

(No Model.)

A. POHL.
Spark Arrester.

No. 230,568.

Patented July 27, 1880.

Fig. 1.

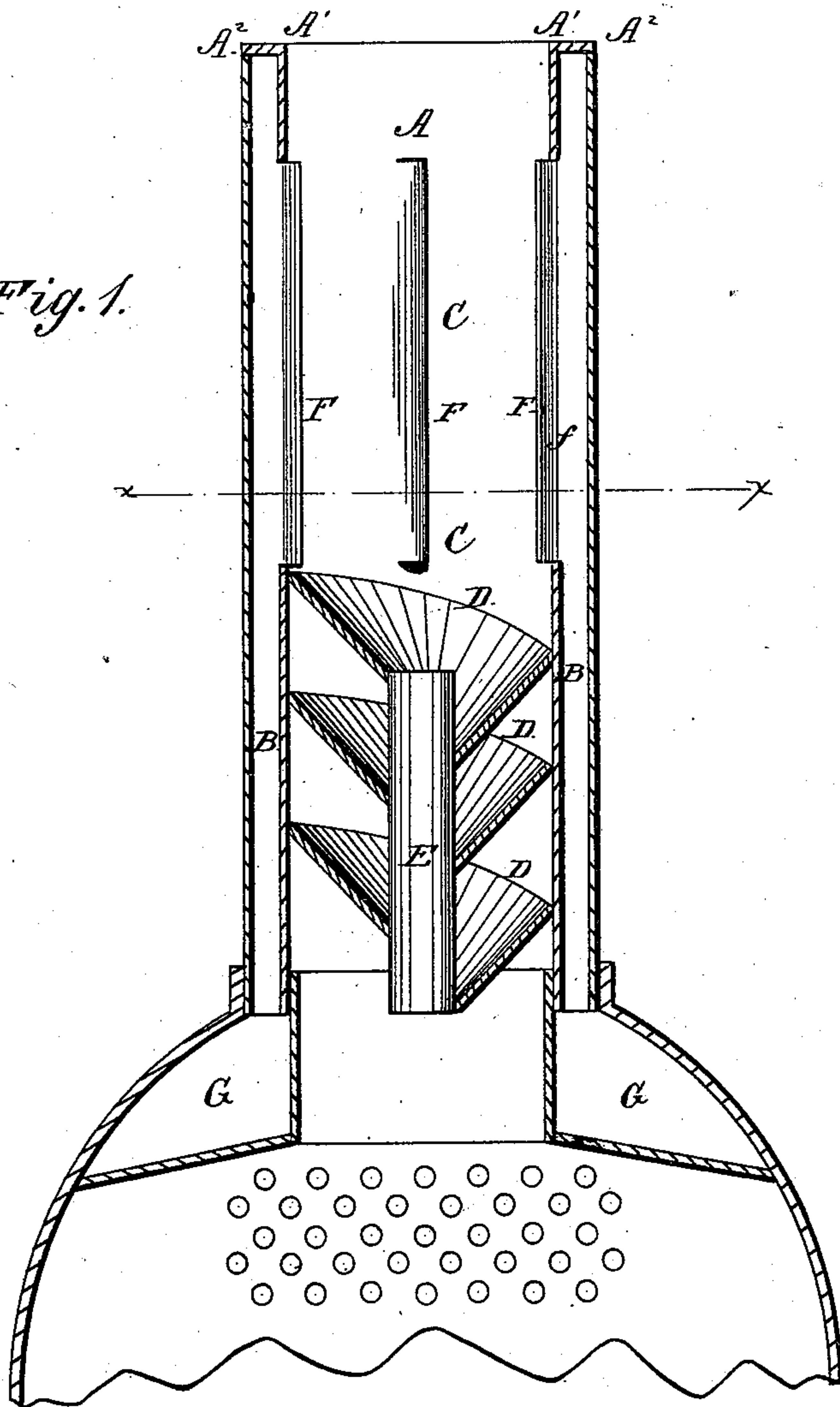
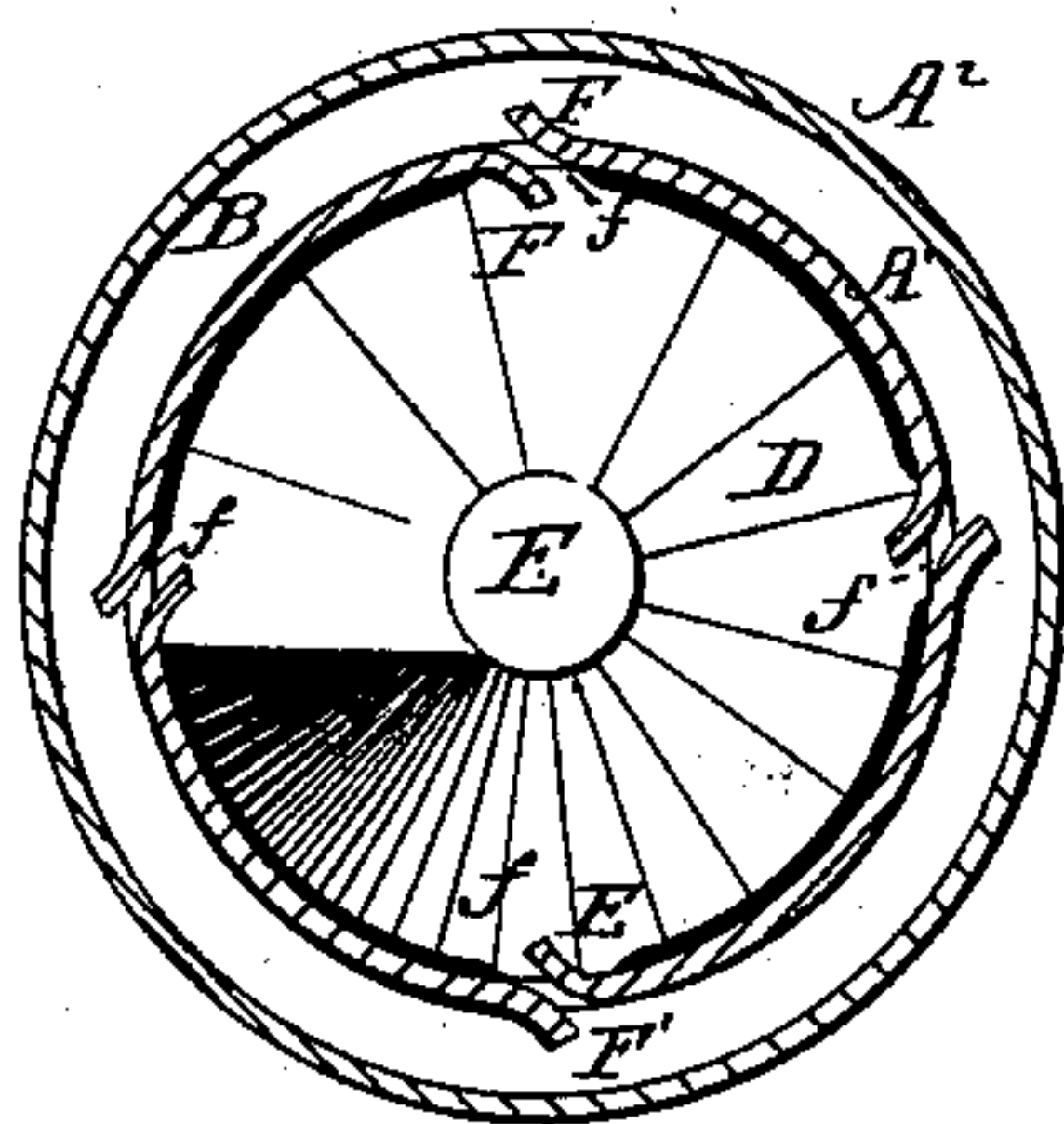


Fig. 2.



