

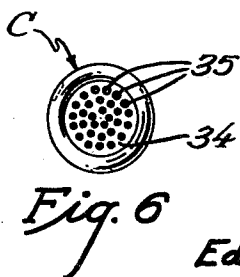
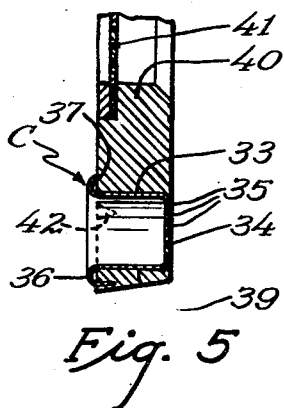
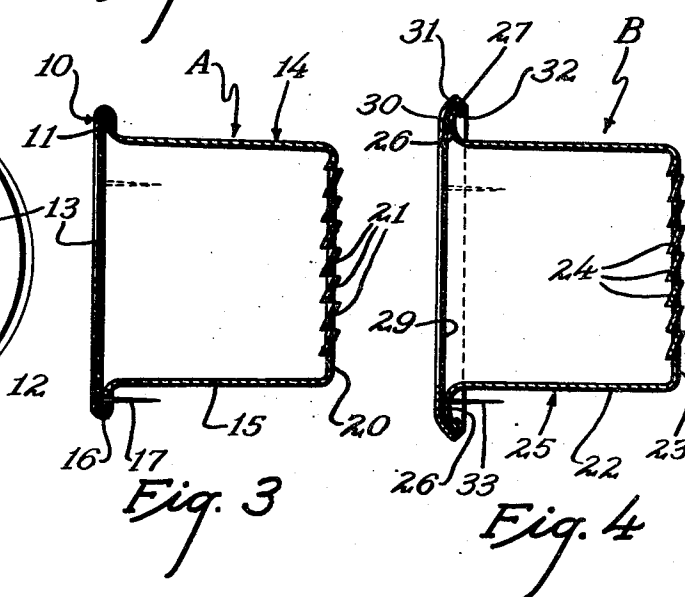
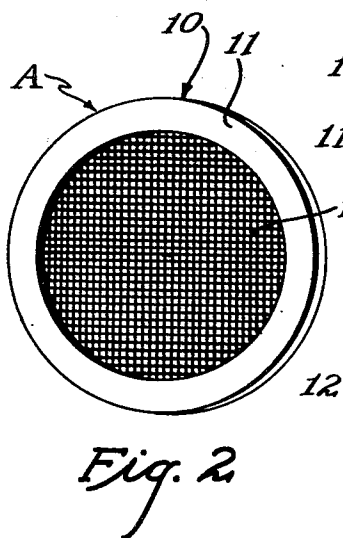
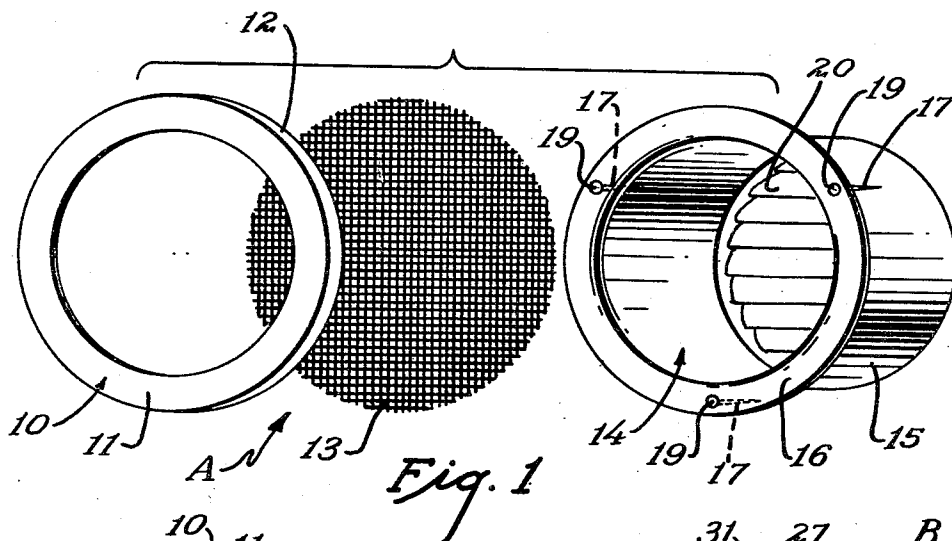
May 31, 1955

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2,709,402

VENTILATOR

Filed Jan. 10, 1952



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2,709,402

VENTILATOR

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Application January 10, 1952, Serial No. 265,739

3 Claims. (Cl. 98—37)

This invention relates to an improvement in ventilators and deals particularly with a device which may be mounted in walls and the like to provide ventilation through the wall.

