(No Model.)

L. J. JONES.

ROTARY FLUE CLEANER.

No. 588,830. Patented Aug. 24, 1897.

Fig. 1.

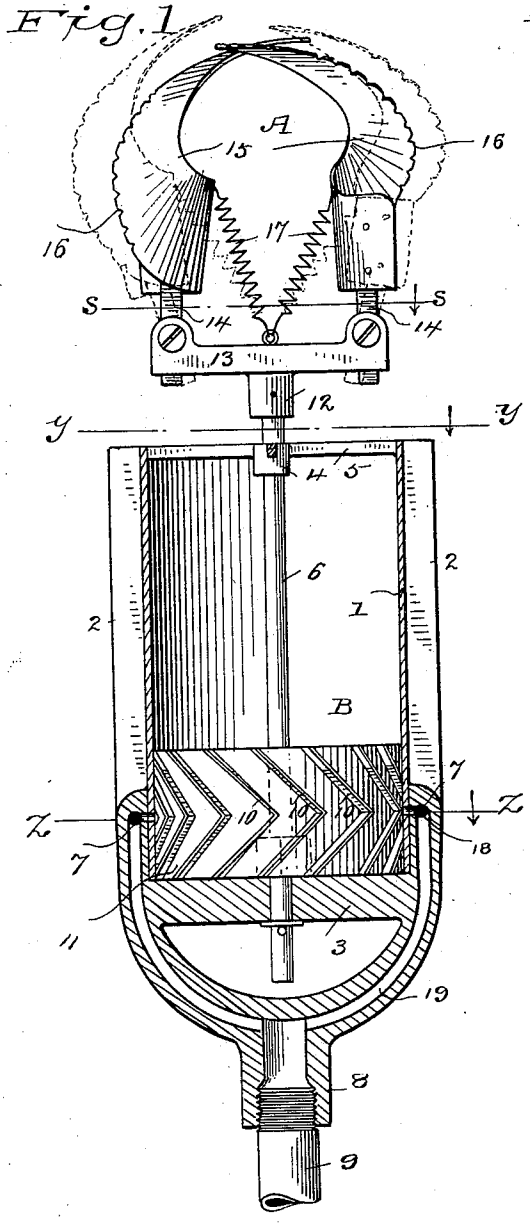


Fig. 2.

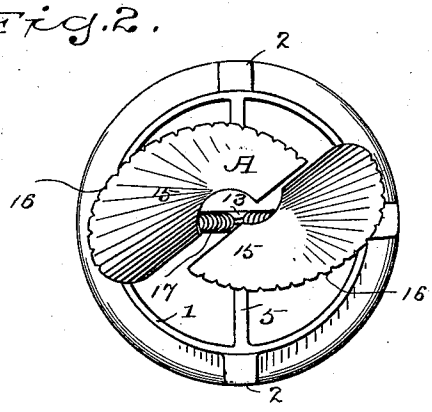


Fig. 3.

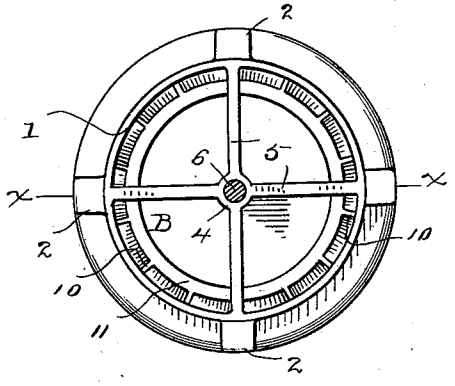


Fig. 4.

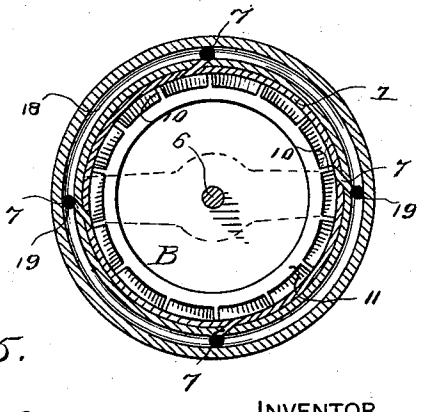
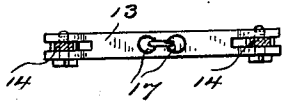


Fig. 5.



WITNESSES

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LEVI J. JONES, OF EAST NORWALK, CONNECTICUT.

