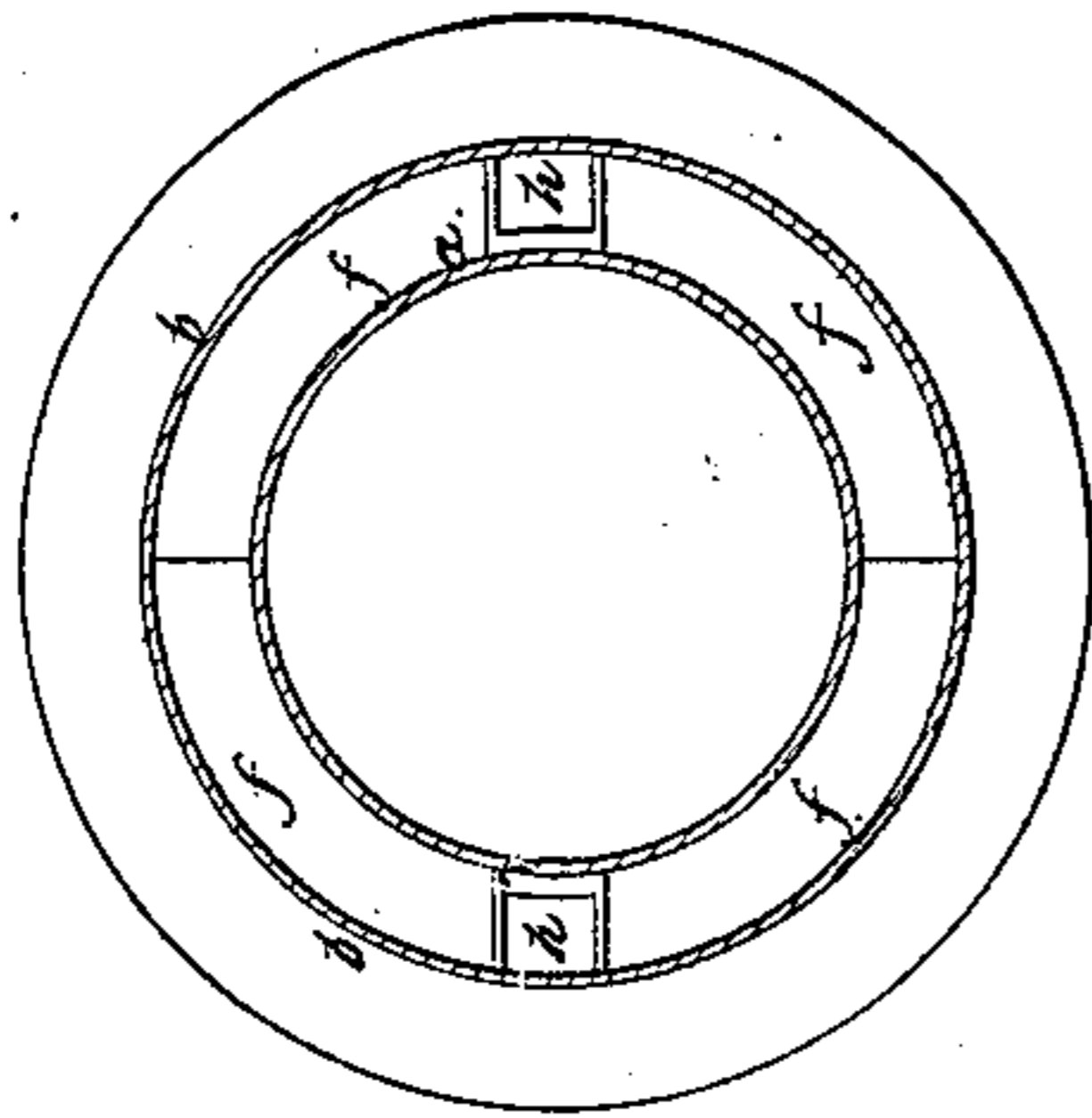


Fig. 4.

