No. 759,888. PATENTED MAY 17, 1904.

F. H. HITCHCOCK.

VENTILATOR.

APPLICATION FILED DEC. 11, 1900.

NO MODEL.

Fig. 2.

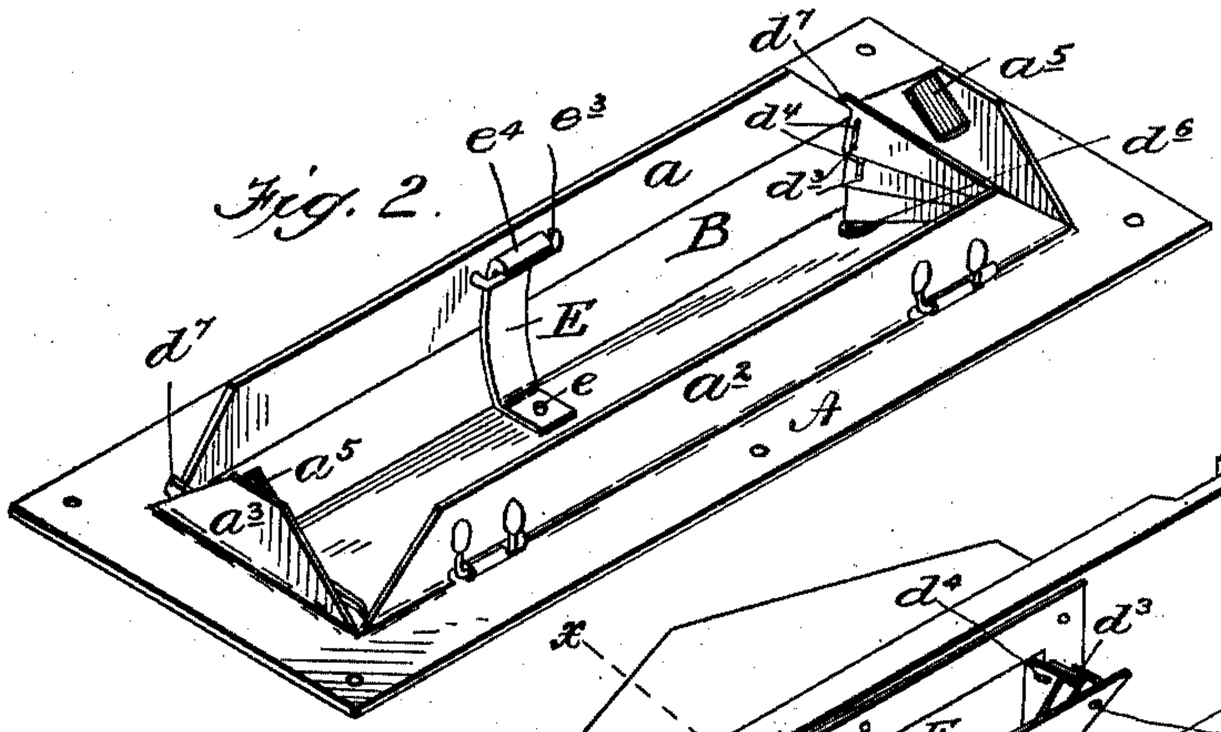


Fig. 1.

