No. 626,388. Patented June 6, 1899.

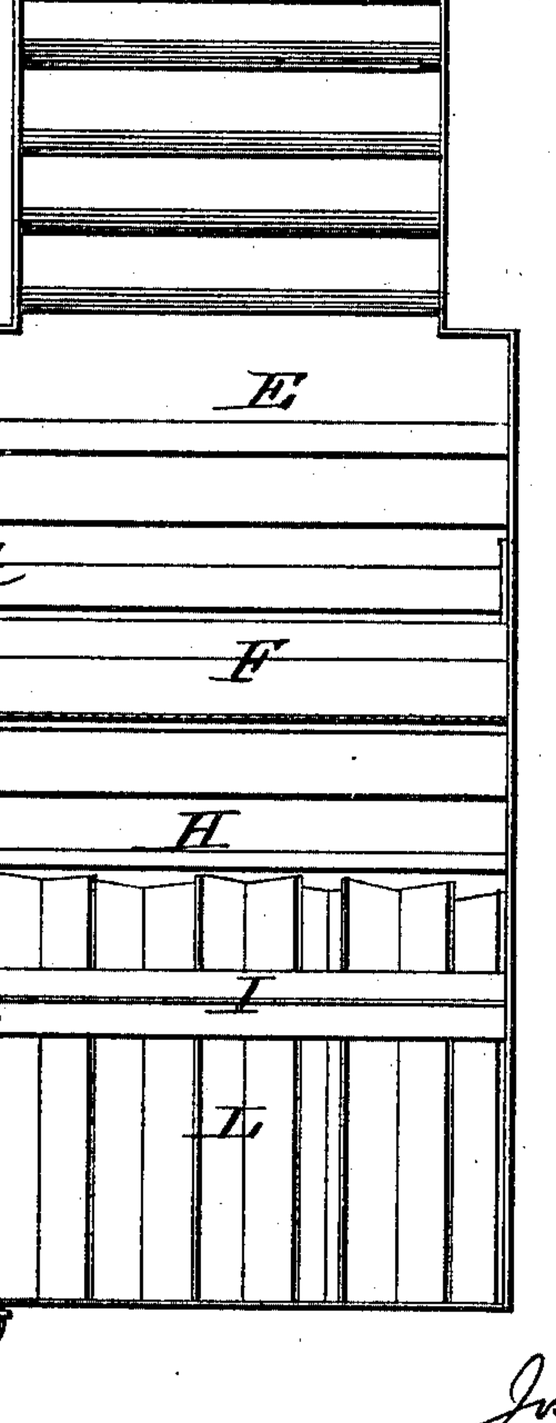
# J. McCREERY.

## AIR CLEANSING AND COOLING DEVICE.

(Application filed Nov. 5, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.




Witnesses
F. L. Ourand
George J. Steber.

Inventor
Joseph McCreery,
per W. A. Singleton.
Attorney

No. 626,388. Patented June 6, 1899.

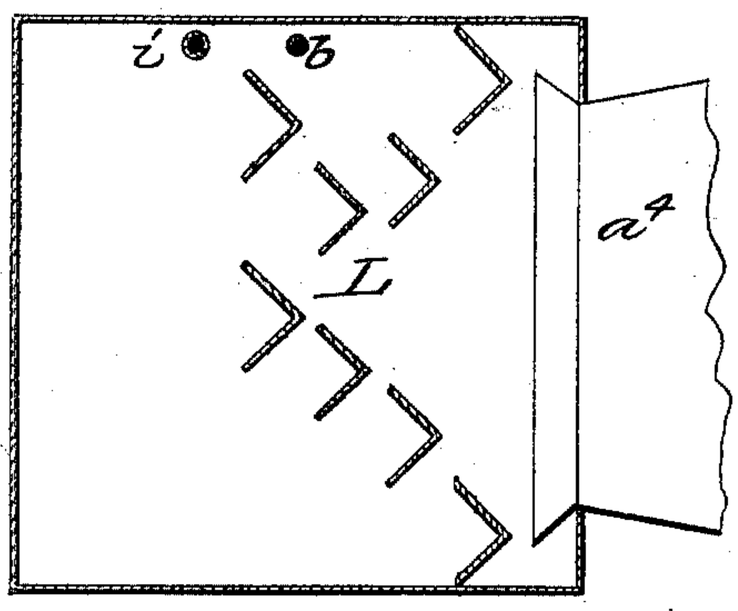
# J. McCREERY.