Many homes and other buildings are built with an air space between the ceiling of the top floor and the roof of the structure. Unless the roof of the building is extremely well insulated the air space becomes extremely hot in warm weather. It has been found advantageous to provide means of continually ventilating this air space so as to permit at least a restricted flow of air into and out of this air space. The present invention deals with a ventilator which is designed to accomplish this purpose.

A feature of the present invention resides in the provision of a ventilator formed of metal and having a body comprising a substantially cylindrical sleeve provided with an end closure at one end thereof. This end closure is apertured to permit air to pass therethrough. The opposite end of the sleeve is provided with a peripheral flange designed to encircle the aperture through which the sleeve extends. In the preferred form of construction a screen normally closes this flanged end of the sleeve. Means are provided for anchoring the ventilator in place.

A feature of the preferred form of my invention relies in the provision of a sleeve having an end closure which is punched to form spaced inclined louvers. These louvers are arranged at an angle to the vertical and are so positioned as to prevent moisture from passing therethrough. Moisture which may be forced into the sleeve tends to strike against the louvers and to drain therefrom into the sleeve. Such moisture may then drain from the outer end of the sleeve.

A feature of the present invention lies in the provision of a ventilator having a flanged end and having a series of spaced parallel prongs or other anchoring means projecting with their axes parallel to the axis of the sleeve. These prongs are designed to extend into the wall surrounding the aperture into which the ventilator fits so as to secure the ventilator in place.

A further feature of the present invention resides in the provision of a ventilator having a sleeve-like body having an end closure which is equipped with spaced louvers and having a screen normally extending across the opposite end of the screen. While the screen and the louvers permit the flow of air through the sleeve the screen tends to break up any moisture striking the same and to prevent the passage of most of this moisture into the sleeve. Any particles of moisture driven into the sleeve through the screen either drain onto the bottom of the sleeve directly or else strike against the downwardly and outwardly inclined surfaces of the louvers and drain from these louvers into the sleeve. Moisture collecting at the bottom of the sleeve may run out through the screen closed end of the ventilator.

A feature of the modified form of ventilator lies in curving the peripheral flange at the outer end of the ventilator so that the marginal flange edge engages firmly

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against the outer surface of the wall in which the ventilator is mounted. This outer peripheral edge of the flange thus forms a seal against the wall which is more effective than would be the case if the flange were provided with a flat inner surface.

A further feature of a simplified form of ventilator lies in the fact that the inner end of the sleeve-like body may be provided with round perforations rather than louvers and the ventilator may be mounded in a screen or the like near the lower extremity thereof. Many modern types of screens fit in their frames so tightly that water may collect inwardly of the screen within the frame. The ventilator serves in such an instance as a means of permitting the drainage of moisture through the window.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is an exploded view of my ventilator showing the various parts thereof in perspective.

Figure 2 is a front elevation view of the ventilator.

Figure 3 is a sectional view through the ventilator.

Figure 4 is a sectional view through a modified form of ventilator.

Figure 5 is a sectional view through a window screen showing a modified form of ventilator in place therein.

Figure 6 is a front view of the ventilator illustrated in Figure 5.

The ventilator A illustrated in Figures 1, 2, and 3 of the drawings is extremely simple in form, but serves an important function. One of the advantageous features of the device lies in its simplicity and low cost of production. It includes three main parts, one of which is provided with three or more nail like prongs.

The ventilator A includes the outer ring 10 which comprises the portion of the ventilator visible from the exterior surface of the wall. The ring 10 includes a flat ring-shaped body 11 having a marginal flange 12 thereupon which is ordinarily cylindrical in form, the flange 12 being arranged on an axis substantially normal to the plane of the ring 11. The flange 12 is of sufficient depth to permit it to be crimped about adjoining portions of the structure in a manner which will be later described in detail.