WITNESSES:

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SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 230,568, dated July 27, 1880.

Application filed June 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, ANTON POHL, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Spark-Catchers for Locomotives; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my invention is to employ the joint action of gravity, deflection, and centrifugal force to separate the sparks, cinders, and solid matter from the smoke as it escapes through the stack of a locomotive, whereby the work may be effectually accomplished within the limited space of the stack without materially intercepting the draft; and the improvement consists in arranging an annular chamber around a cylindrical stack and providing the stack with a spiral deflector-plate, which will give a rotary motion to the smoke and cause the solid matter to be thrown off against the side walls of the stack, where it is intercepted by projecting plates and conducted through openings into the adjoining annular chamber and deposited at the bottom thereof.

In the accompanying drawings, Figure 1 is a vertical transverse section through the stack and fire-box of a locomotive constructed according to my invention, and Fig. 2 a horizontal section through the stack in the line x x of Fig. 1.

The stack A is formed with double cylindrical walls A' A², between which an annular chamber, B, is provided, into which the sparks and solid matter are deposited and the space C, inclosed by the inner wall and annular chamber, communicates at its lower end with the smoke-box of the boiler, and is provided with a spiral plate, D, encircling a central post, E, that intercepts the heaviest matter carried up by the smoke and deflects it back into the smoke-box, and imparts to the smoke and lighter particles a spiral rotary motion, by which means the remaining solid matter raised by the smoke is thrown off to the sides of the chamber by the centrifugal motion imparted to it, and is there caught by projecting flanges F upon the inner wall, A', of the central chamber, and allowed to pass into the adjoining annular chamber B through openings f in the

inner wall, A', alongside of the said projecting flanges F, by which means the light solid particles are freed from the draft through the stack, and allowed to fall by the action of gravity, into a cinder-compartment, G, in the upper portion of the smoke-box H, that communicates directly with the said annular chamber.

The spiral plate D is formed with either one or more convolutions around the central post, E, and is secured at its inner edge to the post in any substantial manner. The outer edge of the plate is secured to the inner surface of the wall A' by rivets placed at suitable distances apart. The edge of the plate between the rivets need not fit closely against the plate, as it has been found that a good result is obtained by allowing a small space to be left between them, so that the cinders following the surface of the plate are not thrown back into the draft by coming in contact with the joint between the spiral plate and the wall A, but are allowed to pass on freely until caught by the flanges F, at the edge of the opening f , and carried into the annular spark-chamber B.

Flanges F' upon the plate A' underlap the flanges F and form a trap to prevent the return of the sparks and cinders back into the central stack-opening.

The upper ends of the walls A A' are joined together, and as the ash and cinder compartment connected with the lower end of the walls is also closed to the atmosphere, the annular chamber B will also be cut off from the action of the draft, and the solid matter will thus be allowed to be deposited freely.

The employment of wire screens and of a complicated arrangement of deflector-plates and air-passages, which materially intercept the draft, are thus avoided. The upper end of the stack is left perfectly plain, and the draft need not be intercepted by caps or hoods. The spiral plate D will thus form the only obstruction that is offered to the draft, and the pitch or inclination of the plate may be so arranged as to come within the limits required for practical efficiency.

I claim as my invention and desire to secure by Letters Patent—

1. In a spark-arrester for locomotives, the smoke-stack formed of the double walls A A'', 100

central chamber, C, and annular outer chamber, B, in combination with the spiral plate D, the wall A' being formed with vertical slot-
5 ted openings *f*, through which the cinders pass to the adjoining chamber, all constructed and arranged in the manner and for the purpose substantially as described.

2. In a spark-arrester for locomotives, the smoke-stack formed of double walls A A',
10 central chamber, C, and annular outer cham-

ber, B, in combination with spiral plate D, post E, and plates F, arranged to project from the inner wall, A', alongside of the opening *f*, formed in said wall, substantially as and for the purpose described.

ANTON POHL.

Witnesses:

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