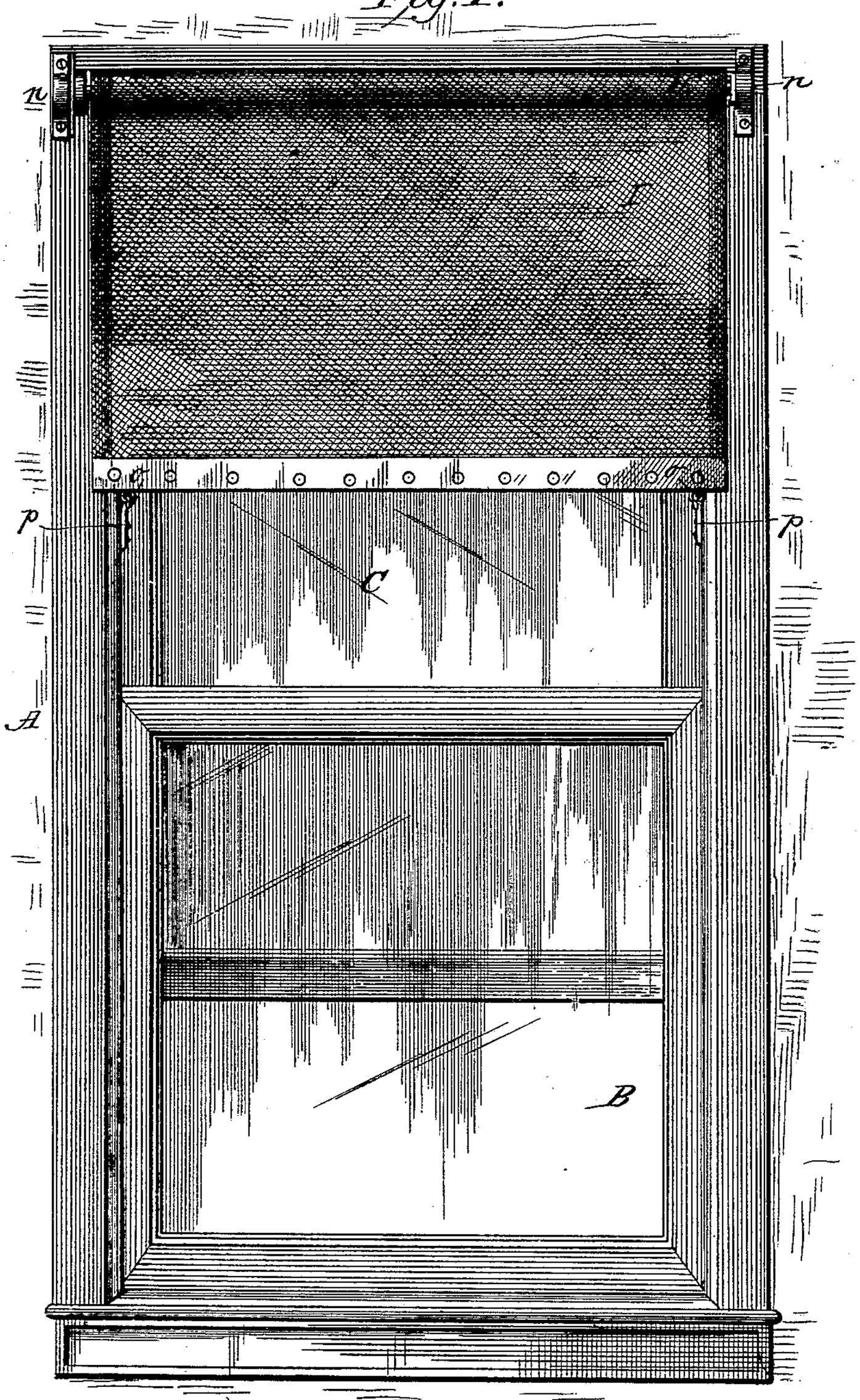
(No Model.) 2 Sheets—Sheet 1.

A. C. STEVENSON.

WINDOW VENTILATION.

