Aug. 20, 1957 M. WASSERMAN 2,803,184

VENTILATOR COVER

Filed May 19, 1952

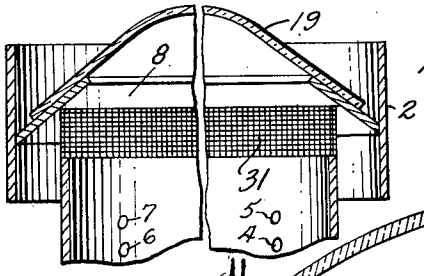


FIG. 6.

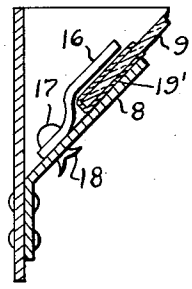


FIG. 3.

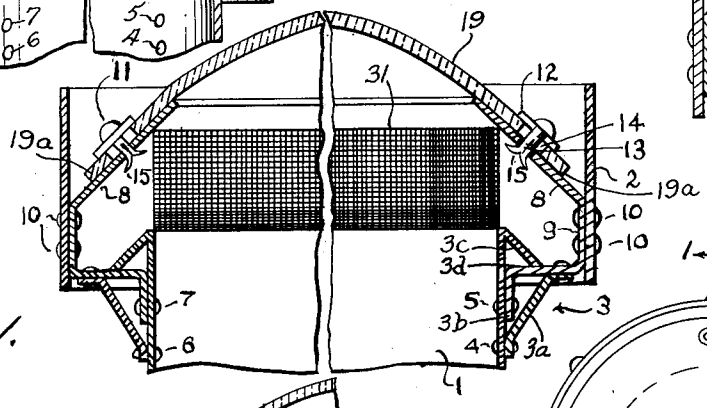


FIG. 1.

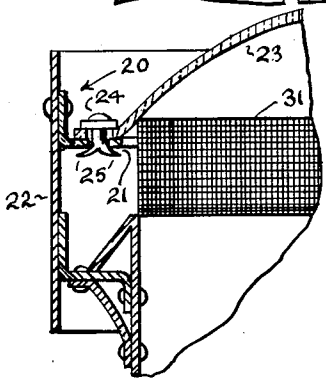


FIG. 2.

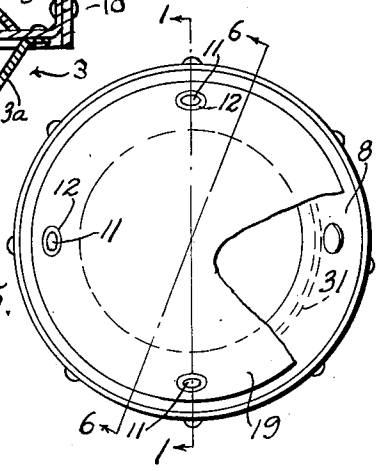


FIG. 5.

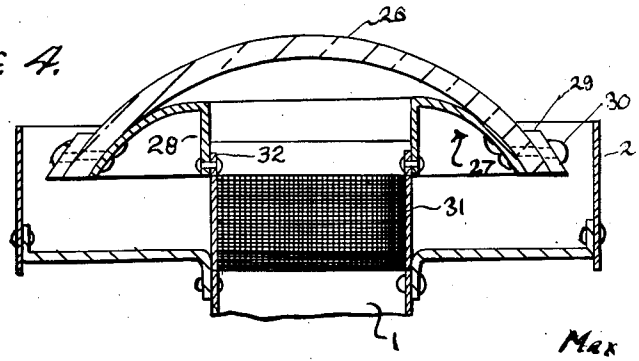


FIG. 4.

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VENTILATOR COVER

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4 Claims. (Cl. 98—84)

The present invention relates to a ventilator cover and more particularly to a stationary type ventilator such as may be used in office buildings, apartment houses, hospitals, residences and the like.

The cover of the ventilator of the general type with which this invention is concerned, is usually formed of a metal sheet and is retained by means of brackets to the air shaft or to some part of the structure. The cover merely serves to prevent rain and moisture from coming through the ventilator screen into the air shaft.

In the present invention the ventilator is so constructed that it permits the use of a plastic dome or cover and uses a plastic dome or cover as a ventilator cap. One of the chief advantages in such a construction is that the plastic dome may be transparent and therefore permits some light to enter into the air shaft, thereby keeping the interior of the air shaft fresh at all times because of the action of the sunlight. It also has a drying effect on the ventilator and in addition to these advantages, if the ventilator is straight or only slightly turned, one can see upwards through the ventilator and therefore more readily determine where a ventilator block may be. The same applies in looking down the ventilator.

