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F. H. BURR & G. ADAMS.

VENTILATOR.

APPLICATION FILED FEB. 26, 1906.

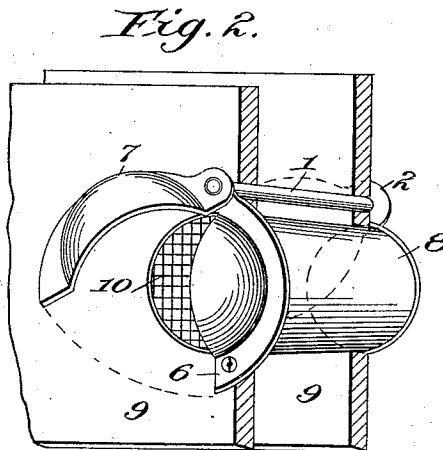
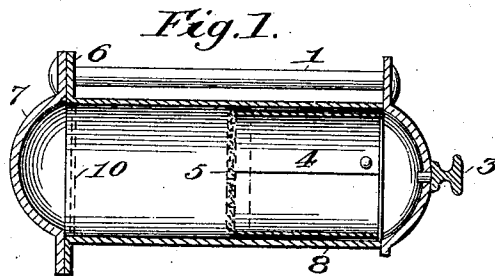


Fig. 4.

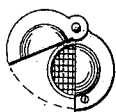
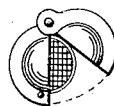


Fig. 5.



Witnesses:

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VENTILATOR.

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Specification of Letters Patent.

Patented Dec. 24, 1907.

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To all whom it may concern:

Be it known that we, FRANKLIN H. BURR and GUY ADAMS, citizens of the United States, residing, respectively, at Atlantic, in the county of Cass and State of Iowa, and at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators; and we 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.

This invention relates to ventilators, and has among its objects the provision of means for renewing the air of a chamber as needed, without the admission of direct drafts, smoke, cinders and atmospheric impurities.

We aim further to so construct our device that it is especially adapted for use in connection with railway cars, the ventilator acting by positive injective action induced by the movement of a car to force air into the car.

A further object is to provide a removable and renewable air-filter within the ventilator, which may be changed without disturbing the ventilator casing; another object is to provide means whereby the outer end of the ventilator may be kept free from deposits of grime and dirt.

To these and other ends we prefer to provide a ventilator casing as shown, having openings to the outside air and to the inside of a chamber, with a removable filter inside the casing, and closures at both sides, the outside movable closure member being operatively connected to the inside closure and manipulative therewith. The outside stationary closure member of the casing is so constructed and related to the casing that it will aid in the injective action hereinbefore mentioned.

The invention consists of the elements, combinations, and arrangements hereinafter described with reference to one form of embodiment thereof, and defined in the annexed claims.

In the accompanying drawings which are to be taken as a part of this specification. Figure 1 is a central vertical section through a preferred form of embodiment of our ventilator. Fig. 2 is a perspective view in detail, showing the ventilator in position in a wall, with the closures open, as in operation.

Fig. 3 is a perspective view of the expansible sleeve which supports the filtering and purifying means within the ventilator casing. Figs. 4 and 5 are end views, illustrating the manner of using the ventilators to force fresh air into and vitiated air out of a railway car.

Referring to the numerals on the drawings, 8 indicates a preferably cylindrical ventilator casing, adapted to be inserted in a wall 9 of the chamber in connection with which the ventilator is to be used, so as to afford communication between the inside and outside of the chamber.

At its inner end the casing is provided with a closure 2, rigidly secured on a rod 1, which extends through the wall above the casing parallel thereto, said rod being free to turn. The outer end of said rod passes through the flange 6 of a stationary half-covering, or section of an outside closure which is rigidly attached to the outer end of the casing. Rigidly secured to the outer end of rod 1, and adapted to coöperate with the stationary half-cover or section to effect complete closure of the outside of the casing is a movable cover-section 7, whose attachment on the rod 1 is beyond the flange 6 of the stationary cover-section, so that when the movable section is moved toward the stationary section a shearing effect may be secured between their edges, which may be accentuated by beveling the contacting edge of one section, as for instance that of member 7. The two sections of the outside closure are so shaped that when closed they form a substantially cup-shaped cap, with its bulge outward. Said two members are preferably arranged on either side of the vertical diameter, for reasons hereinafter developed.

