

(No Model.)

2 Sheets—Sheet 1.

J. M. AYER.
VENTILATOR.

No. 312,177.

Patented Feb. 10, 1885.

Fig. 1.

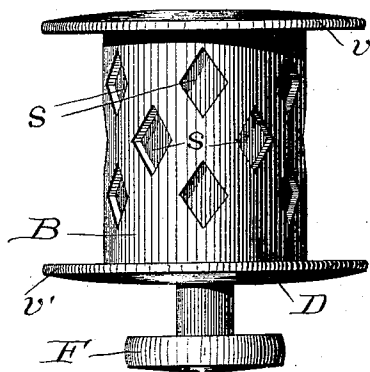


Fig. 2.

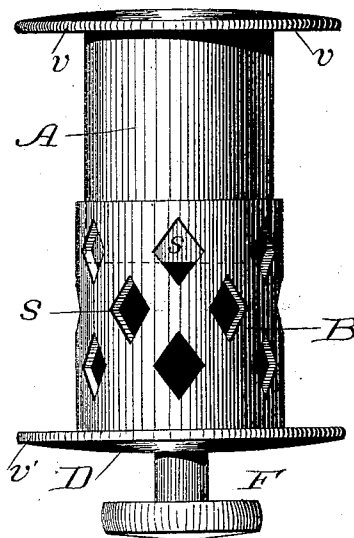


Fig. 3.

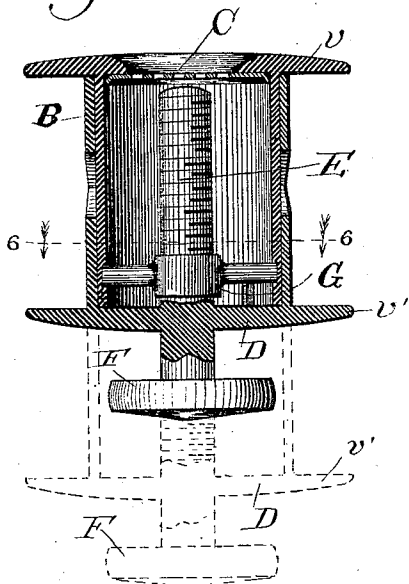
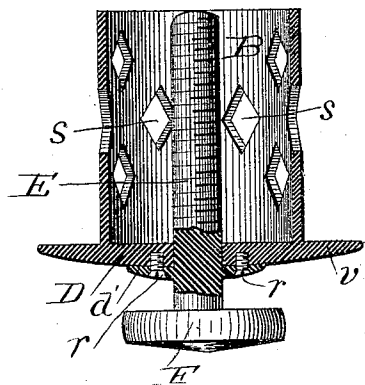


Fig. 4.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

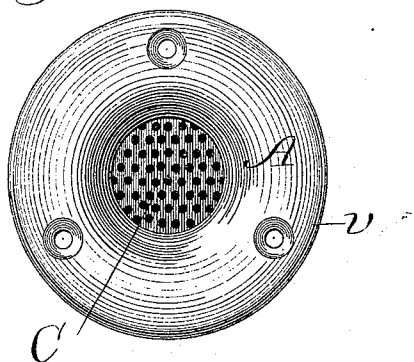


Fig. 6.

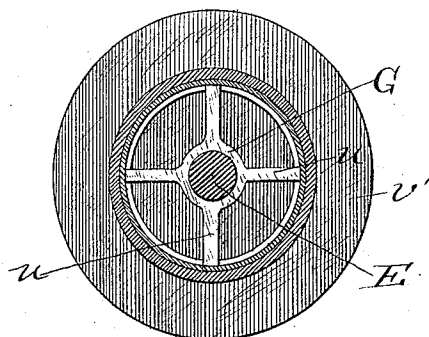


Fig. 7.

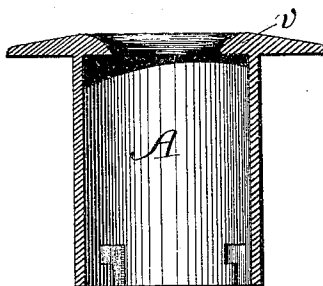


Fig. 8.

