(No Model.)

# H. W. LIBBEY.

## VENTILATOR.

No. 500,336. Patented June 27, 1893.

Fig. 1.

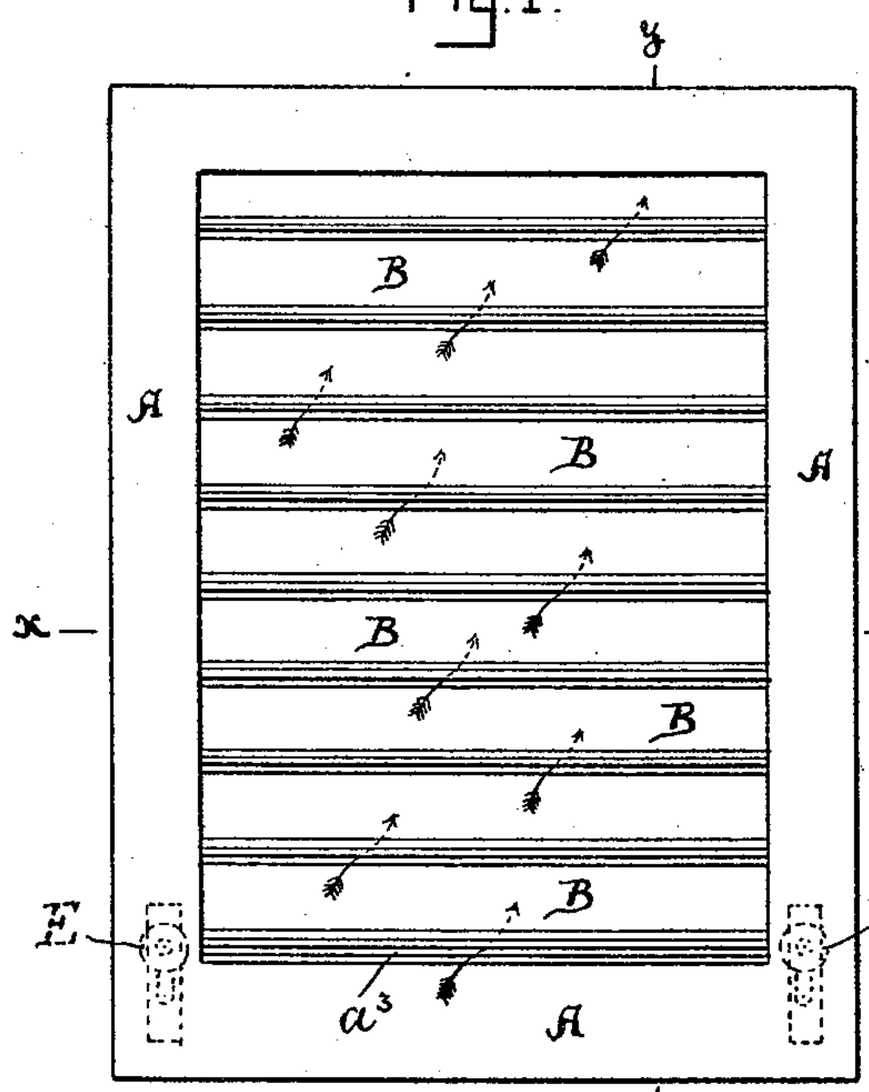



Fig. 3.