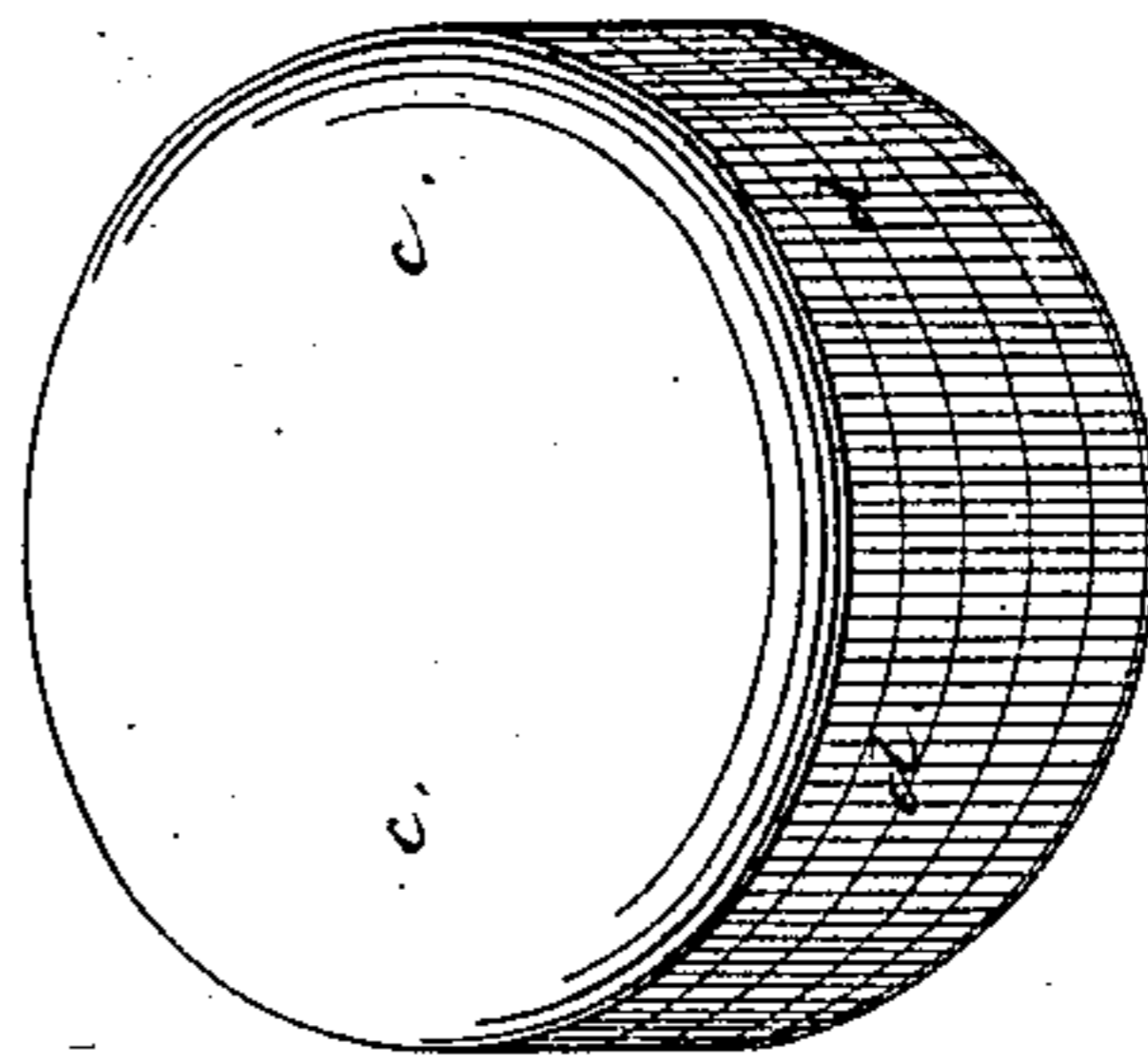


Fig. 2.

