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H. W. LITTLE

2,452,941

VENTILATOR

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*Fig. 2*

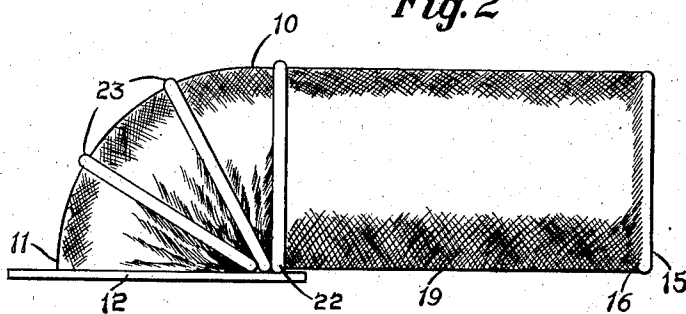


*Fig. 3*

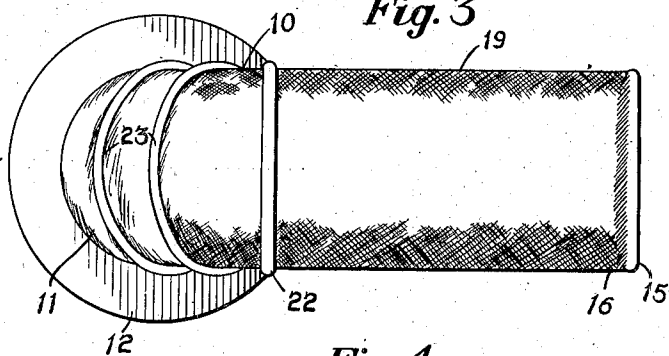


*Fig. 4*

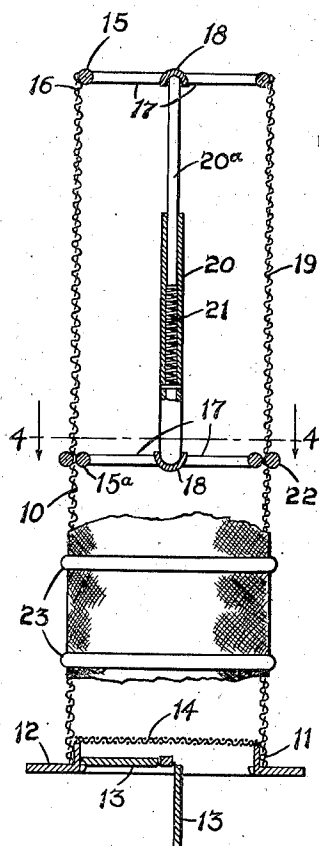
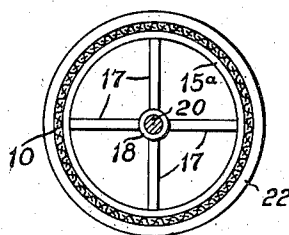


*Fig. 1*

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## UNITED STATES PATENT OFFICE

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## VENTILATOR

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5 Claims. (Cl. 98-68)

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The invention relates to ventilators, and more particularly to a collapsible, portable ventilator especially adapted for use upon tents and other portable structures.

It is an object of the invention to provide a collapsible ventilator adapted to be detachably mounted upon a tent or other structure.

Another object is to provide a ventilator of this type which, owing to its flexible construction, can be blown by the wind so as to create a suction to pull air out of the tent or other building upon which it is mounted.

A further object of the invention is to provide such a ventilator in the form of a tube of flexible material having rings of metal or the like at spaced points to hold the tube in diametrically extended position so that air currents may freely pass therethrough.

A still further object is to provide a ventilator of this type with detachable means for holding the outer end portion of the flexible tube extended longitudinally.

Another object of the invention is to provide a ventilator such as above referred to, comprising a flexible tube having its outer end portion extended diametrically and longitudinally and the remaining portion extended diametrically only by a series of spaced rings so that it may collapse into the form of an elbow with the extended, outer end portion located in horizontal position.

Still another object is to provide such a ventilator in which the extended outer end portion of the tube will roll on the axis of the tube as it swings about a vertical axis.

A further object is to provide a ventilator of this type in which the extended outer end of the tube rotates upon the ring at the inner end of said extended portion so as to prevent undue wear upon the fabric tube.

A still further object is to provide a simple, inexpensive and durable collapsible ventilator of the character referred to.

The above objects, together with others which will be apparent from the drawing and following description, or which may be later referred to, may be attained by constructing the improved ventilator in the manner illustrated, in which;

Figure 1 is a longitudinal, sectional view of the tubular ventilator in extended position, parts being shown in elevation;

Fig. 2 a side elevation of the ventilator in operative position;

Fig. 3 a plan view of the ventilator in the position shown in Fig. 2, and;

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Fig. 4 a transverse sectional view, taken on the line 4-4, Fig. 1.

The improved ventilator comprises a flexible tube, indicated generally at 10, which may be formed of canvas or other suitable fabric. The lower, or inner end 11 of the tube is connected to a flanged collar 12, formed of sheet metal, or other suitable material, and adapted to be detachably or permanently connected to the roof portion of a tent or other structure to be ventilated, fitting over a suitable opening in the roof portion.

If desired, one or more hinged valves or dampers 13 may be mounted within the flanged collar 12 to control the flow of air through the ventilator, and a wire screen 14 is preferably provided upon the flanged collar to prevent insects from entering the structure through the ventilator.