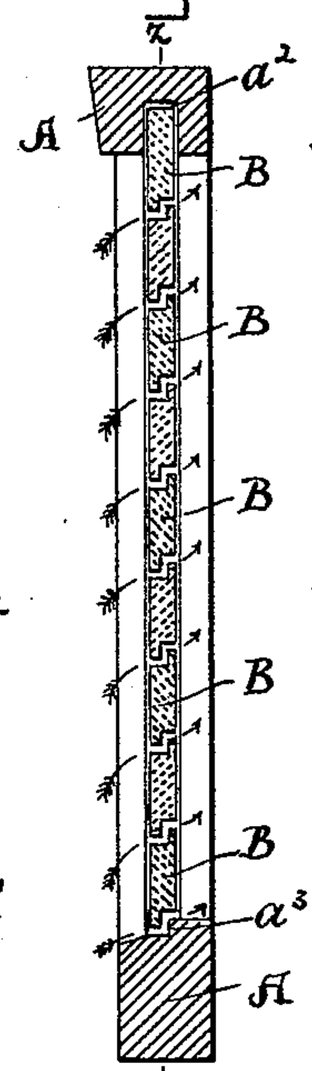



Fig. 4

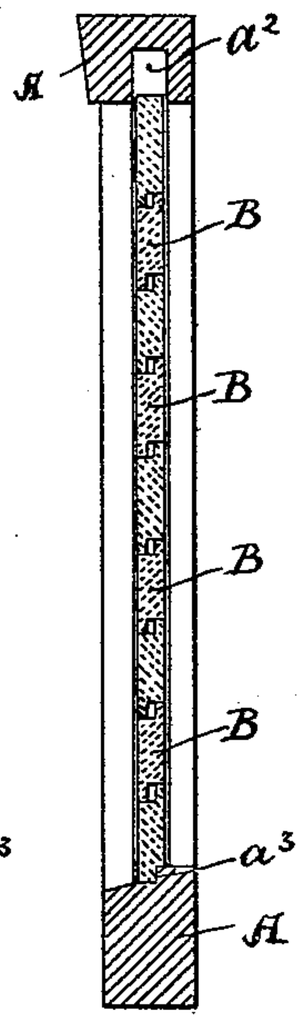



Fig. 2.

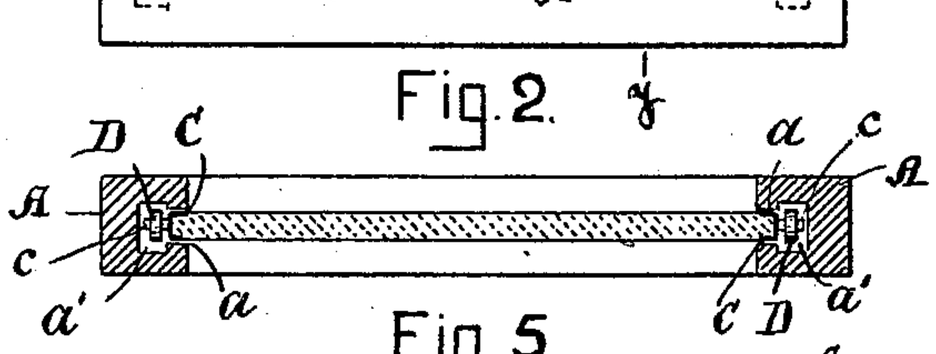



Fig. 8


Fig. 9.

Fig. 5.