## AIR CLEANSING AND COOLING DEVICE.

(Application filed Nov. 5, 1897.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.



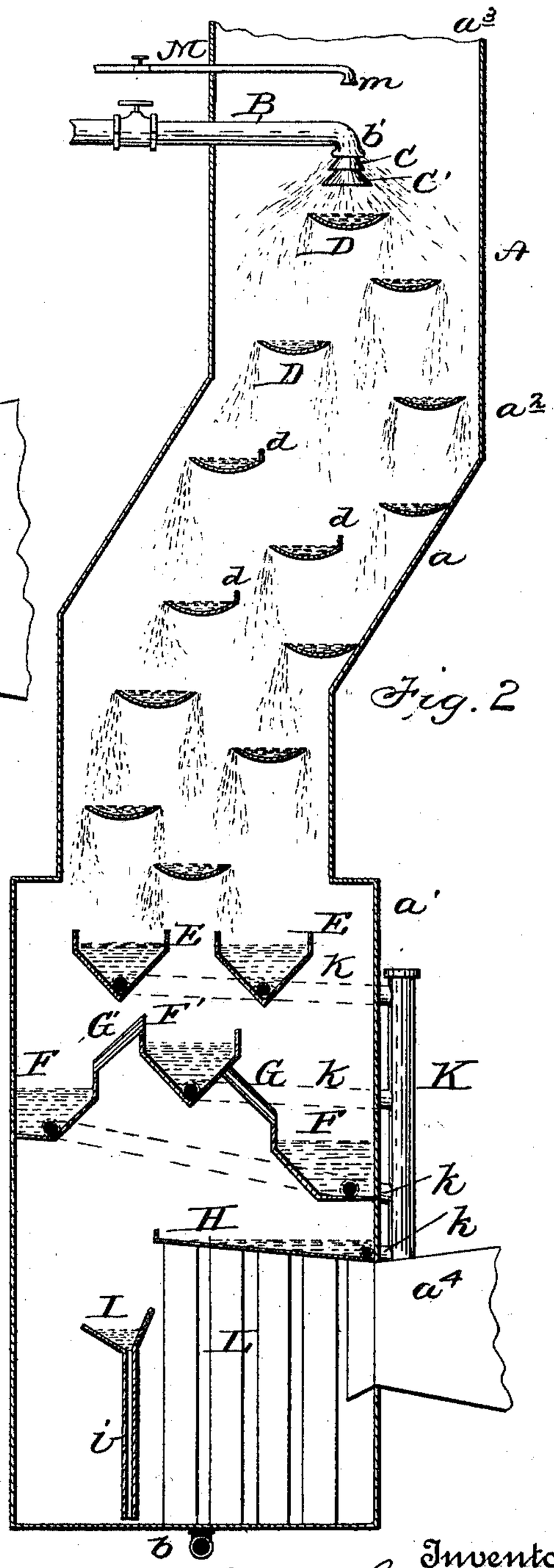




Fig. 2.

Witnesses
F. L. Ourand
George J. Steber

Inventor
Joseph McCreery.
per W. H. Singleton.
Attorney

# UNITED STATES PATENT OFFICE.

JOSEPH McCREERY, OF TOLEDO, OHIO.

## AIR CLEANSING AND COOLING DEVICE

SPECIFICATION forming part of Letters Patent No. 626,388, dated June 6, 1899.

Application filed November 5, 1897. Serial No. 657,528. (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 new and useful improvements in an air cleansing and cooling device; and it consists in the construction hereinafter pointed out.

The special object of this invention is to construct a device in which not only is the water thoroughly commingled with the air and then the two separated, but also the device is kept from freezing when the temperature is low.

In the drawings, Figure 1 represents an end view of the device, the outer part of the case being removed to show the interior construction. Fig. 2 is a transverse vertical section through the case. Fig. 3 is a horizontal section taken through the bottom of the case.