No. 396,901. Patented Jan. 29, 1889.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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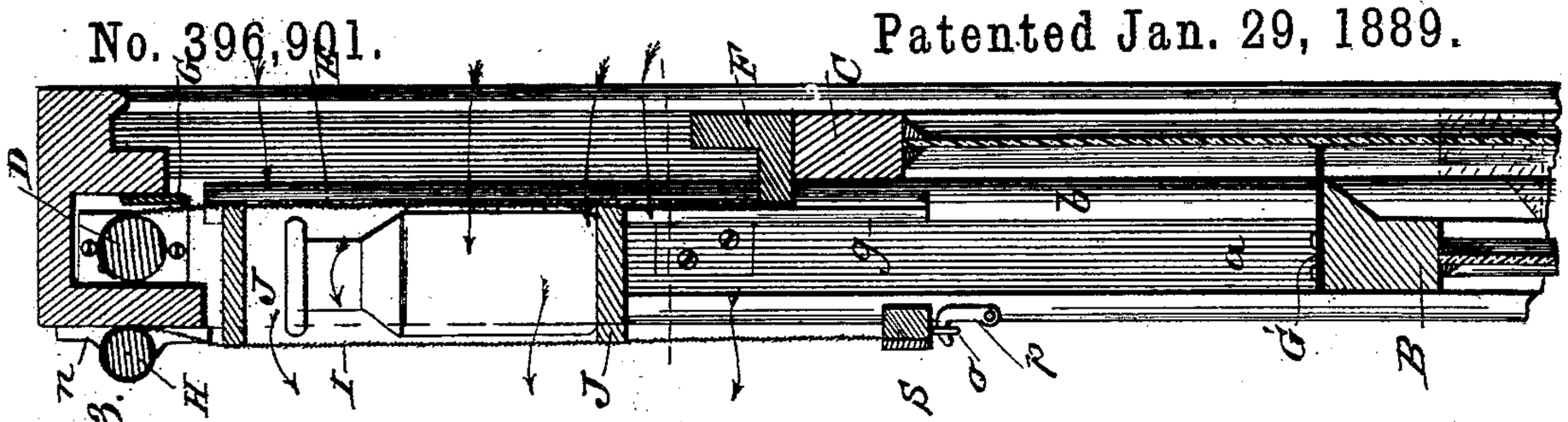

Fig. 3.