ROTARY FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 588,830, dated August 24, 1897.

Application filed May 24, 1897. Serial No. 637,872. (No model.)

To all whom it may concern:

Be it known that I, LEVI J. JONES, a citizen of the United States, residing at East Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Rotary Flue-Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to simplify and cheapen the construction of rotary flue-cleaners and at the same time to greatly improve their operation in use.

With these ends in view I have devised the simple and novel construction which I will now proceed to describe, and then specifically point out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a section of the case on the line *x x* in Fig. 3, the head and turbine being in elevation; Fig. 2, an end view of the head; Fig. 3, a section on the line *y y* in Fig. 1; Fig. 4, a section on the line *z z*, and Fig. 5 is a section on the line *s s*.

1 denotes the case, shown in the present instance as made in two parts, and two ribs thereon, which serve to strengthen the case and also as guides for the cleaner while inserting it in a flue. The base of the case is closed by a wall 3, and at the forward end thereof is a central hub 4, which is held in position by arms 5.

6 denotes a shaft which is journaled in the wall and in hub 4 and carries at its forward end a head A and within the case a turbine B. Steam is admitted to the case at two or more ports 7 (in the present instance four ports are shown) to drive the turbine, shaft, and head.

18 denotes a steam-passage surrounding the body, from which the ports open, the passage being much larger than the ports, which causes the steam to strike the buckets of the turbine with great velocity.

19 denotes two steam-passages which open into passage 18 and unite in a hub 8, to which a hose or steam-pipe 9 is connected.

The turbine consists, essentially, of a cylinder 11, which is provided on its periphery with forwardly-pointed V-shaped buckets 10. The steam as it enters the case acts instantly upon the walls and apices of these buckets to drive the turbine forward, the waste steam passing from the turbine, between the buckets and out through the case, this blast of waste steam acting to drive the soot and other matter removed from the flue forward ahead of the cleaner. The cleaning-head, which as a whole I have indicated by A, consists of a hub 12, which is rigidly secured to the shaft and carries a cross-piece 13.

14 denotes arms pivoted to the cross-piece and carrying wings 15. The edges of the wings are serrated, as indicated at 16, and the wings themselves are curved spirally.

17 denotes springs the ends of which are attached, respectively, to the wings and to the cross-piece, and the action of which is to retain the arms and wings at a retracted position, as shown in full lines in Figs. 1 and 2.

When steam is admitted to the turbine in the manner already described, the turbine, shaft, and head are rotated at a high velocity, the effect of which is to throw the wings outward by centrifugal force against the power of the springs. The serrations in the edges of the wings and the spiral shape of the edges cause them to act upon the surface to be cleaned with a combined cutting and scraping action, the effect of which is to quickly and thoroughly remove soot and scale from the interior of the flue.

Owing to the fact that the cleaning-wings and the turbine are secured to a single shaft and that the turbine is so arranged that its buckets receive the impact of the steam in a plane at a right angle to the axis of the said shaft, there is little or no end thrust on the shaft, which therefore communicates the entire power of the steam to the wings without the use of end-thrust bearings or collars.

Having thus described my invention, I claim—

1. In a device of the character described the combination with a cylindrical case provided with steam-ports extending longitudinally within the shell thereof, of a shaft journaled in said case and carrying within the case a turbine B having its buckets arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, said shaft having at its outer end a

head carrying pivoted wings adapted to be thrown outward by centrifugal force and springs which act to return the wings to their normal position.

2. In a device of the character described the combination with a cylindrical case provided with steam-ports substantially extending longitudinally within the shell thereof, of a shaft journaled in the case and carrying a turbine provided on its outer periphery with V-shaped buckets open at the ends for the escape of steam, the said buckets being arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, whereby end thrust on the shaft is avoided.

3. In a device of the character described the combination with a cylindrical case provided with steam-ports extending longitudinally within the shell thereof, of a shaft journaled in said case and carrying within the case a turbine and at its outer end a head comprising a cross-piece having arms pivoted thereto, said arms carrying serrated spirally-curved wings and springs acting to return said arms and wings to their normal position, the buckets of the turbine being arranged to receive the impact of the steam in a plane at a right angle to the axis of the shaft, whereby end thrust on the shaft is avoided.

In testimony whereof I affix my signature in presence of two witnesses.

LEVI J. JONES.

Witnesses:
JAMES L. HOMMEDIEU,
DARWIN A. WADHAMS.