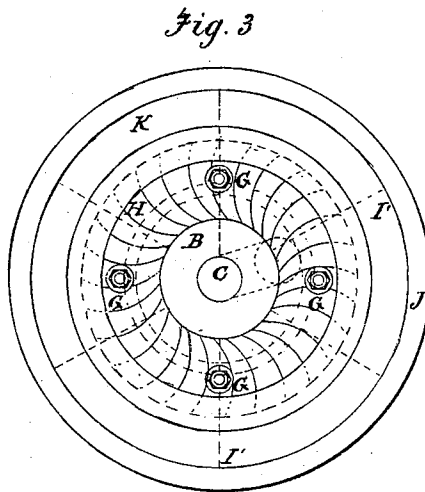
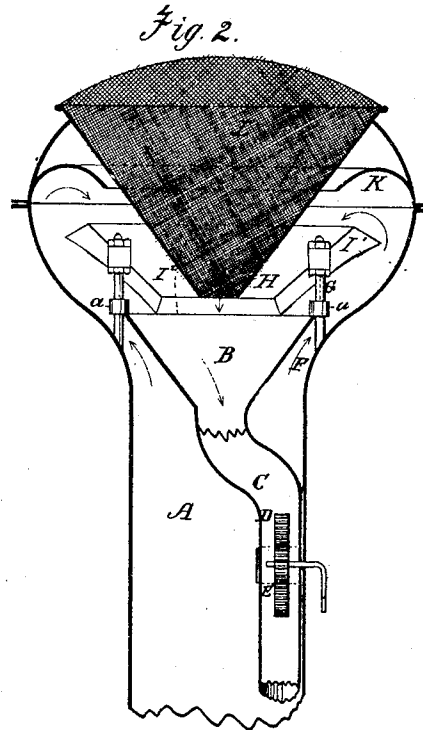
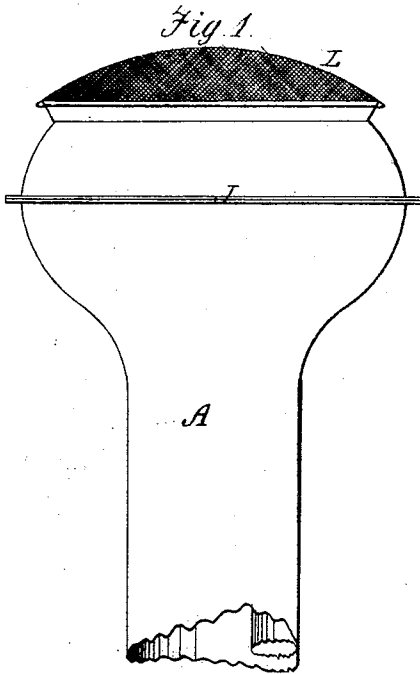


D. ALLARD.
Spark-Arrester.

No. 159,137.

Patented Jan. 26, 1875.



WITNESSES:

W. W. Hollingsworth
Colon O. Kemm

INVENTOR:

INVENTOR:
D. Allard

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

DARERICK ALLARD, OF ST. ALBANS, VERMONT.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **159,137**, dated January 26, 1875; application filed January 19, 1875.

To all whom it may concern:

Be it known that I, DARERICK ALLARD, of St. Albans, in the county of Franklin and State of Vermont, have invented a new and Improved Smoke-Stack; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a vertical section; Fig. 3, a plan view with the conical cage detached.

This invention relates to certain improvements in smoke-stacks; and it consists in the peculiar construction and arrangement of parts whereby the draft is regulated and the sparks and cinders eliminated and carried away through a discharge-pipe contained within the smoke-stack.

In the drawing, A represents the outer casing of the smoke-stack. C is a discharge-pipe for the cinders and sparks, terminating in a funnel-shaped mouth, B, which is vertically adjustable by means of the sleeves or collars a sliding upon stationary guides G. The adjustment of pipe C and funnel B is effected by the pinion E and rack D, whereby channel F between the funnel B and casing A is made large or small, and the draft regulated according to will. H is an inverted conical plate, open at both ends, and placed concentric with funnel B. Said plate is provided with spiral grooves, which induce in the current of sparks formed by the exhaust a whirling motion, which causes the sparks and cinders to impinge against the sides of the cone and the head J of the smoke-stack, so that they become broken up and reduced to fine particles. I¹ I² are spiral wings, which connect the plate H with the head J, and with the guides G hold the said plate rigidly in position. K is an annular cap, which forms the upper part of the head J, and serves to guide the blast from the under side of plate H down the interior of the same. L is a con-

ical cage of gauze-wire, through which the blast escapes, passing first through the sides of the cage into the same, and then through the top into the open air. Said cage is open at the bottom, so that particles of cinders passing through the sides still have a chance to fall out the bottom and be conducted away through pipe C.

The operation of the smoke-stack as thus described is as follows: The current produced by the exhaust steam carries the smoke and cinders up through the adjustable channels F, and, coming in contact with the spiral grooves in plate H, sets them in a whirl, which breaks up and disintegrates the large cinders and sparks. The annular cap K then directs them over into the interior of plate H, from whence they pass down through funnel B and pipe C to any convenient point of discharge. The purified current then passes through the cage into the open air, the bottom of the cage being left open to allow the small particles which pass through the sides of the cage to fall down and be conducted away with the particles first eliminated.

Having thus described my invention, what I claim as new is—

1. The adjustable pipe C, terminating in a funnel-shaped mouth, B, in combination with the smoke-stack A, the spirally-grooved plate H, and the annular cap K, substantially as and for the purpose described.

2. The combination, with the smoke-stack A, of the adjustable pipe C, having funnel-shaped mouth B, the spirally-grooved plate H, the annular cap K, and the inverted conical cage L, having its lower end open, substantially as and for the purpose described.

The above specification of my invention signed by me this 18th day of January, 1875.

DARERICK ALLARD.

Witnesses:

SOLON C. KEMON,
CHAS. A. PETTIT.