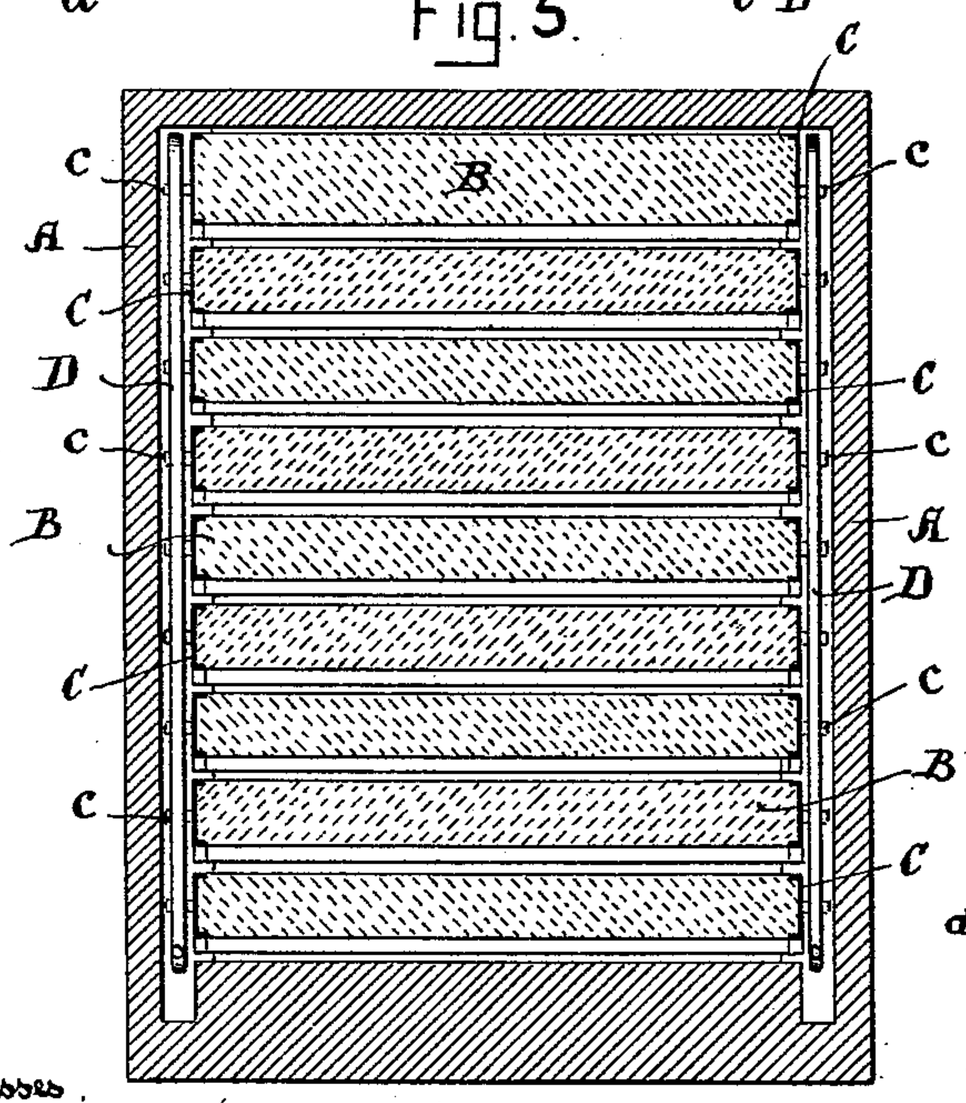



Fig. 6.

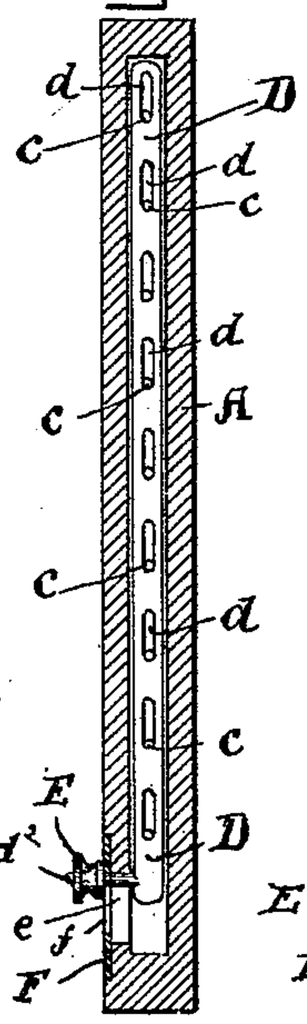
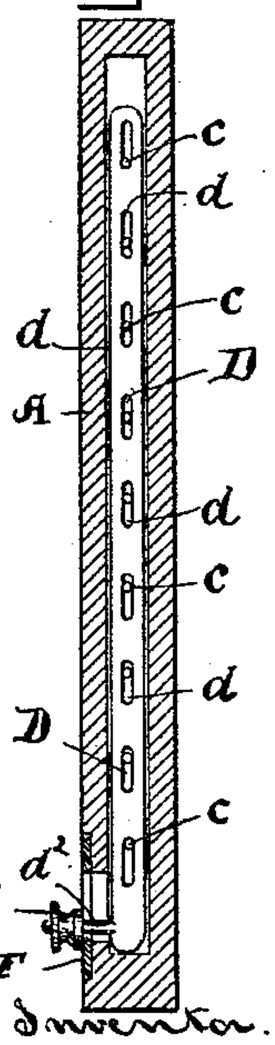



Fig. 7.