A ring 15, of metal or the like, is located within the outer end 16 of the tube 10 to hold the same extended diametrically and a similar ring 15a is located within the tube at a point intermediate the ends thereof, these rings being sewed or otherwise attached to the flexible tube. Each of the rings 15 and 15a may be provided with a plurality of radial spokes 17 connected at their inner ends to a centrally located cup 18.

The outer portion of the tube, between the rings 15 and 15a, indicated generally at 19, may be extended longitudinally by inserting opposite ends of a rod or bar into the cups 18. Preferably a telescoping rod is provided such as shown in Fig. 1 comprising the metal tube 20 having a rod 20a slidably located therein and normally urged outward by means of the spring 21 so as to hold the outer end portion 19 of the tube 10 in longitudinally extended position.

A ring 22, of metal or the like, is located around and connected to the outside of the flexible tube 10 at the inner end of the extended portion 19 thereof, and adjacent to the inner ring 15a and one or more similar rings 23 may be located around and connected to the tube between the ring 22 and the flanged collar 12.

When the flanged collar 12 is attached to the roof of a tent or other building to be ventilated, the ventilator will assume the position shown in Figs. 2 and 3, the portion of the tube 10 between the ring 22 and the flanged collar 12 collapsing on one side so that this portion of the tube 10 assumes the general shape of an elbow.

The outer, longitudinally extended portion 19 of the tube extending outward from the flanged collar in horizontal position as shown in Figs. 2

and 3, the ring 22 resting in vertical position upon the flanged collar 12.

The wind will swing the extended portion 19 of the tube around the flanged collar 12 pointing away from the wind, and as the wind changes direction the ring 22 will rotate upon the collar 12 in the manner of a hoop or wheel, the extended portion 19 of the tube rolling on the axis of the tube as it swings around the vertical axis from one radial position to another. As the extended outer end portion of the tube swings about the vertical axis the metal ring 22 at the inner end of the extended portion rides upon the metal flanged collar 12 so that the wear of the swinging and rotation is carried by these two metal parts thus preventing undue wear upon the fabric tube. Furthermore it will be seen that the inclined rings 23 also ride upon the flanged collar 12 so that there is no wear upon the fabric of the tube.

Otherwise the action of the improved ventilator will be the same as the action of the conventional rotatable ventilator and as the extended portion 19 thereof always points away from the wind a suction will be created drawing air from the tent or other building to be ventilated, out through the ventilator.

The ventilator will also serve as a chimney, clearing the atmosphere within the building of smoke caused by an open fire within the building.

When it is desired to collapse the ventilator for shipping or storage the telescoping rod is removed from engagement with the cups 18 of the rings 15 and 15a and the entire tube may be collapsed in the manner of an accordion so that it will occupy a minimum of space.

#### I claim:

1. A ventilator comprising a flexible tube, a horizontal collar attached to one end of the tube for attachment to the roof portion of a building, means for extending the outer end portion of the tube diametrically and longitudinally, and spaced rings between said longitudinally extended portion and the collar for extending the remaining portion of the tube diametrically only, so that it may collapse on one side to assume an elbow shape with the longitudinally extended portion located in horizontal position, whereby when the tube is caused to swing about its vertical axis the extended outer end portion of the tube will roll on the axis of said extended outer end portion and said spaced rings will roll upon the collar.

2. A ventilator comprising a flexible tube, a horizontal collar attached to one end of the tube for attachment to the roof portion of a building, means for extending the outer end portion of the tube diametrically and detachable means for extending said outer end portion longitudinally, and spaced rings between said longitudinally extended portion and the collar for extending the remaining portion of the tube diametrically only, so that it may collapse on one side to assume an elbow shape with the longitudinally extended portion located in horizontal position, whereby when

the tube is caused to swing about its vertical axis the extended outer end portion of the tube will roll on the axis of said extended outer end portion and said spaced rings will roll upon the collar.

3. A ventilator comprising a flexible tube, a horizontal collar attached to one end of the tube for attachment to the roof portion of a building, spaced rings for extending the outer end portion of the tube diametrically and a detachable rod between and engaging said rings for extending said outer end portion longitudinally, and spaced rings between said longitudinally extended portion and the collar for extending the remaining portion of the tube diametrically only, so that it may collapse on one side to assume an elbow shape with the longitudinally extended portion located in horizontal position, whereby when the tube is caused to swing about its vertical axis the extended outer end portion of the tube will roll on the axis of said extended outer end portion and said spaced rings will roll upon the collar.

4. A ventilator comprising a flexible tube, a horizontal collar attached to one end of the tube for attachment to the roof portion of a building, spaced rings for extending the outer end portion of the tube diametrically and a detachable, telescoping rod between said rings for extending said outer end portion longitudinally, and spaced rings between said longitudinally extended portion and the collar for extending the remaining portion of the tube diametrically only, so that it may collapse on one side to assume an elbow shape with the longitudinally extended portion located in horizontal position.

5. A ventilator comprising a flexible tube, a horizontal collar attached to one end of the tube for attachment to the roof portion of a building, a screen in said collar, means for extending the outer end portion of the tube diametrically and longitudinally, and spaced rings between said longitudinally extended portion and the collar for extending the remaining portion of the tube diametrically only, so that it may collapse on one side to assume an elbow shape with the longitudinally extended portion located in horizontal position, whereby when the tube is caused to swing about its vertical axis the extended outer end portion of the tube will roll on the axis of said extended outer end portion and said spaced rings will roll upon the collar.

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