A further advantage of the present invention is that by the use of a plastic cap or dome it may be so installed that it can be blown off when excessive pressure occurs at the top of the ventilator. As an additional feature to permit this to happen, the dome may be attached in such a manner that an upward force beyond a certain pressure per square inch may be sufficient to blow the dome off while pressure of the wind which is not upwards and which can only approach the dome from the top or sides will not affect the dome in any way.

In the present invention a number of modifications are shown by means of which the dome can easily be secured to the ventilator to accomplish the above purpose.

Without further describing the merits and advantages of the present invention, the invention will be described in the specification set forth below when taken in connection with the drawings showing an embodiment of the invention in which: Figure 1 shows a section partly broken away through a ventilator of the round type incorporating the present invention and taken along section line 1—1 of Figure 5. Figures 2 and 3 show a modification of details of Figure 1, Figure 4 shows in sectional elevation a further modification of the present invention. Figure 5 is a top plan view with a fragmentary section, and Figure 6 is a cross sectional view taken on line 6—6 of Figure 5.

In the arrangement indicated in Figure 1, 1 represents an air shaft which extends upwards or it may extend in any other direction through the roof. The air shaft 1 has supported at its top end an enclosed collar or suction band 2 which may be attached to the end of the air shaft by means of a supporting frame 3 of brackets which are riveted as indicated at 4, 5, 6 and 7 to the top of the air shaft. The brackets 3 may be formed as continuations of the sections 9 of the flange 8 with transverse members 3*d* extending inwardly to the shaft 1 and terminating in downwardly extending ends 3*b* adjacent the air shaft 1 and riveted to it as indicated. Additional reinforcing elements 3*a* and 3*c* extending respectively between the lower and upper ends of the shaft and the member 3*d* are also provided. The band 2 is provided with an inwardly extending, inclined flange 8, which has downwardly extending portions or sections 9 riveted or bolted as indicated by the rivets 10 to the collar or band 2. The sections 9 may not form a continuous flange section and may be just a group of downwardly extending flange elements. Similarly the inclined flange 8 may not extend all around the band 2 but may be formed in separate sections although in the present invention there is a distinct advantage in having a complete flange extending continuously all around the inside of the band 2 as will presently be seen.

The inclined flange 8 supports the plastic cap or dome 19 about its peripheral margin or flange 19*a* which may be made of a thermo-plastic transparent material as for instance, Plexiglas or any other suitable plastic resin, whether thermo-plastic or thermo-setting including the acrylic resins, vinyl compounds and other such similar materials, which should be transparent. The dome or cap 19 may be attached to the flange 8 by means of a plurality of loose rivets 11 under which may be placed a washer 12 against the surface of the dome or cap. The rivet 11 which is of a split rivet type with twin shanks 13, passes through a hole 14 in the plastic dome larger than the shank of the rivet. The split prongs of the rivet are slightly turned over or bent outwards as indicated by the ends 15 on the bottom side of the inclined flange 8 which has a hole through which the shank of the rivet extends. This hole should be a fairly close fit for the shank of the rivet unlike the loose fitting hole 14 in the Plexiglas dome.

A number of spaced rivets around the cap or dome may be used to secure the dome firmly to the inclined flange 8 which is lower down than the top edge of the band 2 and therefore not subject to being raised by cross winds across the roof. However any pressure from internal building explosions or the like coming up through the air shaft will tend to force the dome 19 upward, which in turn would pull the rivets 13 with it closing the the open ends 15 of the rivets together and thereby permit the dome to be blown off the top of the shaft. If desired the dome may have an ear and a chain or an eyelet and a chain with the chain secured either to the roof or to the band or in any other way so that while it will be blown off of the top of the air shaft, it will not be lost and can again be put in place after the difficulties causing the blowing off have been corrected.

The cap or dome is preformed as a single unit and can readily be installed in a very few minutes.