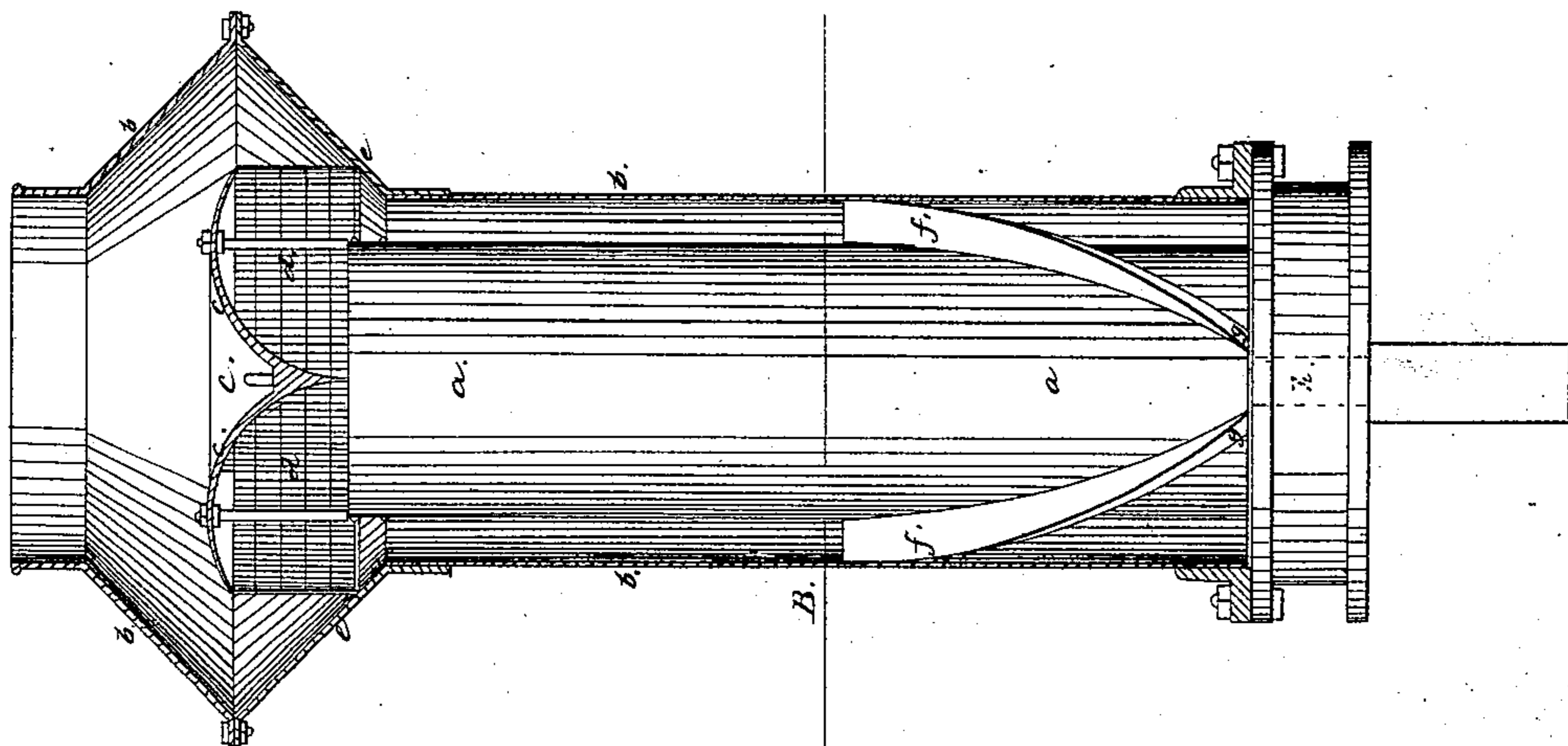
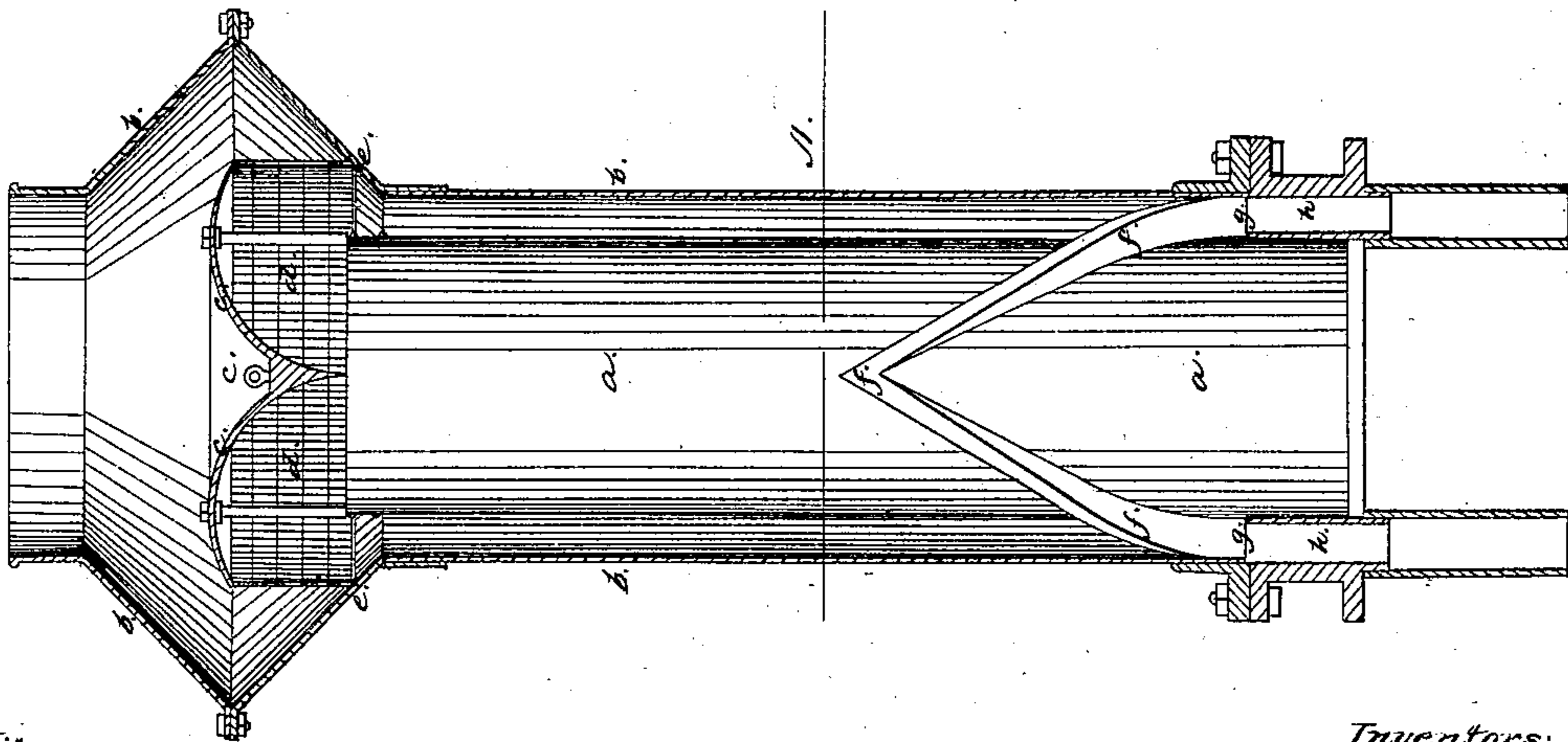


