

C. REIMANN.

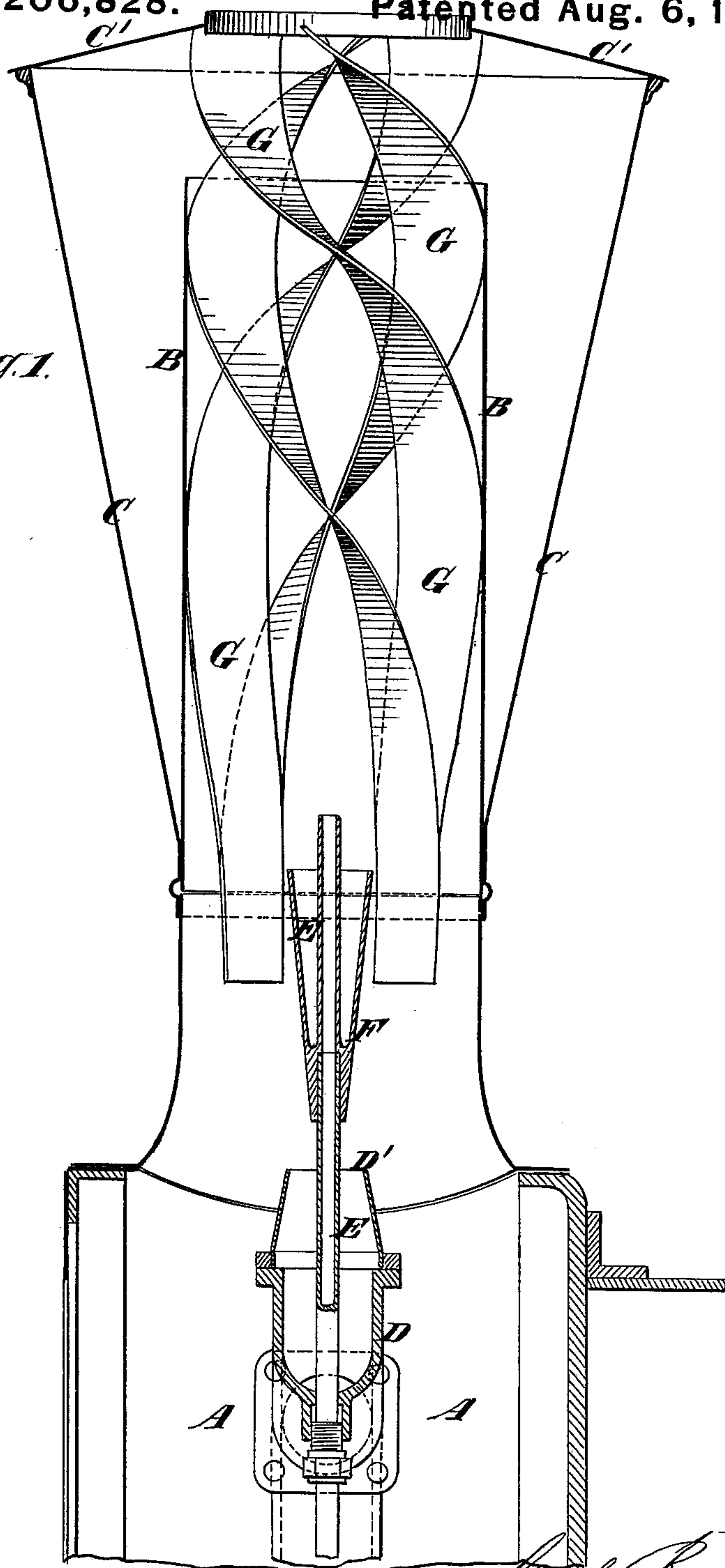
2 Sheets—Sheet 1.

Spark-Extinguisher.

No. 206,828.

Patented Aug. 6, 1878.

Fig. 1.



Witnesses

John Becker
E. W. Haynes

Inventor

Carl Reimann
by his Attorneys
Brown & Allen

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Fig. 3.