In the drawings the letter A represents an elongated case made preferably with an offset $a$ and having its bottom $a'$ preferably larger than the top portion $a^2$. This case is provided with an air-inlet $a^3$ at the top and an air-outlet $a^4$ at the bottom. Near the top it has a water-inlet B and at the extreme bottom a water-outlet $b$. Attached to and depending from the nozzle $b'$ of the inlet B are two deflectors C and C', one above the other and the lower the larger. Below these deflectors and extending transversely across the case A and spaced apart from one another are a number of staggered shallow pans D, which may or may not have at one side a lip $d$. These shallow pans D are placed in the upper part of the case A. Those of the pans D which are adjacent to that side of the offset $a$ of the case which is the underneath side are secured by their adjacent edge to the side of such offset. The pans at the upper side of the offset are not so secured, but are spaced apart in the side of such offset. Just below these pans and in the top of the bottom $a'$ are placed several transverse troughs E, such troughs being preferably made to hold more water than may be held in one of the pans D. These troughs E may be differently arranged. A little below the lowermost trough E' and to each side a receptacle or trough F is located. An opening is left between the trough E' and the receptacles F', as shown at G. Just below the receptacles F and just above the outlet $a^4$ another receptacle H is placed to one side of the case A. An overflow-pipe K has branch pipes $k$, which communicate with the bottom of the troughs E E' and receptacles F H. To the side of the case, away from the receptacle H and beyond its inner edge, is placed a trough I, from which depends a drain-pipe $i$, terminating near the bottom of the case. In the bottom of the case, extending from the under side of the receptacle H to the bottom of the case, and in front of the mouth of the outlet $a^4$ are placed perpendicular separator-plates L, V-shaped in cross-section and having their angles toward the outlet $a^4$. At the extreme top of the case, above the water-inlet B, a steam-inlet M enters the case and has a downturned nozzle $m$.

Air and water enter the case at the top, the water falling by gravity and air under pressure in any of the well-known ways. As the water emerges from the nozzle $b'$ it is thrown about the case by the deflectors or spreaders. The water and air are thus commingled at the top of the case. As they pass downwardly the water catches in the shallow pans D and runs over their edges. The offset $a$ and the side lips $d$ of the pans D cause the water to fall in spray toward the middle of the device. Both at the spreaders and in flowing over the edges of the pan the water is broken up into spray, so that the water and air are thoroughly commingled as they pass down the case. By having the pans secured at their edges to the under side of the offset water may not run down that side of the case, but is thrown toward the middle. It is unnecessary to secure the pans on the other side of the offset, as there is not any danger of the water striking that side of the case. When the water reaches the troughs E E' and receptacles F, it passes off through the overflow-pipes $k$ K. The air

passes down through the openings G, and any water which may pass down with the air is collected into the receptacle H or trough I. Should any water fall to the bottom of the case, it will be caught by the separator-plates L.

It is obvious that a device like this will thoroughly commingle air and water, so that the former is effectually cleansed from all impurities. At the same time the air and water are both thoroughly separated, so that the air without the water passes off through the outlet $a^4$.

When the temperature is low enough for freezing, steam may be admitted into the case through the inlet M. The steam passing down with the water and air effectually prevents any freezing in the case.

The case A is made with an offset *a*, so that a device of less height may be used in a given space. In this class of devices, where baffle-plates in the shape of alternating shelves are used, there is a sufficient length of passage, so that the air and water may be thoroughly commingled and also separated; but in some locations it is not feasible to use the device of such a construction, but a device of greater length and less width, such as a pipe, must be used. In such latter device in order to get the necessary flow a greater length of pipe is demanded than the space will sometimes allow. In order therefore to obtain the proper passage of the air and water, the offset *a* is made, this offset compensating for the shortening of the pipe in height. The length of pipe may remain the same, or in some instances if the offset be sufficiently marked the retardation of the water passing through the offset will compensate for diminution in the length of the pipe.

Having described the invention, what I claim is—

1. An air cleansing and cooling device, provided with the offset, *a*, having a water-inlet, an air-inlet, a water-outlet and an air-outlet, a series of shallow pans secured in the upper part of the case and at the offset, those pans which are adjacent to the under side of the offset being secured thereto and the pans adjacent to the upper side of the offset being spaced apart therefrom, and a series of troughs, the pans and troughs being placed between the inlets and outlets and the troughs provided with overflow-pipes, as set forth.

2. An air cleansing and cooling device having water and air inlets at the top and water and air outlets at the bottom, and between the inlets and outlets water pans and troughs, and below the troughs and in front of the air-outlet a series of perpendicular V-shaped separator-plates having their angles toward the air-outlet, as set forth.

3. An air cleansing and cooling device 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 several shallow pans, several troughs provided with overflow-pipes, a water-receptacle provided with overflow-pipes, a trough below such receptacle provided with drain-pipes and perpendicular V-shaped separator-plates, as set forth.

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

JOSEPH McCREERY.

Witnesses:
CATHARINE J. SNYDER,
CHAS. C. DAWSON.