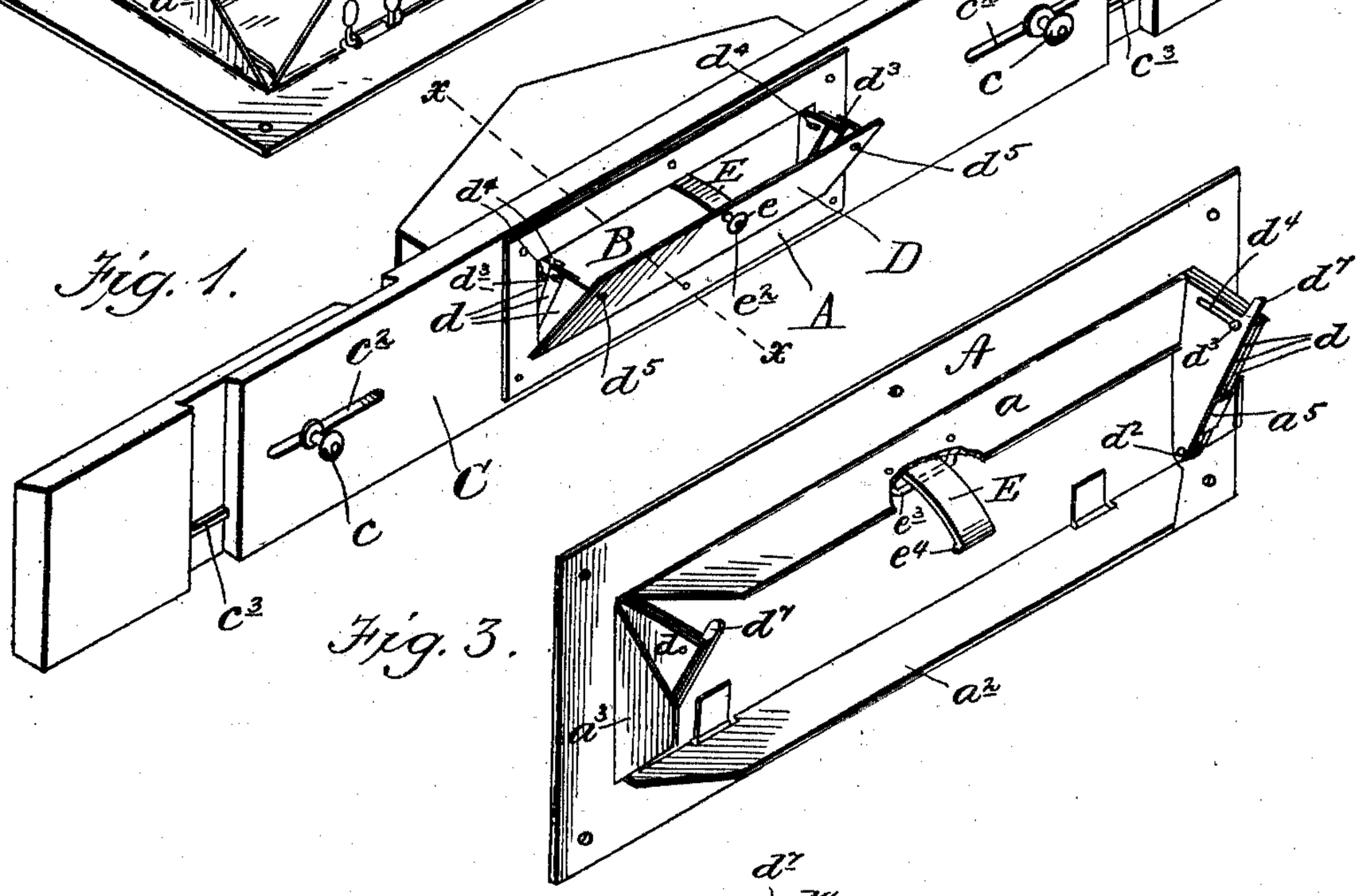


Fig. 3.

Fig. 4.

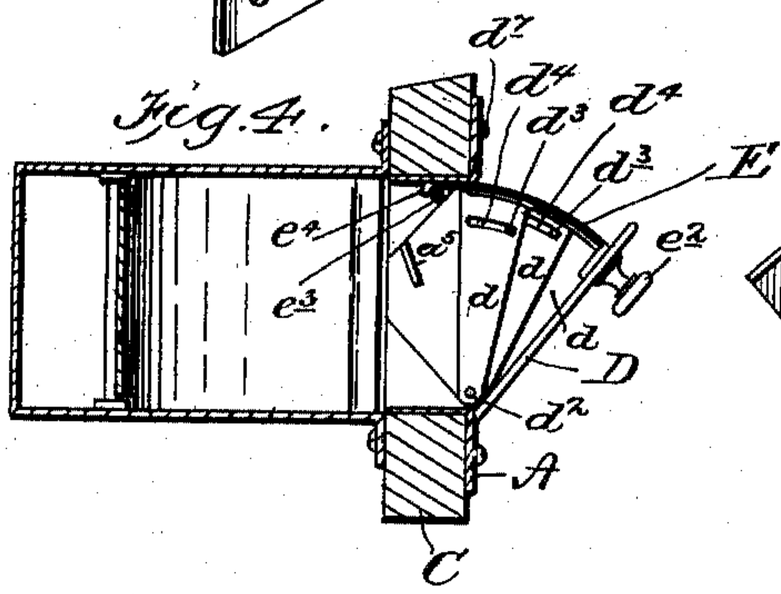


Fig. 6.