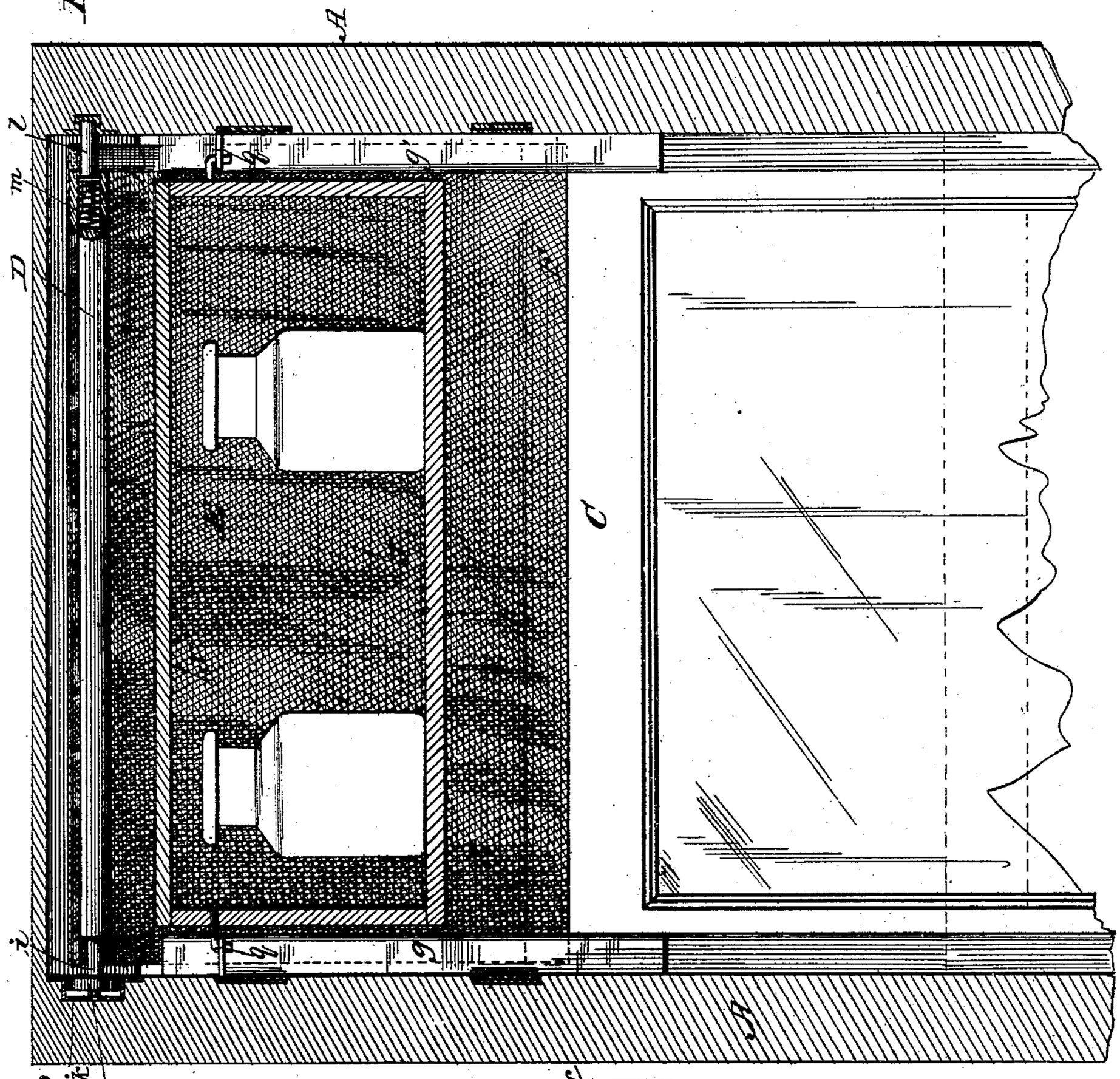

Fig. 2.

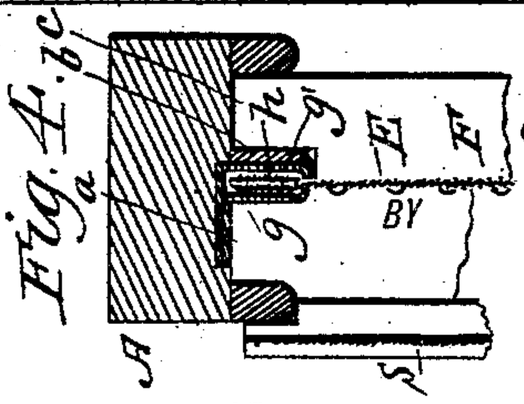

Fig. 4.

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UNITED STATES PATENT OFFICE.

ALFRED C. STEVENSON, OF OAKDALE STATION, PENNSYLVANIA.

WINDOW-VENTILATION.

SPECIFICATION forming part of Letters Patent No. 396,901, dated January 29, 1889.

Application filed June 28, 1888. Serial No. 278,495. (No model.)

To all whom it may concern:

Be it known that I, ALFRED C. STEVENSON, of Oakdale Station, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Ventilating Devices, of which the following is a specification.

The object of my invention is to provide a device for ventilating the rooms of buildings, and especially sick-rooms, in either summer or winter, without the objectionable effect of currents of air. Heretofore it has been common in screens for keeping out insects to provide a spring-roller and wind a netting about the same which may be pulled down, either by the sash or by the hand, across the open space, being guided along its edges by guide-grooves in the window-frame. My invention partakes of this general character of construction, but is designed for purposes of ventilation only; and it consists in the peculiar construction and arrangement of the air-filtering foraminous diaphragm, in combination with other coacting parts, which I will now proceed to fully describe.

Figure 1 is a front elevation of a window with the upper sash partly lowered and provided with my improvement. Fig. 2 is a central vertical longitudinal section. Fig. 3 is a vertical transverse section; and Fig. 4 is a detail in horizontal section, showing the diaphragm-guides.

A represents the window-frame.

B is the lower sash, which runs in groove *a*, and C the upper sash, which runs in groove *c*, which two sashes are separated by the ordinary bead-strip, *b*.

D is a spring-roller, which is journaled in bearings in the top portion of the groove *a* for the lower sash. This roller is provided with a curtain or diaphragm, E, of firm cloth, such as canvas or some material specially made for the purpose. This diaphragm is made sufficiently long to extend ten to twelve inches from the top of the window, and is made wider than the length of the roller, and on the sides next to the window-frame said diaphragm is formed with a broad hem, *h*, Figs. 2 and 4, that plays between metal guide-strips *g g'*, attached to the side of the bead-strip *b*.

The object in making the diaphragm wider than the length of the roller is to permit the hem when rolled up to extend over the end of the roller, and thus permit the material of which the diaphragm is composed to lie flat and close upon the roller. At its lower end the diaphragm is attached to a cross-strip, F, that slides over the beads of the upper sash and is attached to the latter, so that when the upper sash is pulled down the diaphragm unwinds from the roller above and extends across the opening above the window, so that the air which enters the room has to pass through the same and is sifted or filtered, so that it produces no objectionable current of air in the room. This diaphragm, it will be seen, is held taut or under tension by the spring of the roller above, and if the weight of the sash be not sufficient to hold it down a set-screw, spring-clamp, or other suitable locking device may be provided to hold the sash down to its adjustment.