A second main portion of the ventilator A comprises the screen disc 13. This screen disc may be of any desired degree of rigidity, the mesh ordinarily employed being similar to that often used in the construction of window screens and the like. In the relatively small area of the disc, such a screen is quite rigid and self-sustaining.

The third major portion of the ventilator A comprises the body which is indicated in general by the numeral 14. The body 14 includes a substantially cylindrical shell 15 which actually tapers slightly, the larger diameter end being outermost. A ring shaped flange 16 extends peripherally about the sleeve 15 at the outer end thereof. This flange 16 is provided with angularly spaced apertures therethrough to accommodate prongs 17. The prongs 17 are similar to flat headed nails in construction, the prongs being provided with flat heads 19 which lie outwardly of the flange 16. The prongs 17 fit through the apertures in the flange 16 with a frictional engagement which tends to hold the prongs in place during the assembly operation of the apparatus.

The inner end of the sleeve 15 is provided with an end closure wall 20. This closure wall 20 is punched to provide a series of angularly inclined louvers 21 which are arranged in substantially parallel planes. The louvers are so arranged that the upper edge of one louver is on substantially the same plane as the lower edge of the next above louver, thereby forming a substantially con-

tinuous closure when viewed horizontally. The louvers inclined downwardly and inwardly toward the outer end of the ventilator. The length of the various louvers depends upon the position thereof, the uppermost and lowermost louvers being relatively short and the intermediate louvers being longer. Each louver terminates in spaced relation to the generally cylindrical sleeve 15.

In assembling the ventilator A the nail like prongs 17 are inserted through the apertures in the flange 16 so as to extend in parallel relationship parallel to the axis of the sleeve 15. The screen disc 13 is placed into the ring member 10, the disc fitting snugly within the walls 12 of the ring shaped body. The flange 16 of the body member 14 is next placed in surface contact with the screen disc within the flange 12. The flange 12 is preferably kinked at two or three points about its periphery so as to hold the parts mentioned in proper relationship. This kinking inwardly of the sleeve 12 at spaced points may be done with a hand tool or may be pressed into the flange 12 in a suitable press which engages the flange at angularly spaced points.

The assembled unit is next subjected to a flange rolling apparatus which rolls the marginal flange 12 over the flange 16 of the body 14. In this action the screen disc 13 is crimped between the ring member 10 and the body portion 14. The heads 19 of the prongs 17 engage firmly against the screen and are held from longitudinal movement as well as from angular movement in any direction. When the edge of the flange 12 has been securely rolled the ventilator is complete and ready for use.

The ventilator is mounted by first drilling or sawing an aperture of proper diameter in the wall. This aperture is preferably cut with a hole saw or similar instrument which produces a true cylindrical opening. The sleeve like body is then inserted into this aperture, the louvered end 20 being directed toward the interior of the wall and the screen covered end being outermost. When fully inserted the flanged end of the ventilator engages snugly against the outer surface of the wall. However, when the ventilator is inserted a predetermined distance, the prongs 17 engage the outer surface of the wall and it is necessary to force the ventilator inwardly with a hammer or similar tool to complete the insertion. Preferably the ventilator rim is struck successively at points aligned with the prongs 17 so that each prong is evenly driven into the wall. The prongs hold the ventilator from outward movement in the aperture. Preferably the sleeve fits snugly in the aperture. The slight taper of the sleeve 15 creates a wedging action which assists in holding the ventilator in place.

In Figure 4 of the drawings I disclose a modified form of construction which is very similar to the construction previously described. The ventilator B illustrated in this figure includes a cup shaped body having a cylindrical sleeve 22 having an end closure 23 at one end thereof. The end closure is louvered as indicated at 24, similarly to the end closure 20 of the ventilator A. The ventilator body 25 differs only from the ventilator body 14 in that the marginal flange 26 in the outer end thereof is curved in section so that the marginal edge 27 thereof is arranged on a plane inwardly of the remainder of the flange. In other words, the flange 26 is provided with a rearwardly bent marginal edge which inclines outwardly and toward the rear end of the ventilator body.

