No. 887,004. PATENTED MAY 5. 1908.

J. F. MILES.

SMOKE AND SOOT ARRESTER FOR STACKS.

APPLICATION FILED JUNE 13, 1907.

Fig. 1.

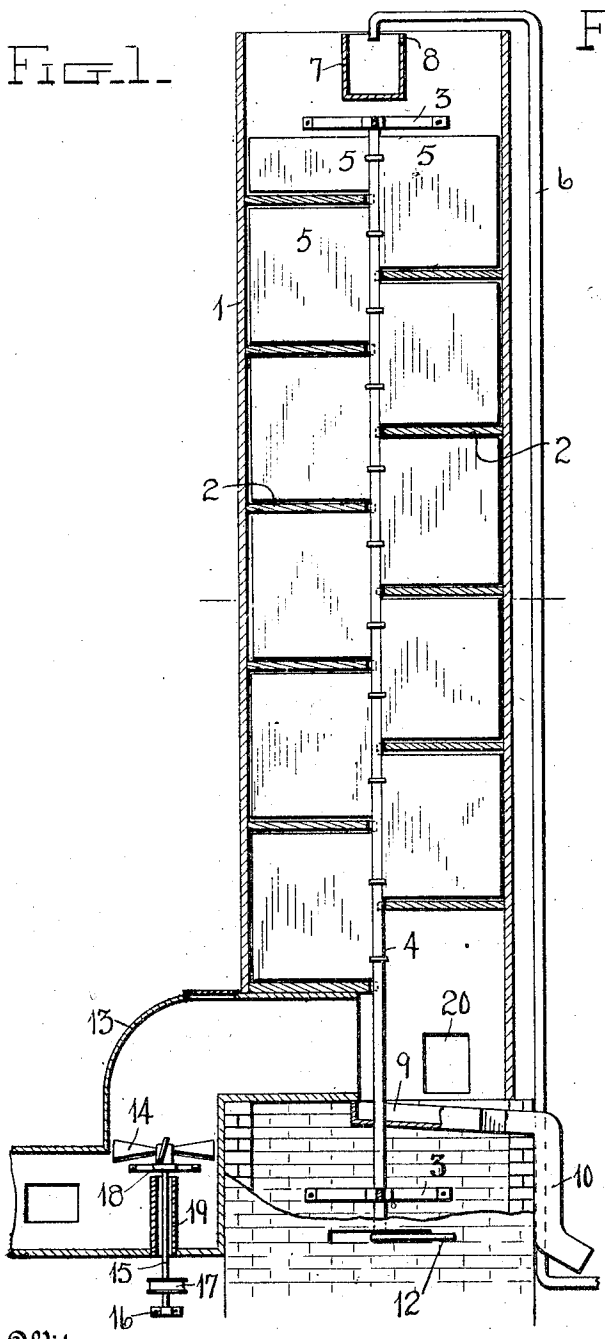


Fig. 3.

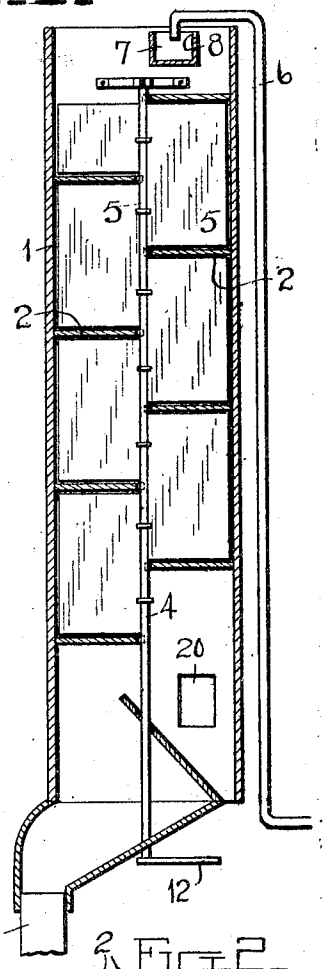
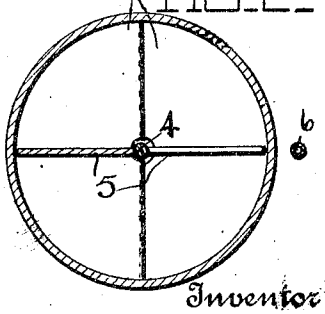


Fig. 2.



Witnesses

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SMOKE AND SOOT ARRESTER FOR STACKS.

No. 887,004. Specification of Letters Patent. Patented May 5, 1908.

Application filed June 13, 1907. Serial No. 378,778.

To all whom it may concern:

Be it known that I, JOSEPH F. MILES, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented certain new and useful Improvements in Smoke and Soot Arresters for Stacks; and I do 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.

This invention relates to improvements in smoke and soot arresters for stacks, chimney flues, etc.

The object of the invention is to provide a device of this character adapted to be applied to a smoke stack whereby the soot and other products of combustion will be caught while passing through the arrester, means being provided whereby the soot may be removed from the arresting devices and conducted to the bottom of the arrester, where it is removed through suitable openings provided therefor.

With this object in view, the invention consists of certain novel features of construction, combination and arrangements of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical sectional view showing the invention applied to a stack which is provided with a forced draft; Fig. 2 is a horizontal sectional view of the same; and Fig. 3 is a view similar to Fig. 1, showing the invention applied to a flue or chimney of a building.