The spring-roller may be provided with any kind of spring for winding up and maintaining a tension on the diaphragm; but, as shown, a spindle or journal, *i*, Fig. 2, at one end of the roller is fixed to a coil-spring, *j*, in a recessed plate, *k*, fitted flush in the side of the window-frame at the top of the groove for the lower sash. The other journal, *l*, of the spring-roller enters an opening in a plate, *m*, on the opposite side, which journal is provided with a spiral spring, which forms a yielding abutment for the journal, that permits an endwise movement of the journal in seating the roller in its bearings.

G is a metal strip or plate extending the width of the window and placed at the upper bead in rear of the roller, so that one edge of this plate shall almost touch the outer surface of the diaphragm. G' is another plate adjusted to the top of the lower sash to close the space made by lowering the upper sash, so that when all the parts are adjusted no air can pass except through the diaphragm, thus preventing injurious currents of air even in the most boisterous weather of winter, and at the same time permitting a free transmission of fresh air into, and impure heated air from, the apartment, thus obtaining what is most needed in all sick-rooms, sleeping-rooms,

school-houses, &c., viz., good ventilation without currents.

Upon the inside of the window-frame at the top are fixed brackets *n n*, in which are secured journal-plates carrying a spring-roller, H, like the one before described. This roller has a second diaphragm, I, of lighter fabric—such as muslin—which may be pulled down on the inside of the window-frame, the lower edge of this second diaphragm being provided with a marginal strip, S, having eyes *o*, adapted to be engaged by hooks *p* on the window-frame to hold the diaphragm taut and maintain it in its pulled-down position. Between these two diaphragms, and detachably supported upon loops or brackets *q* in the upper ends of groove for the lower sash, is fitted a rectangular frame, J, consisting of a top, bottom, and two ends, the edges of which are closely fitted against the two diaphragms and form a chamber for disinfectants or inhalents, which are placed in wide-mouthed bottles or jars inside the frame and resting upon its bottom. This frame is made slightly wider than the space between the two diaphragms, in order that the edges of the frame may tightly fit against the diaphragms, so that the air passes through the outer diaphragm to the space filled with the disinfectant or inhalent and then passes through the lighter muslin diaphragm into the room. I am thus enabled, for disinfecting purposes, to use the fumes of sulphurous acid for the destruction of disease germs without injury to the patient, which is of great advantage in such diseases as scarlet fever, diphtheria, typhoid fever, &c. The same arrangement also permits of the use of inhalents—such as turpentine, &c.—in cases of chronic lung diseases—such as bronchitis and pulmonary tuberculosis—to the very best advantage.

I may also utilize the space between the two diaphragms by placing a water trough or receiver in the same to moisten the air of rooms heated by natural gas or by hot air, and thus render it fit for breathing.

The ventilator as thus described can be put in any window with but slight alteration of or injury to the same, and it does not materially interfere with the working of the sash.

Having thus described my invention, what I claim as new is—

1. The combination, with a window-frame, of journal-plates set in the upper portion of the grooves for the lower sash, side guides formed in the bead between the two sash-grooves, a spring-roller journaled in the plates in the upper portion of the lower sash-groove, a foraminous diaphragm wound upon the roller and provided with a heavy hem on each side extending beyond the ends of the roller and traveling in the guides, and a rigid strip attached to the lower end of the foraminous diaphragm and connected to the upper end of the upper sash, substantially as and for the purpose described.

2. The combination, with a window-frame, of two spring-rollers arranged side by side, provided with foraminous diaphragms arranged to be pulled down across the opening of the window-sash to form a space between, and a support attached to the window-frame and arranged between the diaphragms for the reception of volatile substances for modifying the character of the air admitted to the room through the same, substantially as described.

3. The combination, with a window-frame, of two spring-rollers arranged side by side and provided with foraminous diaphragms arranged to be pulled down across the opening of the sash, supports arranged upon the window-frame between the diaphragms, and a box-frame consisting of top, bottom, and ends held upon said supports and having their edges fitting closely against the two diaphragms to form a receptacle for disinfectants, inhalents, &c., as described.

ALFRED C. STEVENSON.

Witnesses:
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U. G. MCMURRAY.