

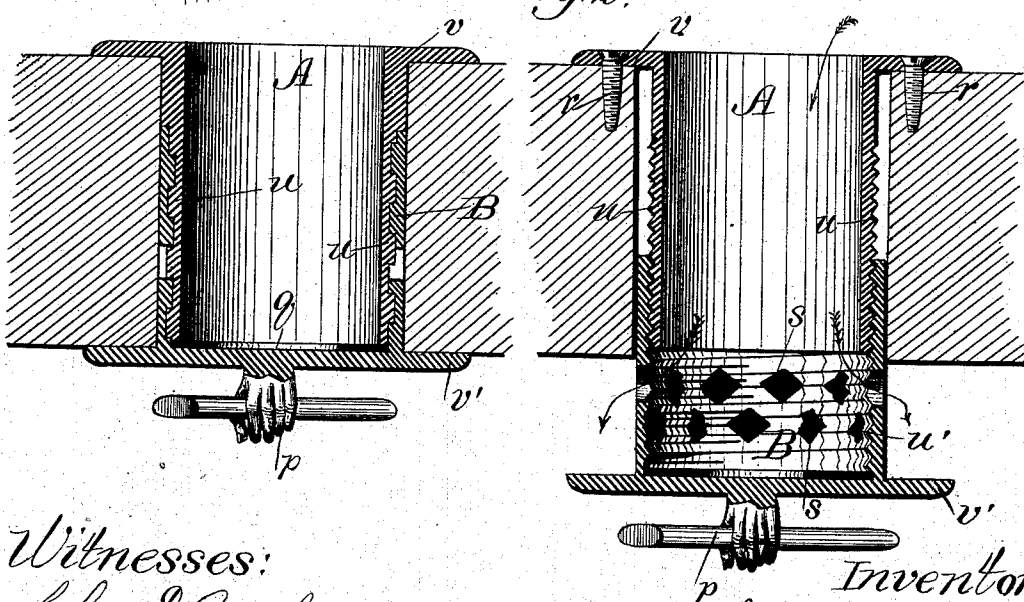
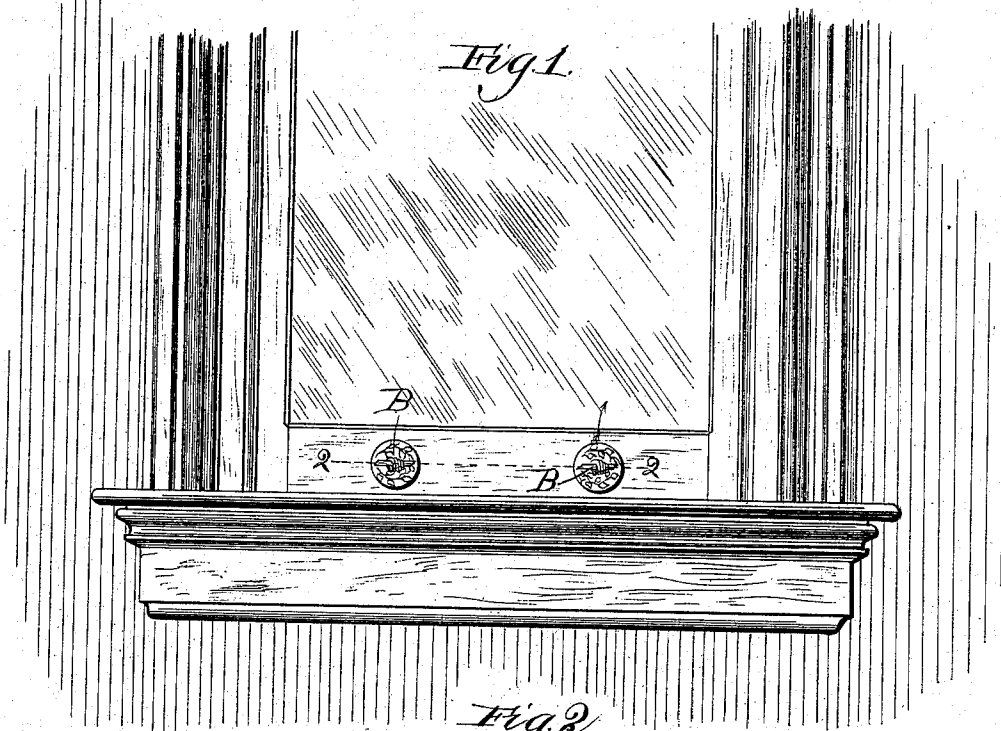
(No Model.)

2 Sheets—Sheet 1.

J. M. AYER.
VENTILATOR.

No. 291,666.

Patented Jan. 8, 1884.



Witnesses:
Chas. G. Gaylord.
Chas. C. Luthian.

Inventor.
John M. Ayer,
By Dyrenforth & Dyrenforth
Attorneys

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Fig. 3.