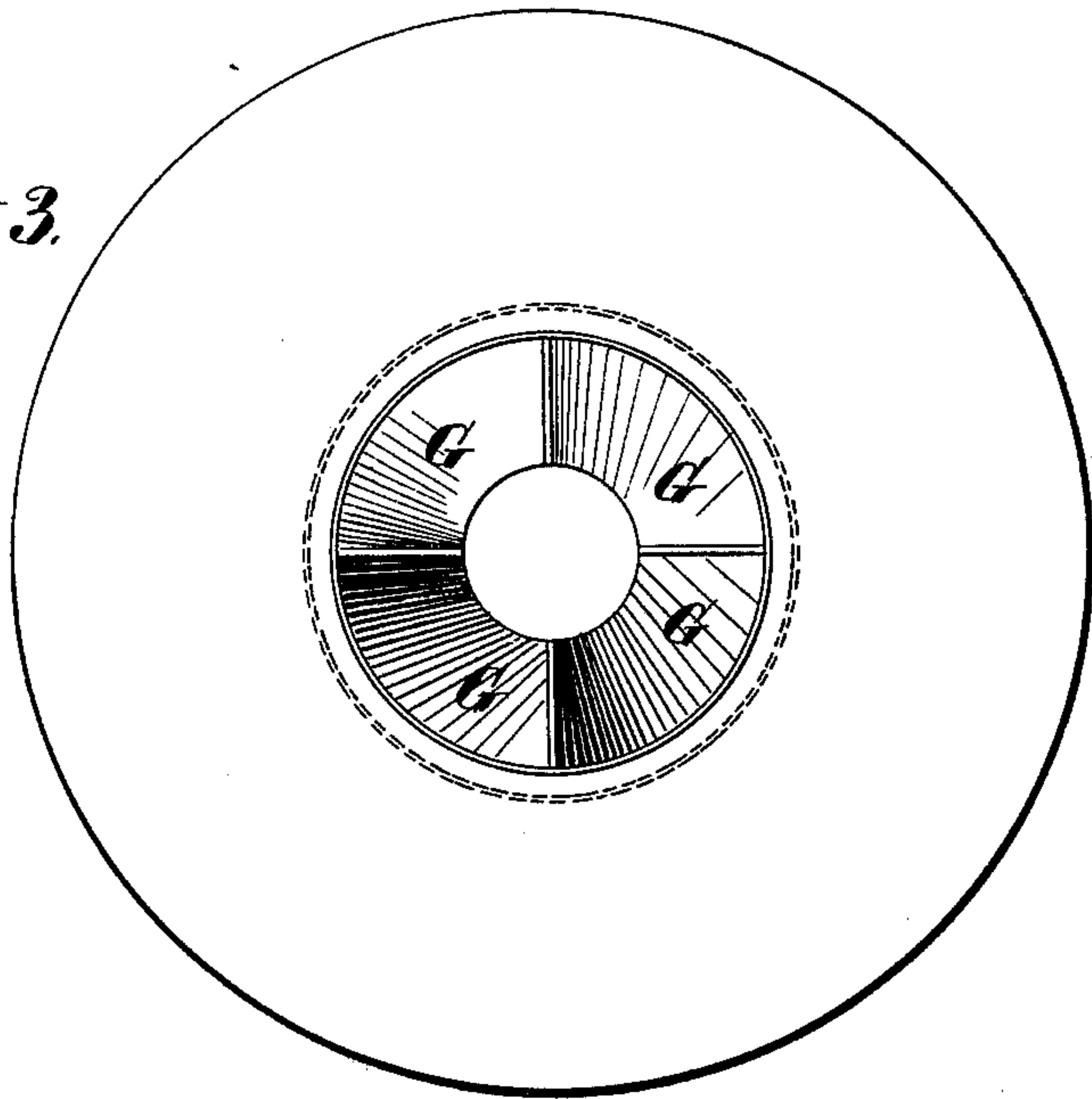