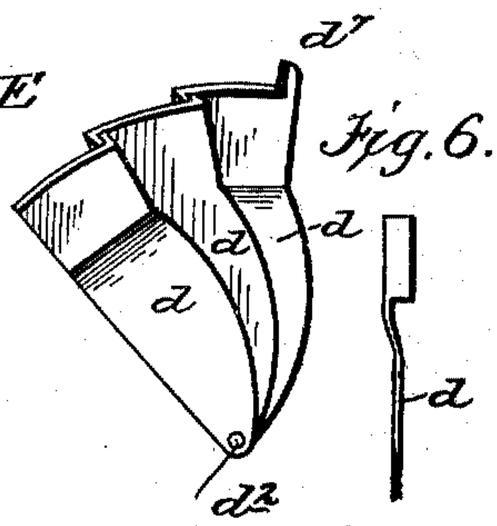


Fig. 7.

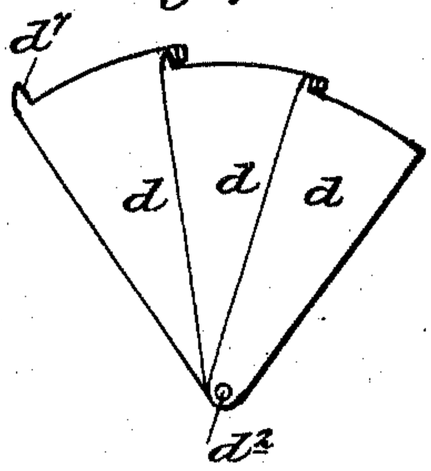
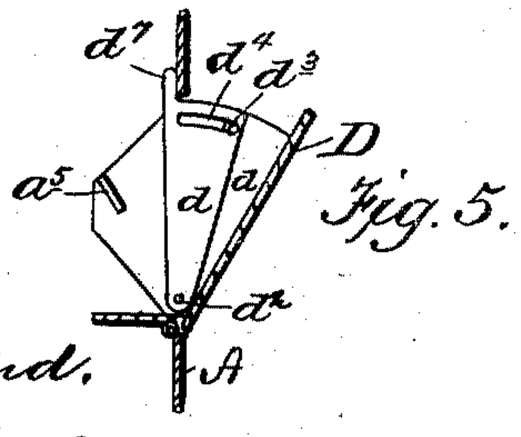


Fig. 5.



Witnesses
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No. 759,888. Patented May 17, 1904.

UNITED STATES PATENT OFFICE.

FRANK H. HITCHCOCK, OF SOMERVILLE, MASSACHUSETTS.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 759,888, dated May 17, 1904.

Application filed December 11, 1900. Serial No. 39,504. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. HITCHCOCK, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Ventilators; 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.

The object is to provide a shutter or door for opening or closing, partially or fully, an aperture through which a current of air may be induced or permitted to flow and for regulating such current as to quantity, force, and direction.

With this object in view my invention consists of the novel combination and arrangement of parts hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated a few of many embodiments of my invention, it being understood that the form of device and manner of construction may be varied without departing from the spirit of the invention.

Figure 1 is a view in perspective illustrating a form of my device as applied to the aperture of a ventilator, illustrating also a form of a common support for the device of my invention and a ventilator hood or casing, the support being provided with sliding ends that make it readily adjustable to windows or other openings of different widths. Figs. 2 and 3 are views in perspective of the reverse side of a form of my device detached from its support. Fig. 4 is a view in vertical cross-section taken on the line $x\ x$ in Fig. 1 and showing more particularly certain details of a form of my device, and Figs. 5, 6, and 7 represent modifications of certain parts of a form of my device.

In the drawings, A represents a frame mounted about an aperture B in a support C. The frame A is preferably provided with inwardly-bent flanges, such as a, a^2, a^3, and a^4. Hinged or otherwise attached to the frame A is a swinging or movable shutter or door D, which is preferably provided with adjustable ends or sides, each of which may consist of a plurality of sector-shaped blades d, moving parallel to each other on a single pivot or axis d^2 and preferably connected with each other by means of rivets d^3, working in slots d^4. The outermost blade, or that describing the longest arc, may be attached to the door in any preferred manner, as by a screw d^5, Fig. 1, passing through the door and into a flange or lip d^6, Fig. 2, the screw or other means of attachment being preferably so arranged that the door may be readily detached from the blades and permitted to swing down to the fullest possible extent. The innermost blade, or that describing the shortest arc, may be provided with any preferred means of connection with the frame A or a part thereof or with the wall of the aperture, as by means of a projecting point d^7, so arranged as to come into contact with the inner side of the frame or wall when the door is opened, thereby forming a stop.

The frame or its flanges or the wall of aperture may be provided with any preferred means—such as, for instance, the lips a^5—to act as a stop for the blades when the door is closed.