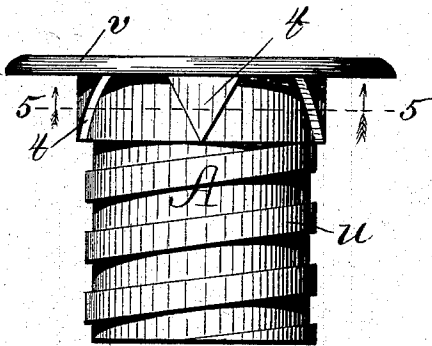


Fig. 4.

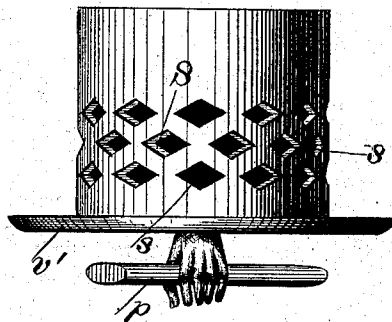
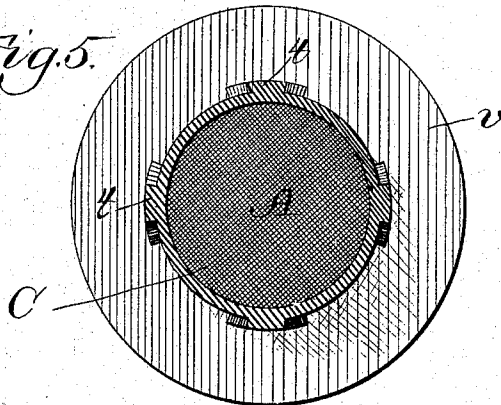


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN M. AYER, OF CHICAGO, ILLINOIS.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 291,666, dated January 8, 1884.

Application filed September 29, 1883. (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 invention relates to ventilators for supplying fresh air in any desired quantity to an inclosed space; and the object of my invention is to provide a device which, when placed in position to admit a supply of fresh air into an inclosed space, may be regulated immediately and without difficulty to permit air to enter in any required quantity, or, when desired, entirely to shut off the supply of air.

My invention consists, first, in providing two screw-threaded cylinders, one fitting upon the other, one of which is open at both ends to serve as the air-duct through a wall, window-sash, or the like, and the other of which is closed at one end and provided with side perforations, whereby the turning of the latter moves it forward and back with relation to the other by reason of the screw-threads, thus permitting the side openings to be opened, closed, and graduated at will; secondly, in providing a ventilator which, while it possesses the features just described, is particularly adapted for use in connection with a window-sash, whereby the handle by means of which the ventilator is opened and closed may be used to open and close the window; and, thirdly, in the specific construction which I prefer to employ for carrying out my invention.

Referring to the drawings, Figure 1 represents my invention attached to the sash of a window and viewed from the inside of a room. Fig. 2 is a sectional view of my device, taken on the line 2 2 of Fig. 1, showing the same as it appears when closed to prevent the ingress of air and as it appears when opened to permit such ingress; Fig. 3, a view in elevation of the hollow cylinder or duct forming a part of my device, and provided with screw-threads for the adjustment of the outer cylinder or cap; Fig. 4, a similar view of the closed cylinder or cap, showing the apertures formed around its

circumference; and Fig. 5, a section taken on the line 5 5 of Fig. 3, viewed in the direction of the arrow-heads, showing a means for rigidly securing the inner duct or cylinder to the material surrounding the opening formed to admit the device, and showing also a wire screen covering the opening through which air enters from without.

The device, of which two are shown adjusted to a window-sash in Figs. 1 and 2 of the drawings, is formed in two parts, preferably of metal, though other material may be used. I have preferred to show it in these figures in this connection for the reason that I am thus enabled to illustrate its adaptability by employing the ornamented projection from the closed end of the outer tube or cylinder, which is primarily intended to afford a means of regulating the supply of air through the ventilator, as a means of raising and lowering the window. The part A is a hollow cylinder in form, having a flange, *v*, projecting laterally from its outer edge, and provided with screw-threads *u*, cut around its exterior surface below the lugs *t*, hereinafter to be described, the screw-threads being either of the square form shown in the device represented on the left of Fig. 2 and in Fig. 3, or of the form shown in the device on the right side of the said figure.

B is a hollow cylinder, likewise preferably formed of metal, and made somewhat larger in diameter than the cylinder A, to fit snugly over the latter. One end of this cylinder is closed to form a cap, and it is provided with a laterally-projecting flange, *v*. The closed cylinder or cap B is screw-threaded on its internal surface, as shown at *u'* in Fig. 2 of the drawings, to correspond with the screw-threads *u* formed upon the cylinder A.

In the body of the closed cylinder or cap B, and encircling the same, are formed apertures *s*, preferably in rows equidistant apart, and in any desired number and of any desired size or form.