Fig. 1.



Witnesses:

*George Cockburn
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Inventors:

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UNITED STATES PATENT OFFICE.

HUGH BROOKS AND JAMES BALL, OF ZANESVILLE, OHIO.

IMPROVEMENT IN SMOKE-STACKS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. 59,175, dated October 30, 1866.

To all whom it may concern:

Be it known that we, HUGH BROOKS and JAMES BALL, of Zanesville, Muskingum county, and State of Ohio, have invented a new and useful Improvement in the Chimneys or Smoke-Stacks of Locomotive-Boilers; and we do declare that the following is an exact and full description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

To enable others skilled in the arts to make and use our invention, we will proceed to describe its construction and operation.

Figure 1 is a sectional elevation of chimney or stack, and Fig. 2 is a sectional elevation at right angles with Fig. 1. Fig. 3 is a horizontal section of the chimney or stack on the line A B of Figs. 1 and 2, to show the openings or pipes cast in the base. Fig. 4 is a view of the deflector inclosed in the cylinder of wire-cloth.

The chimney or stack consists of an inner or smoke tube, *a a a*, and an outer case, *b b b b*. Over the upper end of the smoke-tube *a a a* we place a cone or deflector, *c c c c*, of a curvilinear section, which is held at a distance of about ten inches above the upper end of the smoke-tube *a a a* by three or more standards of iron riveted or otherwise made fast to said smoke-tube *a a a*. We then inclose the deflector *c c c c* in a cylinder of wire-cloth, *d d d*, the upper edge of this cylinder of wire-cloth being connected with the outer circumference of the deflector *c c c c* by bolts or otherwise, the lower edge of said cylinder coming in contact with the outer casing, as at *e e e e*. We then construct one or more inclined feathers or guides, *f f f f*, which we rivet or otherwise make fast to the outside of the smoke-tube *a a a*, or the inside of the outer case, *b b b b*, one edge of the said feather or guide being in con-

tact with the outside of the smoke-tube *a a a*, and the other edge in contact with the inside of the outer case, *b b b b*, the lower end or angle, *g g g g*, of said feathers or guides terminating at or near the openings or pipes *h h*, cast in the base of the chimney or stack to receive the sparks and ashes from the annular space, from which they may be conveyed outside the smoke-box by pipes.

The operation is as follows: The exhaust-steam, as discharged from the engine and projected up the chimney, carrying with it the products of combustion, (gas, smoke, sparks, and ashes,) will, on reaching the top of the smoke-tube *a a a*, strike against the deflector *c c c c*, and will be deflected or turned aside toward the wire cylinder *d d d*, and the steam and gases will escape through the wire-cloth; but the sparks and ashes will descend into the annular space between the smoke-tube *a a a* and the outer case, *b b b b*, and in their descent will roll down the inclined feathers or guides *f f f f* to the openings or pipes *h h h* in the base of the chimney or stack, from which they may be carried to the ground or otherwise, as is most desirable, the smoke-box being kept clear of sparks and ashes.

We claim—

The arrangement and combination of the curvilinear deflectors *c c c c* and cylinder of wire-cloth, *d d d*, with the feathers or guides *f f*, placed between the inner or smoke tube, *a a a*, and the outer case, *b b b*, with the perforated base *h h*, when constructed and arranged substantially as herein described, and for the purpose specified.

HUGH BROOKS.
JAMES BALL.

Attest:

GEORGE COCKBURN,
S. JACOBS MOORE.