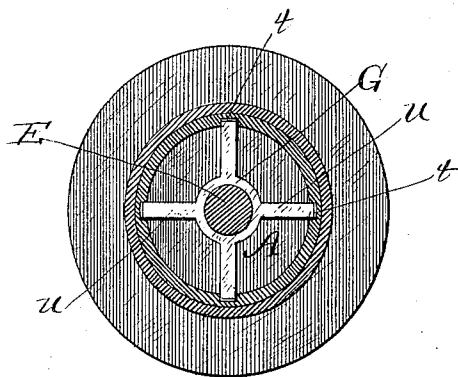
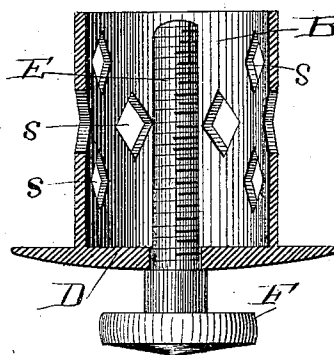


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN M. AYER, OF CHICAGO, ILLINOIS.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 312,177, dated February 10, 1885.

Application filed May 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. AYER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators; and I hereby declare the following to be a full, clear, and exact description of the same.

My present invention is in the nature of an improvement on the device for which Letters Patent of the United States No. 291,666, were granted to me January 8, 1884.

The general purpose of my improvement, like that of my original invention, is to effect ventilation wherever the ventilator is placed, by securing a constant controllable supply of fresh air through it, the current of air entering in one direction and being diffused into the space to be ventilated in a lateral direction through the apertures, whereby the current is broken and draft is avoided.

Experience had in the construction and operation of my original device has suggested the improvements which form the subject of the present application.

It is found, with the larger sizes of my ventilators, that the movement of one cylinder upon the other cannot be accomplished with perfect ease, but necessitates some exertion on the part of the operator, owing, probably, to the resistance encountered and attributable to the large extent of screw-threaded surface. Besides, the proper cutting of the screw-threads on the outer surface of the one cylinder and on the inner surface of the other is an operation which is attended with considerable difficulty, and demands the exercise of great care for its accurate accomplishment at the expense of time, whereby the cost of manufacture is increased. It is my object to overcome these objections, and to do this I have invented the mechanism hereinafter described and claimed, and shown in the accompanying drawings, in which—

Figure 1 is a view in elevation showing the device closed; Fig. 2, a similar view showing the device open; Fig. 3, a vertical section showing the positions of details, with the ventilator closed, as represented by the full lines, and showing them with the ventilator opened, as represented by the dotted lines; Fig. 4, a vertical section of the outer cylinder, showing

a modification; Fig. 5, an end view of the inner cylinder, showing the perforated plate or screen in position; Fig. 6, a horizontal section of the device, taken on the line 6 6 of Fig. 5, viewed in the direction of the arrows; Fig. 7, a vertical section of the cylinder, showing a modified construction of a detail; Fig. 8, a horizontal section of the device, showing a modified construction of a detail, and Fig. 9, a vertical section of the outer cylinder, showing a modified construction of a detail.

A is a hollow cylinder, provided at one end with an annular head or lateral flange, *v*, and having a screen, C; and B is another hollow cylinder, provided with apertures *s*, preferably of diamond shape and in rows equidistant apart, and closed at one end by means of a cover, D, to form a cap having a lateral flange, *v'*, which cover may or may not be provided with an opening through its center, according to whether the screw E, hereinafter more particularly described, shall pass through it or shall be cast with and form a part of it, in which latter case the handle F will be cast as a part of the cover, whereas in the former it will form the head of the screw E.

Unlike my former device, hereinbefore referred to, the cylinders A and B are devoid of screw-threads upon their surfaces, being perfectly smooth, and made to fit closely one within the other.

For the purpose of opening and closing the ventilator to admit air and regulate the supply thereof, and entirely to shut the latter off, I now provide within the cylinder A the screw-threaded socket G, preferably of the shape of a round nut, varying in dimensions according to the size of ventilator to which it is applied, to receive the screw E, which projects either from or through the center of the cover D longitudinally along the center of the outer cylinder, B. The socket or nut G is braced in position within the cylinder A by means of radial arms *u*. The socket extends inward to any desired distance from or from near the edge of the opening leading into the cylinder A, the usual thickness of the socket being preferably such as will be sufficient to afford the necessary strength to operate the screw through its center, and to produce the necessary steadiness of motion of the outer cylinder when the latter is operated.