Referring more particularly to the drawings, 1 denotes the arrester, in which is arranged in a zig-zag manner a series of semi-circular baffle plates, 2, which provide a tortuous passage from the lower to the upper end of the arrester, as shown. Revolubly mounted in suitable bearing brackets, 3, arranged in the upper and lower ends of the arrester is a centrally disposed shaft, 4, on which is secured a series of radially projecting cleaning blades, 5, one of said blades being arranged between each of the baffle plates, 2. The blades 5 are of such size that their opposite ends will come into close proximity to the upper side of one of the plates, and their upper ends into close proximity to the underside of the next adjacent plate, while the outer edge of the blades comes into close proximity to the inner wall of the arrester, whereby when the shaft 4 is revolved, the blades 5 will be moved over or across the baffle plates and around the inner wall of the arrester, thereby scraping or cleaning off all of the soot or other products of combustion which may have accumulated thereon.

Arranged adjacent to one side of the arrester is an upwardly projecting water conducting pipe, 6, the upper end of which is arranged to discharge water into a distributing trough, 7, which is disposed in the upper end of the arrester, as shown. The trough 7 is provided in one side with a series of notches 8, through which the water from the trough is adapted to overflow, and by means of which the water will be distributed across the upper baffle plate, from whence it will run off over the inner edge and onto the next lower plate on the opposite side of the arrester. At the lower end of the arrester on the opposite side from the lowermost baffle plate is arranged a water-receiving trough, 9, into which the water from said lower plate is discharged. The trough 9 is provided with a discharge tube 10 which projects through the side of the arrester and carries off the water from the same. In passing through the arrester, some of the water is absorbed by the soot and other products of combustion, so that the same will be heavier than the air, and will consequently fall upon the baffle plates from which it will be removed by the cleaning blades upon the turning of the shaft, 4. Any suitable means may be provided for turning or oscillating the shaft 4, the same being shown in the present instance as provided with a crank handle, 12, secured thereto adjacent to its lower end.

In Fig. 1 of the drawings, the arrester is shown as having connected to its lower end a smoke-conducting pipe 13, which extends from the smoke stack below a damper, not shown. In the pipe 13 is arranged a fan, 14, by means of which a draft is provided to force the smoke through the tortuous passage around the baffle plates of the arrester. The shaft 15 of the fan 14 projects through the lower side of the pipe 13 and is mounted at its lower end in a suitable bearing bracket 16, and is provided with a drive pulley, 17, with which is adapted to be engaged an operating belt. The upper end of the shaft 15 is mounted in a bracket 18, arranged in the pipe 13, and said upper bracket 18 is kept cool by a current of cold air which is conducted thereto through a tube 19 arranged around the shaft 15, as shown. The lower

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end of the tube 19 opens through the lower side of the pipe so that when the fan is revolved, a current of cold air will be drawn in through the tube to the bearing bracket 18, thus preventing the same from becoming overheated by the smoke when passing through the pipe 13 to the arrester.

In order that the soot and other matter which has been cleaned off the baffle plates and discharged through the lower end of the arrester may be removed, I provide a series of clean-out doors, 20, which are arranged in the lower end of the arrester and in the pipe 13, as shown.

In Fig. 3 of the drawings the invention is shown as applied to a flue or chimney of a building in which the natural draft of the chimney below forces the smoke through the arrester. To the lower end of the arrester shown in this figure is connected the upper end of a smoke conducting pipe 21, which extends into the building in position to receive the stove pipe. The arrangement and operation of the arrester and cleaning devices is the same in this figure as described in connection with Fig. 1 of the drawings.

By forming the arrester as a separate addition to the stack the same may be constructed considerably larger than the stack, thus providing ample space for the soot to settle on the baffle plates.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. A smoke and soot arrester, comprising a series of baffle plates arranged in a zig-zag manner through the arrester, a revolubly mounted cleaning mechanism equipped with a like arrangement of plates with their upper and lower edges adapted to remove the soot and products of combustion from said plates, and means whereby water is discharged onto the baffle plates, substantially as described.

2. A smoke and soot arrester for stacks comprising a series of baffle plates arranged in a zig-zag manner through the arrester, a shaft revolubly mounted in said stack, a series of cleaning blades secured to said shaft, and also arranged in a like manner, with their upper and lower edges having a scraping action upon said baffle plates and means to force the soot and other solid matter through the arrester, substantially as described.

3. A smoke and soot arrester for stacks, comprising a series of baffle plates arranged in a zig-zag manner through the arrester, a smoke conducting pipe connected to the lower end of the arrester, a draft fan revolubly mounted in said pipe, a shaft revolubly mounted in said arrester, and a series of cleaning blades mounted on said shaft to engage said baffle plates and the inner sides of the arrester, substantially as described.

4. A smoke and soot arrester having arranged at its lower end clean-out doors, a series of semi-circular baffle plates arranged first on one side and then on the other in an alternate manner through the arrester, a cleaning shaft revolubly mounted in the arrester, a series of radially projecting cleaning blades secured to said shaft and adapted to engage said baffle plates and the inner sides of the arrester, a crank handle connected to said shaft, a water distributing trough arranged in the upper end of the arrester, said trough having formed in one side a series of discharge notches, a receiving trough at the lower end of the arrester, a discharge tube connected with said trough, and a water supply pipe arranged on the arrester and adapted to discharge water into the trough at the upper end thereof, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH FURNAS MILES.

Witnesses:
JOHN F. MCREYNOLDS,
WILLIAM T. RIDLEY.