MICHAEL O'CONNOR.

Improvement in Spark-Arresters.

No. 114,846. Patented May 16, 1871.

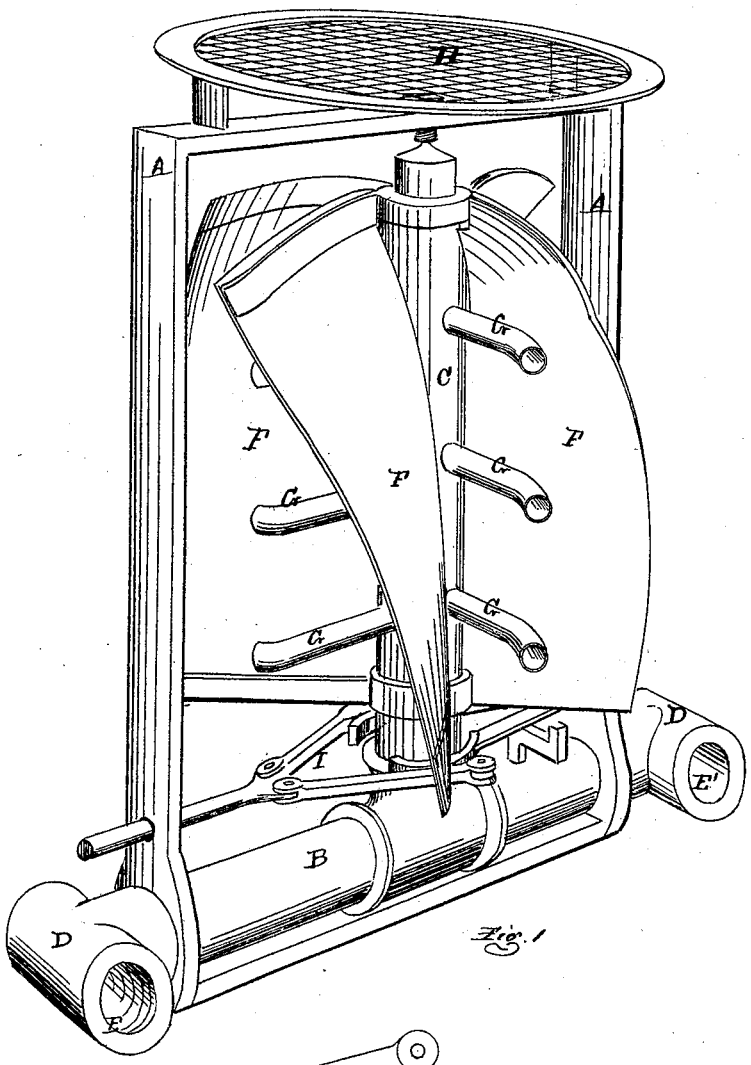

Fig. 1

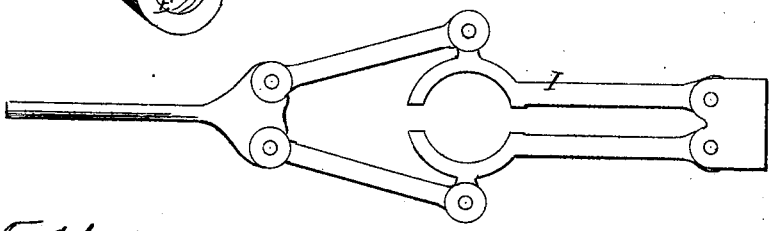

Fig. 2.

ATTEST

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MICHAEL O'CONNOR, OF BANGOR, MICHIGAN.

Letters Patent No. 114,846, dated May 16, 1871.

IMPROVEMENT IN SPARK-ARRESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, MICHAEL O'CONNOR, of Bangor, in the county of Bay and State of Michigan, have invented a new and useful Improvement in Spark-Arrester and Extinguisher; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of my invention.

Figure 2, a plan of my brake.

Like letters refer to like parts in each figure.

The nature of this invention relates to the construction and operation of an ingenious device for arresting and extinguishing sparks in smoke-stacks, where steam-engines are employed in mills and other factories, or on steam-boats, to prevent damage arising from the escape of sparks which are alive and unextinguished.

The invention consists—

First, in the novel arrangement of steam and air-pipes within a smoke-stack with a rotary face of peculiar construction;

Second, in the combination of the steam and air-pipes and fan with a fine wire-mesh arrester; and

Third, in a combination of the foregoing-named parts with the brake, whereby the rotary motion of the fan is checked and controlled, as more fully hereinafter described.

The device may be employed in either brick or metallic smoke-stacks. When employed in the former the device should be inclosed in a metallic jacket, so that no damage shall be done to the brick-work by the steam escaping from the openings.

In the accompanying drawing—

A represents a frame-work, which carries the working parts of the apparatus.

B is a pipe secured in the lower part of the frame A, and from the center of its length rises the pipe C, which also forms the shaft of the fan. This latter-named pipe is stepped into the pipe B in such a manner that there is a free communication between the two, and so that the pipe C will rotate freely, its upper end being so secured to the upper part of the frame as to allow of such rotation.

Connecting-pipes are secured to the T-pipes D, which are fastened in the usual manner to the pipe B.

To the openings E there may be attached other pipes, not shown, for the admission of air; and to the openings E' there should be attached other pipes, also not shown, one of which should connect with the steam-dome of the boiler, while the other connects with the exhaust-pipe of the engine.

F are wings, secured vertically upon the rotating pipe C. These wings are of the form shown in the drawing, with their upper ends curved forward and overhanging in such a manner that the upward draught through the smoke-stack will cause the fan to rotate.

Communicating with the interior of the vertical pipe C, and projecting through the same, are the small curved pipes G, between the wings, for the purpose of allowing the steam or air to pass from the pipe C outwardly.

The lower end of the pipe C is so arranged at its bottom that it will allow a thin sheet of steam to pass around it from the pipe B.

H is a spark-arrester, of the usual wire mesh, rigidly fixed above the fan within the smoke-stack, and it may or may not be secured to the frame.

I is a double brake, the construction of which is fully shown in the drawing; and the office of which is to stop the rotation of the vertical pipe C, when desired. This device being placed in the smoke-stack at any convenient point, the fan is caused to rotate by the draught through the stack.

Exhaust or live steam being admitted through the proper pipes is discharged through the small pipes G and around the foot of the vertical pipe, whence, by the rotary motion of the wings it is brought directly into contact with the sparks and extinguishes them.

When steam is not to be had I have found by experience that air admitted through proper pipes will partially extinguish the sparks in a device of this kind.

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

1. The fan, composed of the rotating vertical pipe C, and wings F, arranged within a smoke-stack, with the pipe B, substantially as and for the purposes set forth.

2. The pipes G, in combination with the pipe C and wings F, when operating as and for the purposes set forth.

3. The arrangement of the brake I, in combination with the vertical pipe C, in a device constructed as above described, substantially as and for the purposes set forth.

4. The combination of the frame A, pipes B C, wings F, short pipes G, spark-arrester H, and brake I, when constructed and arranged to operate as described with a smoke-stack, as set forth.

MICHAEL O'CONNOR.

Witnesses:

THOS. S. SPRAGUE,

H. F. EBERTS.