My device is by preference provided with means to regulate the distance to which the door is to be opened and to hold the door securely in any intermediate position desired, thus controlling the quantity of air-current. In the drawings a means of accomplishing this is shown in the form of a tongue or rod E, attached at one end to the door, preferably by a screw e, that may be readily removed, permitting the door to swing down to the fullest possible extent. If desired, the screw e may be passed through or attached to a means for grasping the door, such as a handle or knob e^2. The tongue or rod may be so formed and placed as to bear with friction against the upper wall of the aperture B or against the frame A or a part thereof—such as, for instance, the flange a. The flange a or other part against which the tongue or rod bears may be provided with means for guiding and limiting the movement of the tongue or rod, such as the loop or staple e^3. The loop or staple e^3 or

other means provided may be also utilized, if desired, as a stop for the tongue or rod, which may in that case be provided at or near its end with a catch, such as the bend or lip e^4. The loop or staple may, if desired, be dispensed with and the tongue or rod be provided with independent means of catching—such as, for instance, an upturned end so arranged as to come into contact with or catch upon the edge of frame or flange thereof or upon the wall of aperture. It is obvious that the same purpose may be accomplished by having the tongue or rod pass through a hole or slot in the frame instead of being placed as just described.

It is apparent, too, that the tongue or rod, besides having the functions mentioned above, affords a firm support to the door when open and also adds to the strength of the device generally.

While the figures thus far described (Figs. 1, 2, 3, and 4) show a shutter or door having sides or ends provided with three blades each, it is to be understood, of course, that a larger or smaller number of blades may be similarly used. Fig. 5 exhibits a side or end of a shutter provided with but two blades. It is also evident that instead of having the blades connected by rivets d^3, working in slots d^4, as shown in Figs. 1, 2, 3, 4, and 5, other means of connection may be readily utilized. In Fig. 6, for instance, blades are shown having offset edges so arranged as to catch upon each other, as can be plainly seen. Similarly, in Fig. 7 blades are exhibited that have their upper parts provided with projecting points and hook-like lips so arranged as to catch upon each other in the manner illustrated.

The support C, upon which the frame A is mounted, is preferably provided with sliding ends so arranged that by their adjustment the support can be lengthened or shortened, as desired. Each of these sliding ends may be provided with a set-screw c, playing in a slot c^2 in the adjoining portion of the support. The sliding ends may be jointed to the support, as shown, and may be provided with one or more ribs c^3, so arranged as to slide in corresponding grooves in the adjoining surface of the support. The object of the ribs and grooves is to guide the direction of the adjustable sliding ends.

As previously suggested, it is to be understood that I do not limit myself to the precise shape and arrangement of any of the parts of the device—such as the frame, the flanges thereof, the shutter or door, the ends or sides thereof, the various means of connection, and the means for regulating the movement of the shutter or door—as each and all of these may be varied without departing from the spirit of the invention.

In the form of device shown it is obvious that when the shutter or door is pulled open to the farthest point permitted by the movement of the blades or to any intermediate point it stands at an angle to the aperture, and thus serves to deflect in an upward direction any current of air admitted.

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

1. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and means carried by said deflector and engaging said frame to secure said deflector in its several positions, substantially as described.

2. In a device of the character described, the combination of a frame provided with an aperture and with securing-flanges surrounding said aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series, and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and means carried by said deflector and engaging said frame to secure said deflector in its several positions, substantially as described.

3. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, means carried by the innermost of said sector-shaped plates and constructed to engage said frame to limit the outward movement of said plates, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and means carried by said deflector and engaging said frame to secure said deflector in its several positions, substantially as described.

4. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates piv-

otally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and means carried by said deflector and frictionally engaging said frame to secure said deflector in its several positions, substantially as described.

5. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and a tongue or rod carried by said deflector and engaging the frame to secure the deflector in its several positions, substantially as described.

6. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and a tongue or rod carried by said deflector and engaging the frame to secure the deflector in its several positions, said band extending in an arc about the hinged joint of the deflector, substantially as described.

7. In a device of the character described, the combination of a frame provided with an aperture, a series of sector-shaped plates pivotally supported on said frame at each end of said aperture, means connecting the several plates of each series and constructed to permit movement of said plates about their pivotal support from overlapping closed position to extended open position, means carried by the innermost of said sector-shaped plates and constructed to engage said frame to limit the outward movement of said plates, means carried by said frame and constructed to limit the inward movement of said plates, a deflector or shutter-door hinged to said frame and detachably secured to the outermost of said sector-shaped plates, whereby said deflector may be adjusted in various angular positions relative to the frame, and means carried by said deflector and engaging said frame to secure said deflector in its several positions, substantially as described.

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

FRANK H. HITCHCOCK.

Witnesses:
THOMAS BRADLEY,
EDMUND H. PARRY.