No. 631,377. Patented Aug. 22, 1899.

J. McCREERY.

AIR CLEANSING AND COOLING DEVICE.

(Application filed May 27, 1898.)

(No Model.) 2 Sheets—Sheet 1.

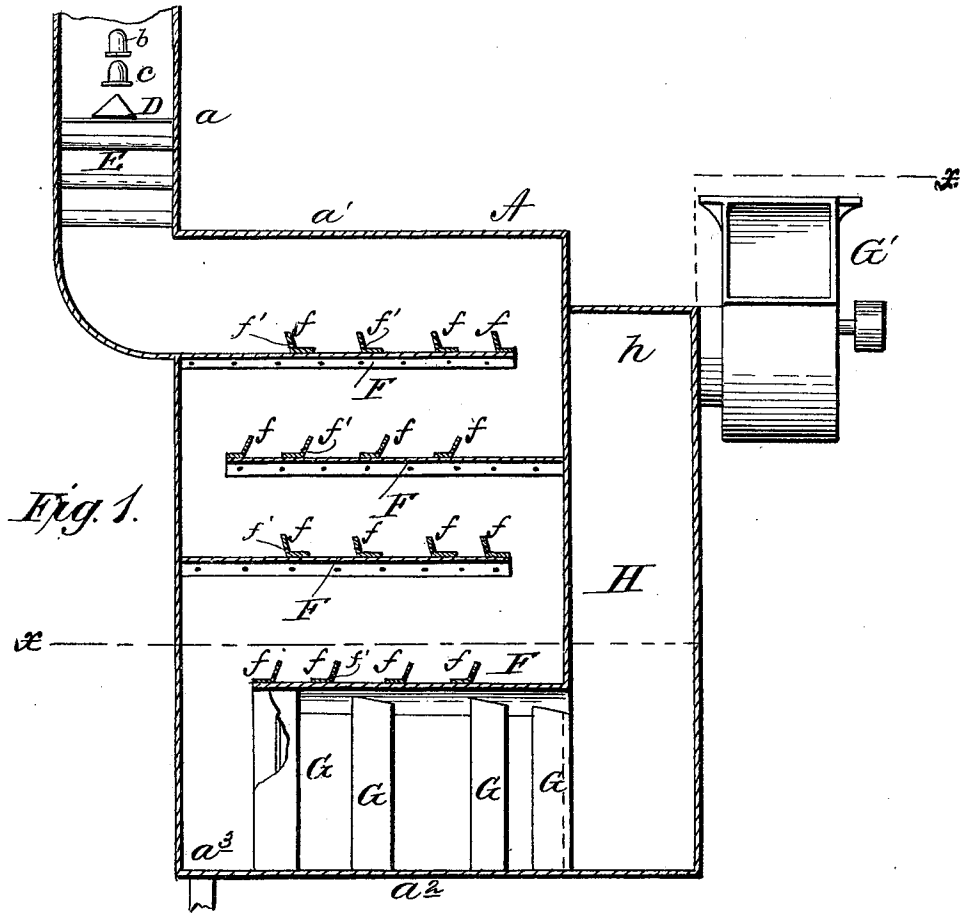


Fig. 1.

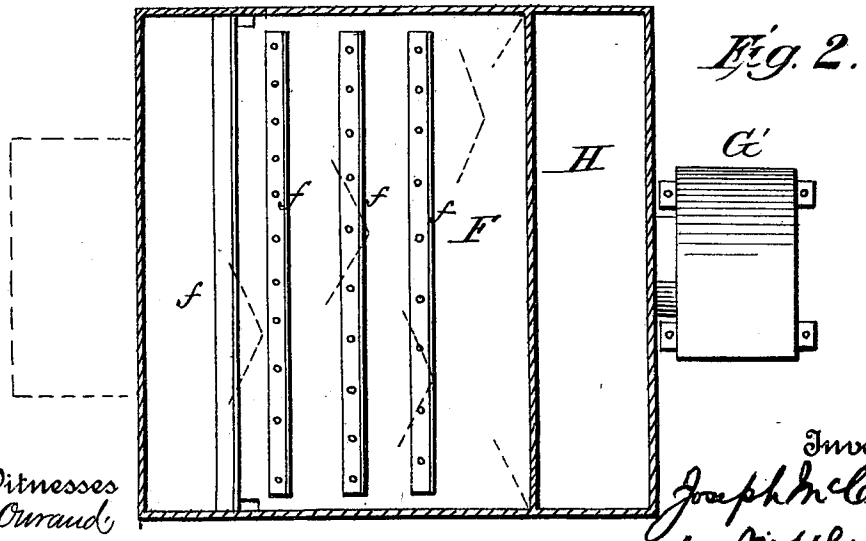


Fig. 2.

