

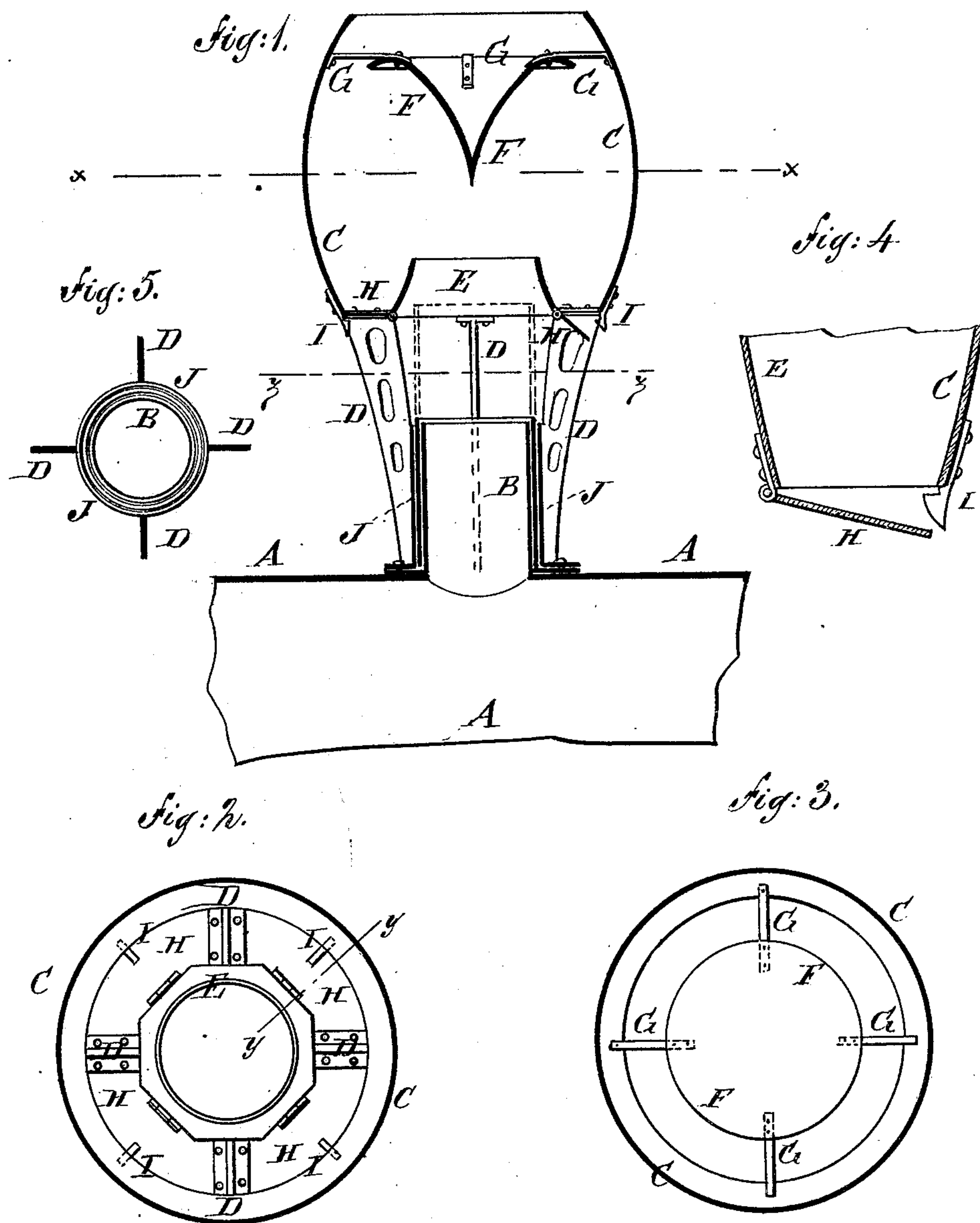
(No Model.)

G. A. GUNTHER & W. KOWALSKI.

Spark Arresters.

No. 235,230.

Patented Dec. 7, 1880.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE A. GUNTHER, OF BATH, AND WILLIAM KOWALSKI, OF BROOKLYN,
NEW YORK.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 235,230, dated December 7, 1880.

Application filed August 3, 1880. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. GUNTHER, of Bath, in the county of Kings and State of New York, and WILLIAM KOWALSKI, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Spark-Arresters, of which the following is a specification.

Figure 1 is a sectional elevation of the improvement. Fig. 2 is a sectional plan view taken through the line *xx*, Fig. 1. Fig. 3 is a sectional plan view taken through the line *xx*, Fig. 1, and looking upward. Fig. 4 is a sectional elevation taken through the line *yy*, Fig. 2. Fig. 5 is a sectional plan view taken through the line *zz*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish spark-arresters for locomotive smoke-stacks, so constructed as to prevent the sparks from escaping from the smoke-stacks with the blast, and thus prevent fires from being started by the escaping sparks.

A represents the shell of a locomotive-boiler, to which is attached the lower part, B, of the smoke-stack, which part is made cylindrical in form. The upper part, C, of the smoke-stack is convexed or made spherical, and is connected with the boiler-shell A by brackets D, so as to leave an open space between the two parts B C of the stack, through which a part of the blast can escape. To the inner upper corners of the brackets D is attached the lower edge of a short tapered tube, E, which projects upward into the upper part, C, of the stack. From the upper part, C, of the stack, near its upper end, is suspended by its base an inverted flaring cone, F, by means of bars G, attached to it and to the upper part, C, of the stack.

The space between the lower edge of the guide-tube E and the lower edge of the upper part, C, of the stack is closed by a number of plates or doors, H, which are hinged at their inner edges to the said guide-tube E, and are secured at their outer edges, when closed, to the lower edge of the upper part, C, of the stack by spring-catches I, or other suitable fastenings.

The lower part, B, of the stack is surrounded by a sleeve or jacket, J, which may be raised into contact, or nearly so, with the guide-tube E when a strong draft is required—as, for in-

stance, when starting the fires. The jacket J can be raised and lowered, as required, by a lever, a rack and pinion, or other suitable mechanism, which mechanism is not shown in the drawings.

With this construction, when the engine is in motion a part of the blast will escape through the space between two parts B C of the stack; but the sparks will be carried by their momentum, with the other part of the blast, through the guide-tube F, into the upper part, C, of the stack, and will be projected against the cone F. The blast will pass around the flaring base of the cone F and pass out through the top of the upper part, C, of the stack; but the sparks will be projected by the flaring base of the cone F against the curved sides of the said upper part, C, of the stack, and pass down the said curved sides into the space around the guide-tube E.

When a quantity of dead sparks has accumulated between the guide-tube E and the upper part, C, of the stack, the doors H are opened and the dead sparks allowed to fall out and drop to the ground.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A spark-arrester constructed substantially as herein shown and described, consisting of the lower part, B, of the stack, having jacket J, the upper part, C, of the stack, supported above the part B by brackets D, the guide-tube E, surrounded by the doors H, and the inverted flaring cone F, supported within the upper part, C, by the bars G, as set forth.

2. In a spark-arrester, the combination, with the boiler-shell A, of the stack made in two parts, B C, the lower part, B, attached to the shell A, and the upper part, C, supported above the part B by brackets D, the guide-tube E, for guiding the sparks into the upper part of the stack, and the cone F, for deflecting the sparks against the sides of the upper part, C, and into the space around the guide-tube E, substantially as herein shown and described, whereby the sparks are prevented from being carried out of the stack by the blast, as set forth.

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Witnesses:

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