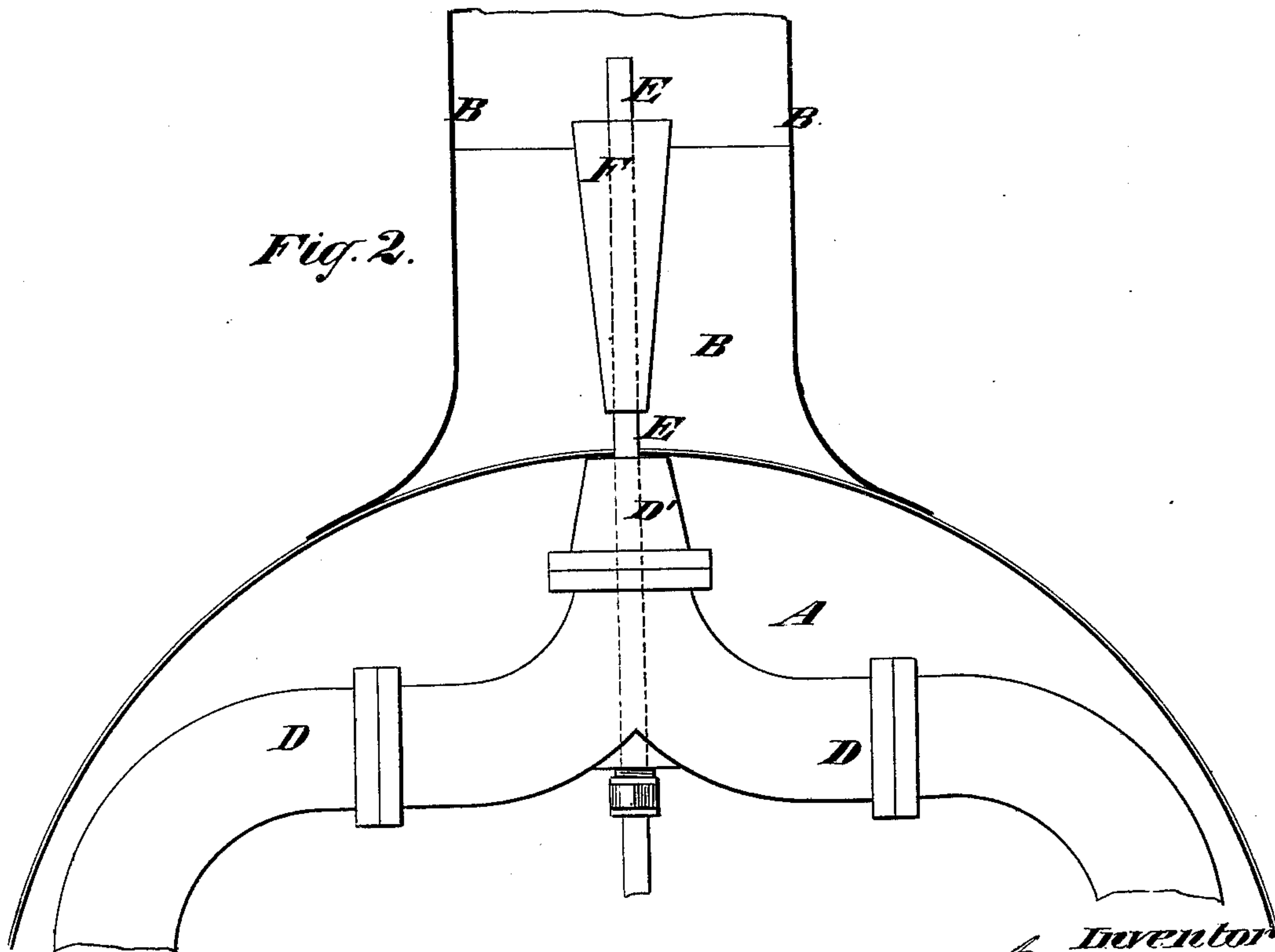