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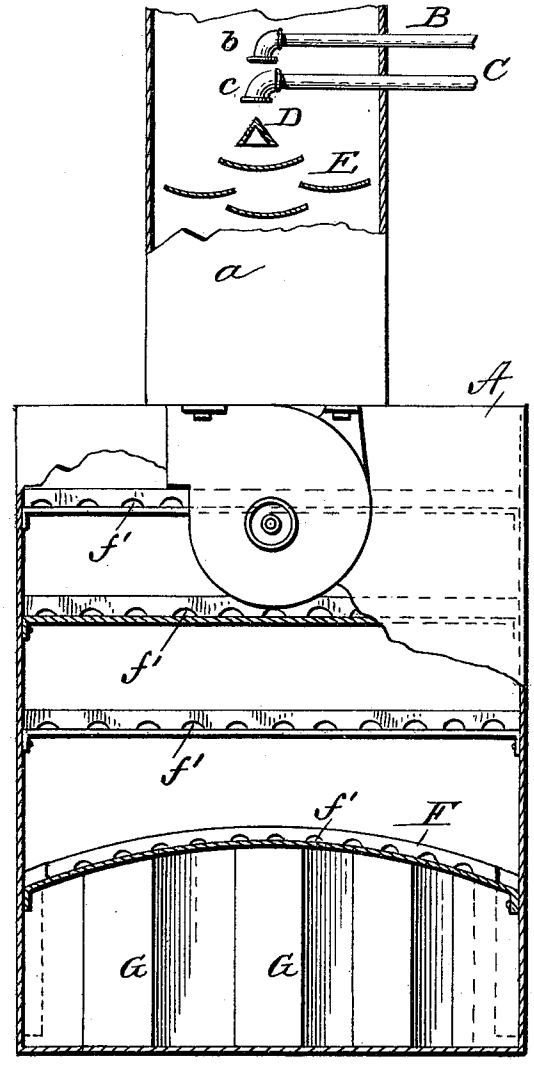


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH MCCREERY, OF TOLEDO, OHIO.

AIR CLEANSING AND COOLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 631,377, dated August 22, 1899.

Application filed May 27, 1898. Serial No. 681,952. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MCCREERY, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Air Cleansing and Cooling Devices; 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.

This invention relates to an improvement in an air cleansing and cooling device to be used in a system of ventilation.

The invention consists in the construction hereinafter shown and described.

In the drawings, Figure 1 represents a vertical transverse section of the device. Fig. 2 represents a horizontal transverse section taken on the line *x x*, Fig. 1. Fig. 3 represents an end view, partly in section.

In the annexed drawings the letter A represents a suitable box or case provided with the invention. One side at the top the box A has an air and water inlet *a*. In this inlet there enter the outlet-nozzles *b* and *c* of the two pipes B and C. Immediately below the outlet-nozzle C is a conical deflector D. Below this deflector is arranged a number of concaved shallow pans E, having their concavity on top and their ends connected to the opposite sides of the inlet *a*. This inlet *a* curves downwardly and into the body *a'* of the case A. Arranged transversely across the body *a'* of the case A is a series of baffle-plates F, having their alternating edges fastened to the side of the case A. On top of each baffle-plate there is secured a number of riffles *f*, such riffles being inclined backwardly toward the secured ends of the baffle-plates F. Between the lowermost baffle-plate F and the bottom a^2 of the case A is secured a number of vertical flaring baffle-plates G, which are staggered, so that there is a space amid them. The lowermost baffle-plate F is convex on top, so that the water may run to the sides of the case away from the middle, which tends to more effectually separate the water from the air, as shown in Fig. 3, and all of the baffle-plates have their riffles provided at the bottom with a number of openings *f'*.

At the bottom, at the rear of the flaring baffle-plates G or separators, the body *a'* of the case A opens into the bottom of a vertical shaft or passage-way H, the top *h* of which communicates with any ordinary blower G'. The case A is provided at the bottom with a drain-pipe a^3.

Water is admitted into the air-inlet *a* through one of the pipes B C, and in cold weather steam may be admitted through the other pipe. The water and air entering the inlet *a* commences to commingle at the pans E. The air and sprayed water pass together down the inlet *a* into the body of the case A and around the baffle-plates and through the separators G into the vertical shaft H, the blower G' withdrawing the cleansed and moistened air, the solid particles of water being left behind. As the air and sprayed water pass around the baffle-plates the water gradually drops and, resting upon the baffle-plates, runs through the openings *f'* along the tops of the baffle-plates to the bottom of the case and passes off through the drain-pipe a^3. It will thus be seen that in their passage through the case A the water after cleansing and moistening the air is gradually separated from the latter and runs down along the tops of the baffle-plates, carrying with it all the impurities taken from the air and runs off through the drain-pipe a^3. Any water which may be held in suspension in the air after passing around the baffle-plates is gradually caught by the separators G and falls to the bottom of the case. Furthermore, if any solid particles of water should pass beyond the separators the gravity of the water would hold it at the bottom of the vertical shaft H, and the moistened and cleansed air alone would pass up such shaft, being drawn up by the blower G'. In a device such as described the air is thoroughly cleansed and cooled by means of water, and at the same time there is a thorough separation of the water from the air. As the air and water pass through the case around the baffle-plates the water, falling upon the baffle-plates, is checked or retarded by the riffles and passes through the perforations in the latter. At the same time the air passes freely over the top of the riffles, and is thus partially separated from the water. When the water reaches

the last baffle-plate, it tends to roll off the sides of the case and thus more effectually be separated from the air which is drawn along the case above such baffle-plate. The convexity of this last baffle-plate gives a greater distance between it and the baffle-plate above it at its edges. Hence there is a larger passage for the air and the water is more readily separated by gravity. Whatever portions of water may be held in suspension in the air as the latter passes amid the separators G and up the uptake H are separated therefrom by the separators and by gravity.

Having described my invention, what I claim is—

An air cleansing and cooling device, consisting of a case provided at its top with an air-inlet and a water-inlet, and at its bottom with an air-outlet and a water-outlet, and between the two with a series of baffle-plates and separators, the lower baffle-plates being convex and all of the baffle-plates being provided with a series of riffles extending across the top of the baffle-plates and provided with perforations, as set forth.

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

JOSEPH McCREERY.

Witnesses:
EMMA M. GILLETT,
W. J. NEWTON.