The arms *u*, cast with and forming part of and supporting the socket or nut *G*, may be secured within the cylinder *A* in various ways. They may be cast with the cylinder, though, preferably, only when no screen *C* is employed, or, when it is attached externally to the end of the cylinder, since the socket *G* would, if cast as a part of the cylinder, form an obstacle in the way of conveniently adjusting the screen at the end of the cylinder on the inner side of the same, as shown in the drawings. They may be made to fit within recesses *t*, formed at the proper points on the inner surface of the cylinder *A*, as shown in Fig. 8 of the drawings, wherein they may be secured by dovetailing, leading, or by means of set-screws, or in any other suitable way. They may rest upon a shoulder formed around the inner side of the cylinder, as shown in Fig. 6 of the drawings, by thinning the cylinder to a proper depth, and they are secured in position upon the shoulder in any suitable way. They may be received within L-shaped recesses, as shown in Fig. 7 of the drawings, when the manner of securing them in place would be to insert them into the vertical portions of the recesses and turn them to bring them within the horizontal portions, and other means, perhaps equally as desirable as those set forth, could be suggested.

The screw *E*, which projects through the center of the outer cylinder, *B*, may, as before stated, be cast upon the inner side of the cover *D*, or may be separate from the latter in the form of a screw with the handle *F* for its head, when the cover *D* should be provided with an opening in its center to receive the screw. When formed as last described, the screw may be secured in position to prevent its revolving independently of the cylinder *B* by means of a flange, *d'*, cast upon it, as shown in Fig. 4 of the drawings, and provided with screw-holes to receive screws *r*, which penetrate into the cover *D*. Another way to secure the screw *E* thus separately formed in place within the cover *D* is shown in Fig. 9 of the drawings, wherein that portion of the screw which passes through the opening in the cap is of a diameter smaller than that of the opening, to leave a space around the screw, into which lead or solder may be poured.

To operate my device, the outer cylinder, *B*, is turned upon the inner one, *A*, by means of the handle *F*, and moved either forward or backward, as may be desired, by the action of the screw *E* within the socket *G*. It may be, however, that it shall be desired to effect the operation of my device without the necessity of revolving one cylinder upon the other by the mere turning of the screw *E* within the socket *G*, and this mode of operation is included in my invention.

The construction of my device, by means of

which its operation may be accomplished in the aforesaid manner, is as follows: The screw *E*, provided with the head forming the handle *F*, passes through the opening formed in the cover *D*, but is not rigidly secured therein, being only secured to prevent its withdrawal by means of a shoulder or stop on that part of the screw which projects out from the cover, and by a pin through the screw on the opposite or inner side of the cover, or by any other suitable means. Then the cap does not revolve with the screw, but moves longitudinally back and forth upon the cylinder *A* with the turning of the screw *E* within the socket *G*.

It should be stated that the present application is for a modified construction of the device for which the Letters Patent of the United States hereinbefore referred to were granted to me, and that it is not broadly new to effect and control ventilation by means of a longitudinally-adjustable perforated cylinder extending from without into an inclosure to be ventilated.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a ventilator, the combination of two hollow cylinders fitting one within the other, one open at both ends to serve as the air-passage, and to fit within an opening in a window-sash, wall, or the like, and provided with a socket or nut, *G*, and the other closed at one end, and provided with side apertures, and a screw, *E*, extending longitudinally through it and through the socket *G*, whereby the turning of the screw carries one cylinder back and forth with relation to the other, and opens and closes the apertures, substantially as described.

2. In a ventilator, the combination of a cylinder, *A*, open at both ends, socket or nut *G* within the said cylinder, cylinder *B*, closed at one end, and adapted to fit upon the said cylinder *A*, and provided with apertures *s*, and the screw *E*, secured to the head thereof and within the cylinder *B*, substantially as described.

3. A ventilator comprising in combination the cylinder *A*, provided with a flange, *v*, a screen, *C*, and a socket or nut, *G*, a cylinder or cap, *B*, provided with apertures *s*, and adapted to inclose the cylinder *A*, and closed at one end, a screw, *E*, extending longitudinally along the center of the said cap and secured thereto, and extending through the socket or nut *G*, and a handle, *F*, upon the cap *B* to permit the screw to be turned within the socket *G*, whereby the cap *B* shall be moved back and forth upon the cylinder *A* by means of the screw *E* and nut *G*, substantially as described.

JOHN M. AYER.

In presence of—

C. C. LINTHICUM,
DOUGLAS DYRENFORTH.