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CARL REIMANN, OF WITTENBERGE, ASSIGNOR TO CONRAD LOUIS STRUBE,
OF BUCHAU, NORTH GERMANY.

IMPROVEMENT IN SPARK-EXTINGUISHERS.

Specification forming part of Letters Patent No. **206,828**, dated August 6, 1878; application filed June 8, 1878; patented in Germany, February 20, 1878.

To all whom it may concern:

Be it known that I, CARL REIMANN, of Wittenberge, North Germany, have invented an Improved Spark-Extinguisher for Locomotive, Portable, Traction, and other Engines, of which the following is a specification:

This invention relates to spark extinguishers or arresters of locomotive, portable, traction, and other engines, in which the exhaust-steam is allowed to escape by the smoke-stack or chimney, and in which a cone and spiral blades are used to deflect the sparks and incandescent particles of fuel escaping by the chimney.

The invention consists in certain novel constructions and combinations of parts, including an inverted cone arranged over the blast-pipe, which passes the exhaust-steam from the engine to the chimney, said cone serving to produce a lateral deflection of said steam; an auxiliary steam-supply pipe projecting upward through said cone; the smoke box or chamber of the furnace of the engine; the chimney or chimney-tube; a conical jacket surrounding the chimney, and formed in part of a top or partial cover having an escape-opening in its center; and spiral blades, preferably of a diminishing pitch in an upward direction within the chimney, and extending above it to or toward the top or partial upper cover of the jacket. By this combination the sparks or incandescent particles of fuel escaping by the chimney are perfectly arrested and deposited within the jacket without interfering with the draft, which is perfectly insured.

In the accompanying drawings, Figure 1 is a vertical section of my improved spark-extinguisher. Fig. 2 is a partial front elevation of the same. Fig. 3 is a plan or top view of the spark-extinguisher.

A A is the smoke-box, rising from which is the chimney B, fitted externally with an inverted conical jacket, C, which jacket is partially closed at top by a cover, C', a central opening being made therein to provide for the updraft. This opening is about the same diameter as the cylindrical tube B, which constitutes the chimney, and between the top of the chimney and the cover C' is a free space, for the purpose to be presently explained. D is the blast-

pipe, having its steam-exit opening at D'. In the center of this opening is an auxiliary steam-pipe, E, for conducting a small jet of steam into the center of the chimney above the blast-pipe. Fitted to the upper part of this steam-pipe is an inverted cone, F, which serves to deflect laterally the steam as it issues from the blast-pipe.

To the inner periphery of the chimney B is fitted a series of spiral blades, G G, by preference four in number, of a breadth about equal to the space between the chimney and the largest diameter of the inverted cone F. These blades extend upward to the cover C', and are made fast thereto. They are so arranged as to constitute, with the cylinder B, the spiral ways before mentioned, their pitch varying from end to end, so that while offering little or no obstruction to the passage of the ascending gases on entering the spiral ways, they will guide any particles of incandescent fuel rising therewith into the conical jacket C, the gases escaping with the steam through the central opening in the cover.

The action of this apparatus may be described as follows: The steam escaping from the orifice D' of the blast-pipe takes a conical course by reason of the interposition of the cone F. The heated gases sucked up from the smoke-chamber by this current of steam surround the same, and move in the direction of the current of steam. The spiral ways, however, intersect the space occupied by the heated gases from the furnace, and the heated gases are consequently compelled to pass through the chimney in spiral lines. By means of this spiral movement a centrifugal force will be imparted to the sparks, whereby they acquire a tendency to fly outward. As above the inner tube there is nothing to interfere with this tendency, the sparks fly against the outer jacket, (or against the cover,) and are thus thrown down, and are prevented from escaping with the steam and gases from the chimney.

Having now set forth the nature of my invention, I wish it to be understood that I claim—

1. The combination, with the chimney-tube B and the jacket C C', of the spiral blades G G, having a diminishing pitch in an upward direction, and arranged around the interior of

the chimney-tube, but stopping short of the center of said tube, whereby a clear passage is left up through the center of the latter, substantially as specified.

2. The combination, with the blast-pipe D D', of the inverted cone F, the chimney-tube B, having spiral blades arranged up through it around its interior, and the jacket inclosing said chimney-tube, essentially as described.

3. The combination of the inverted cone F with the auxiliary steam-pipe E, the blast-pipe

D D', the smoke-box A, the chimney-tube B, the conical jacket C C', and the spiral blades G G, arranged around the exterior of the chimney-tube, and extending above it up to or toward the centrally-open top or cover of the jacket, substantially as specified.

Dated the 23d day of April, 1878.

CARL REIMANN.

Witnesses:

PAUL MOLLER,
H. SCHRADER.