The inner end of the casing may be provided with a similar sectional closure if desired, but we prefer to provide simply a flat one-piece closure of suitable size to cover the inner opening. Said inner cover is provided with a knob or handle 3 for manipulating it, and it is evident that movement of the inner cover will effect, by means of the connecting rod 1, a corresponding movement of the outer movable half-cover.

Within the outer end of the casing is a screen of reticulated material, adapted to prevent the entrance of large cinders and flying particles into the casing. Within the casing, I provide a further straining or filter-

ing medium, which effectually purifies the air entering the casing through the outside screen, and insures the delivery of wholesome air only into the chamber. Said inner screen comprises a filter 5 of suitable material and construction, secured in one end of an expansible sleeve 4 of proper size to be easily introduced into and removed from the casing 8. Said sleeve consists preferably of a sheet of resilient metal, bent into tube form, the overlapping edges being held together at one end only as by a rivet, so that the other end of the tube is expansible.

The filter 5 is shaped to fit transversely in the sleeve, and may comprise a layer of cotton-wool or other suitable material, of sufficient thickness to arrest the particles of soot or dust in the air and to allow air to pass through freely, and held in a frame which is attached in any manner to the end of the sleeve 4. It is evident that the sleeve and filter will be held in the casing by the engagement of the expanding end of the sleeve with the wall of the casing. As shown, the sleeve is inserted filter end foremost.

In operation, the parts being in position as shown in Fig. 2, with the inner closure and the outer half-cover open, the device is ready for operation. If it be used in connection with a railroad car, for instance, or if in any way a strong draft of air be created transversely of the outer end of the casing, the shape and position of the stationary closure section becomes important. For instance, if the draft be from a direction to the left of Fig. 2, it is apparent that the curved stationary cover section which leaves the end of the casing open at only one side, will have the effect of an injector to force the air into the casing. The operation in this connection is obvious.

The amount of air which will enter the casing will of course be regulated by the movement of the movable closures.

In the practical use of our invention upon railroad cars, or in connection with compartments thereof, we use two of the ventilators herein described, in one of which the stationary outside closure-section is placed so that the casing may be opened toward one end of the car or compartment, and in the other the arrangement is reversed. It follows that one of the stationary sections will aid in the injective action to force air into the car or compartment, while the other will assist the exhausting action in drawing air from the other end of the car, a strong draft over the latter stationary member tending to produce a vacuum therebeneath and so drawing the air through the casing from the interior.

What I claim is:

1. In combination with the wall of a chamber, a casing extending therethrough adapted to conduct air from one side of said wall to the other, said casing having a closure at each end, (means for controlling said closures), and means whereby air traveling transversely of said casing may be injectively directed into said casing upon the opening of said closure.
2. In combination with the wall of a chamber, a casing extending therethrough adapted to conduct air from one side of said wall to the other, said casing having a closure at each end, (means for controlling both of said closures from the same side of the wall), and means whereby air traveling transversely of said casing may be injectively directed into said casing upon the opening of said closures.
3. In combination with the wall of a chamber, a cylindrical casing extending therethrough, and a cover-section over one end of said casing extending from the edge of the opening at one side thereof, and axially beyond the end of the casing.
4. In combination with the wall of a chamber, a cylindrical casing extending therethrough, a cover-section over one end of said casing extending from the edge of the opening at one side thereof, and axially beyond the end of the casing, and another and movable cover-section adapted to move to and from and cooperate with said first-named cover-section to effect complete closure of the end of the casing.
5. In combination with the wall of a chamber, a cylindrical casing extending therethrough, a cover-section over one end of said casing extending from the edge of the opening at one side thereof, and axially beyond the end of the casing, and another and movable cover-section adapted to move to and from and cooperate with said first-named cover-section to effect complete closure of the end of the casing, said sections adapted to produce a shearing effect between their contiguous edges when the movable section is moved toward the first section to effect closure of the casing.
6. In a ventilator of the kind described, a casing, a resilient normally expanding split sleeve adapted to be moved into and out of said casing, and held therein by its expansion against the walls thereof, and an air filter removably held within said sleeve.

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Witnesses:

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