Witnesses.
Winifred L. Kerwin.
Carlos H. Swan

Inventor.
Horace W. Libbey
by Edwin Slanta.
Attorney.

# UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

## VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 500,336, dated June 27, 1893.

Application filed February 3, 1892. Serial No. 420,184. (No model.)

*To all whom it may concern:*

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ventilators, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to produce a ventilator that can be opened to admit air, and at the same time exclude insects, rain and dust, and which can be readily closed so as to exclude the admission of air when desired.

The invention consists in the peculiar construction and arrangement of a series of slats, preferably of glass, mounted in a sash or frame so that they are free to slide therein, said slats being operated by sliding bars on each side of the sash or frame, and held in the desired position by thumb nuts.

Referring to the accompanying drawings: Figure 1—represents an outside view of a ventilator embodying my invention, showing the ventilator open. Fig. 2—is a horizontal section taken on the line $x, x$, of Fig. 1. Fig. 3—is a vertical section taken on the line $y, y$, of Fig. 1. Fig. 4—is a similar section showing the ventilator closed. Fig. 5—is a section taken on the line $z, z$, of Fig. 3. Fig. 6—is a vertical transverse section of one end of the ventilator showing the sliding bar raised, as when the ventilator is in the open position. Fig. 7—is a similar section showing the sliding bar lowered, as when the ventilator is closed. Figs. 8 and 9—show modifications of the joints between the slats.

A, represents a sash frame formed on each side with a groove $a$ (see Fig. 2) and an enlarged recess or chamber $a'$; the upper end of the sash is also formed with a groove $a^2$, and the lower portion with a step or rabbet $a^3$.

B, B, are slats preferably of glass, the upper and lower edges of which are formed to interlock or fit into one another when the ventilator is closed, and when open insects will be hindered from passing through. The ends are inclosed in metal rims or cases C, each formed with a stud or projection $c$, which pass through slots $d$, formed in the sliding bars D, that are free to slide in the recesses $a'$, of the frame A. To each of the bars D is secured a screw threaded stud $d^2$, that projects through a slot $e$, cut in the sash A, and upon this stud is fitted a thumb nut E, by which the bar can be held in the desired position, a small plate F, having a slot $f$, being let into the sash for the thumb nut E to bear against. I prefer to have the edges of the slats rabbeted as shown in Figs. 3 and 4, but if desired they might be beveled as shown in Fig. 8, or rounded in the central position as shown in Fig. 9. The object of having the edges such shapes is to exclude insects, rain, dust and the like.

To open the ventilator the operator takes hold of the two thumb nuts E, and loosens them. Then he pushes them upward which raises the bars D, and with them the slats B, which may be raised to the full extent or only as much as may be required; the thumb nuts are then screwed up, and the slats held open, the air entering between the slats as indicated by the arrows in Figs. 1 and 3. To close the ventilator the thumb nuts are loosened and the slats will close by their own weight. The thumb nuts may then be tightened so as to hold them and prevent the ventilator from being tampered with from the outside.

Although I have shown and described the slats as being arranged horizontally it is obvious that they might if desired be arranged vertically.

What I claim is—

1. A ventilator consisting of a series of slats mounted in a sash or frame and free to slide vertically therein, the end of said slats having studs or projections that enter into and are held by slotted sliding bars, that are operated and locked by thumb nuts substantially as set forth.

2. The sash A, having a groove $a$, and an enlarged recess or chamber $a'$ on each side, a groove $a^2$, at its upper end and a step or rabbet $a^3$, at its lower end in combination with slats B, metal rims C, having studs $c$, and sliding slotted bars D, adjustably held by studs $d^2$, and thumb nuts E, substantially as set forth.

3. A ventilator having vertical sliding slats the lower edge of each slat being formed to

interlock with the upper edge of the next adjacent slat, a sash or frame for holding and guiding the same vertically and means such as slotted bars whereby the slats are separated a short distance one from another to admit air between each of said slats or their edges allowed to come in contact with each other thereby excluding air all arranged and operated as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of January, A. D. 1892.

HOSEA W. LIBBEY.

Witnesses:
CHAS. STEERE,
EDWIN PLANTA.