The screen disc 29 employed in the ventilator B is usually identical with the disc 13 previously described. However, when the ventilator B has been assembled the marginal edge of the screen is bent to follow the contour of the flange 26 of the body portion 25.

The ring shaped element 30 is also substantially similar to the ring shaped member 10 of the ventilator A, but includes a curved or inclined front surface 31 which follows the contour of the flange 27. When the marginal edge 32 of the ring member 30 is crimped about the flange 26 of the body portion as illustrated, the rearmost

surface of the assembled rim structure is on a plane rearwardly of the front of the ventilator body. As a result this rim will engage snugly against the outer surface of the wall and will form a tight seal therewith. Prongs 33 are supported by the body 25 extending through the flange 26, these prongs being identical to the prongs 17 previously described.

The ventilator C illustrated in Figures 5 and 6 of the drawings is slightly different in construction from the previously described structures, this ventilator being simpler in form. The ventilator C includes a substantially cylindrical sleeve 33 which is provided with an end closure 34. This end closure is provided with a series of apertures 35 extending therethrough.

Ventilators of the type thus described have been previously employed, these ventilators having in the past been provided with flat peripheral edges. I have found that by forming the marginal flange 36 curved in cross section, a much better structure will result. The flange 36 at the end of the sleeve 33 opposite the closure 34 is channel shaped in section. The marginal edge 37 of the rim is directed rearwardly and is arranged on a plane rearwardly of the remainder of the flange. As a result the flange tends to embed itself somewhat in the wood surrounding the aperture in which the sleeve 33 is located, thus providing a tight seal and preventing moisture from entering the wood to rot the same.

The ventilator C is capable of many uses, but is shown extending through an aperture 39 in a window screen frame 40. The window screen frame in the form illustrated is made of wood and supports a screen 41. If the screen frame fits tightly in its window frame, rain passing through the screen may be retained inwardly of the screen frame unless a drain is provided. The ventilator C may serve this purpose. The ventilator extends on an axis normal to the outer surface of the screen, the marginal edge 37 forcing the fibers of the wood inwardly slightly so that a tight seal is provided about the flange 36. The sleeve 33 fits snugly in the aperture and may be held in place by friction. In some instances, however, I may provide prongs 42 which are formed by extensions of the flange 36 at angularly spaced points about its periphery, these prongs extending into the wood to hold the ventilator C in place.

It will be noted that the ventilator C is similar to the ventilators A and B in the use of prongs for holding the ventilator in place. While the two structures are not equivalent, they do have a certain similarity. In actual practice I have found the prongs of the type shown in the ventilators A and B to be simpler to produce and to require less stock than the prongs of the type shown on the ventilator C.

The ventilator C also simulates the ventilator B in that the marginal edge of both structures forms a tight seal against the outer surface of the wall. This is true to a lesser extent of the ventilator A in which the short flat inner surface of the rolled flange 12 engages against the outer wall surface.

In accordance with the patent statutes, I have described the principles of construction and operation of my ventilator and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A ventilator including a tubular body having an end closure at one rear end thereof, and a peripheral flange at the other end thereof, said end closure having a series of integral louvers formed therein, the louvers being arranged on substantially parallel downwardly inclined planes directed toward the flanged end of the tubular body, a foraminous disc supported by said peripheral flange to extend across said other end of said body, and a ring shaped retaining member including a ring

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shaped body in surface contact with said foraminous member and holding the same against said peripheral flange, and a marginal flange on said ring-shaped body, said marginal flange extending about the peripheries of said foraminous member and said peripheral flange for clamping said ring shaped body in place. 5

2. The structure described in claim 1 and in which the peripheral flange is provided with angularly spaced apertures therethrough and including headed prongs projecting rearwardly through said peripheral flange. 10

3. A ventilator including a tubular body having louver means at its rear end thereof, and a peripheral flange at the other end thereof, a foraminous disc supported by said peripheral flange to extend across the other end of said body, at a ring shaped retaining member including 15 a ring shaped body in surface contact with said foraminous member and holding the same against said peripheral flange, a marginal flange on said ring shaped body, said marginal flange extending about the peripheries of

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said foraminous member and said peripheral flange for clamping said ring shaped body in place, and headed prongs projecting rearwardly through said peripheral flange.

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