To utilize my device, a hole is formed in the desired position through the material (generally wood) into which the ventilator is to be placed, the said hole being sufficient in diameter to receive and snugly accommodate the

closed outer cylinder or cap, B. The cylinder A is rigidly held in place to prevent it from slipping around, when operated as hereinafter described, by means of triangular-shaped lugs *t*, formed in the casting or attached in any suitable manner upon the outer surface of the cylinder A, near the outer edge thereof. The lugs *t*, which may be of any desired size and number, extend in a longitudinal and backward direction along the outer surface of the cylinder A a sufficient distance to render the screw-threaded portion of the said cylinder of equal length with the closed cylinder or cap B. These lugs somewhat exceed in height the external diameter of the cap B, which abuts at its open end against them, whereby they form a stop when the ventilator is closed, in order that they may be driven into the material surrounding the hole provided to contain the device, thus to hold it securely in place. If desired, the said lugs may be entirely omitted and the cylinder A secured in place by means of screws *r* passing through screw-holes formed in the flange *v*, as shown in the right-hand portion of Fig. 2 in the drawings. The closed cylinder or cap B is capable of an inward and an outward movement upon the cylinder A by means of the engagement of the internal screw-threads upon the said cap B with the screw-threads formed upon the external surface of the said cylinder A, as hereinafter described.

To operate my device, supposing it to occupy the position shown at the left-hand side of Fig. 2 in the drawings, in which position it is impossible for air to pass, owing to the position of the cylinder A within the closed cylinder or cap B, and to the close proximity of the closed end of the said outer cylinder against the inner end or opening of the cylinder A, besides the assistance of the washer *q*, of suitable material, which is of the exact size of the inside diameter of the closed cylinder or cap B. The closed end of the cap B is provided with an ornamented handle, *p*, cast thereon or otherwise attached thereto, and shown in the drawings as comprising a hand holding a bar, though other suitable means—such as a ring or knob—could be employed with equal advantage, strength of material and convenience of form being essential features readily to open and close the ventilator or to raise and lower the window when the device is applied to a window-sash.

To permit the ingress of air it is only necessary to turn the closed cylinder or cap B by means of the handle *p*, whereby the said cap will be moved backward to free one row of the apertures *s* from contact with the cylinder A, thus admitting the air through the said cylinder into the space to be ventilated. As more and more air is required, the operation of turning the cylinder may be repeated until the full length of the cap B projects inward, thus admitting the air into the inclosed space to be ventilated through all the apertures in the outer cylinder or cap, B,

when the cap may be prevented from further revolution in the same direction by means of a suitable stop. The opening to the cylinder A, through which air enters from without, is provided with a suitable screen, C, as shown in Fig. 5 of the drawings, to prevent the admission of dust and other objectionable substances.

Besides offering an easily-regulated ventilator, the device may be made a desirable ornament, in any connection where it may be used, by bronzing or nickel-plating or otherwise ornamenting the flanges as well as the handle, as hereinbefore suggested. The flanges, when the device is closed, rest flush against the material through which the ventilator passes.

My invention can be employed with equally-desirable results for ventilating houses, passenger, refrigerator, and sleeping cars, ice-houses, ice-boxes, &c.

No particular dimensions for the device need be given, for these necessarily vary with the various objects to which it may be attached.

The foregoing description refers to the preferred way of constructing my ventilator. This preference is given for the reason that with that construction no screw-threads are visible upon the part B when it is made to fit outside the part A, as described.

I am aware that it is not new to form ventilators of two hollow cylinders, one open at both ends and the other closed at one end and provided with openings in its side, the air being admitted through such openings and shut off by sliding the closed cylinder longitudinally within the other.

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

1. In a ventilator, the combination of two hollow cylinders, 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 the other closed at one end, and provided with side perforations, each being provided with screw-threads, and fitting one into the other, whereby the turning of the perforated cylinder carries it back and forth with relation to the other and opens and closes the perforations, substantially as described.

2. In a ventilator, the combination of a cylinder, A, screw-threaded on its outer surface and open at both ends, and a cylinder, B, closed at one end and screw-threaded on its interior surface, and adapted to fit upon the said cylinder A, and provided with apertures *s*, substantially as described.

3. In a ventilator, the combination, with a cylinder, A, screw-threaded on its outer surface, and provided with a flange, *v*, screen C, and lugs *t*, of the cap B, provided with apertures *s*, and adapted partly to inclose the cylinder A, and screw-threaded upon its interior surface, and closed at one end, and provided with a handle to permit it to be turned

upon the cylinder A, substantially as described.

4. The combination, with a window-sash,
of the cylinder A, provided with a flange, *v*,
5 and screen C, and lugs *t*, for securing the cylinder in position, cylinder B, provided with apertures *s* and flanged cover *v'*, and handle

p, attached to the cap B and projecting outward from the sash, substantially as described, and for the purpose set forth.

JOHN M. AYER.

In presence of—

DOUGLAS DYRENFORTH,
CHAS. E. DEANE.