Figure 3 shows a modification of the structure shown in Figure 1 to the extent that in place of using rivets 11 through the plastic dome itself, a plurality of arms or clamping tabs 16 may be used to hold the plastic dome or cap 19 to the flange 8. In this case the tabs 16 may be held to the flange by means of rivets 17 which may be the same type of rivet described in connection with Figure 1, that is a rivet having split prongs 18 which will be forced by pressure applied through the air shaft so as to permit the tabs 16 to be forced upwards opening the rivet. In fact in the case of the structure in Figure 3, even a lesser force is required because of the mechanical advantage on the tabs 16 in forcing the pulling of the rivet 17. The tabs 16, as is indicated in Figure 3 has an offset angle piece which may have any desired width corresponding to the curvature of the edge of the cap 19. There may be a

number of these spaced around the circumference of the dome or cap or there may be only a few each having more than one rivet through them. In fact the member 16 could be formed as a complete ring about the edge of the dome. This however is not necessary, particularly when the edge of the plastic dome which may be thermo-plastic and therefore inflammable is protected by a non-inflammable coating 19' which covers and coats the entire edge of the plastic cap or dome. It has been determined that the greatest fire hazard to a plastic dome is at a sharp edge or an exposed edge rather than a flat plane surface. The means set forth in Figure 3, therefore provides a great advantage in fire hazard protection for plastic domes where the edge is normally exposed. The edge of the dome in Figure 1 and in other embodiments of the invention may also similarly be coated as indicated in Figure 3.

In Figures 1 and 3 the flange 8 is shown as inclined. The flange may be horizontal as indicated by the structure shown in Figure 2. In this case a bracket 20 having a horizontal arm or flange 21 is attached to the band or collar 22. The cap or cover 23 which is of the same material as set forth above may be attached to the flange as previously described by means of rivets 24 with split ends 25 so as to permit the dome to be blown off when excessive pressure occurs in the air shaft.

In Figures 1 and 3 the flange 8 is shown as inclined, in which case the force maintaining the dome on the air shaft is not squarely up and down. In Figure 2 however, the force is directly up and down parallel to the forces exerted by the air pressure in the shaft and therefore the structure in Figure 2 would blow off more easily than the structure in Figure 1. However the rivets of varying widths and sizes can be chosen to compensate for these variations and may also be selected so that the dome will blow off at the desired pressure.

In the structure shown in Figure 4, the dome 26 is supported by a curved flange 27 which has downwardly extending arms or supporting prongs 28 which may be riveted to a supporting structure 32 extending upwards from the air shaft 1. The supporting structure 32 comprises a series of upwardly extending extensions of the shaft 1, or may if desired be coextensive with it. A collar 29 fitting the outside contour of the cap or dome 26 may cover the periphery of the dome and be held to the flange 28 by means of a series of rivets 30 of the split type, as previously described, spaced about the circumference of the ring 29. The attachment of the dome 26 to the flange 27 will be below the top edge of the band 2 so as to protect the edge of the dome from action by winds blowing across the roof.

In each of the constructions described above, a screen top 31 is placed or rests on the top of the air shaft and is independent of the cap structure and its supporting means.

In the construction shown in Figures 1, 2 and 3, the flanges need not extend beyond the edge of the screen 31, so that after the dome has been removed the screen can easily be removed for cleaning or for replacement.

Figure 2 shows such a structure, but in Figure 1, it will be noted that the flanges or members 8 extend beyond the edge of the screen 31. This need not extend so far inward as to cover the screen 31 so that it may not be readily removed.

Having now described my invention, I claim:

1. In a ventilator structure having a shaft and a frame circumferentially spaced therearound, means securing said shaft to said frame, a plurality of bracket supports each having two elements one element attached to said frame and the other element extending inwardly about the frame and externally of said shaft, a plastic transparent dome covering the shaft and having an outwardly extending peripheral flange fitting on said other elements and means extending over the peripheral flange of the dome, aligned openings formed in the last named means and said other element, rivets having a split shank portion extending downwardly through the aligned openings and having

heads at their upper ends larger than the openings, said split shank portions being spread laterally below the openings and extending just beyond the margins of the openings, whereby an excessive upward pressure applied against the dome causes the rivets to pull upwardly through the openings effecting the last named means to release the dome.

2. In a ventilator structure having a shaft and a frame circumferentially spaced therearound, means securing said shaft to said frame, a plurality of bracket supports each having two elements one element attached to said frame and the other element extending inwardly about the frame and externally of said shaft, a plastic transparent dome covering the shaft and having an outwardly extending peripheral flange fitting on said other elements, said first mentioned frame extending above the edge of said peripheral flange means extending over the peripheral flange of the dome, aligned openings formed in the last named means and said other element, rivets having split shank portions extending downwardly through the aligned openings and having heads at their upper ends larger than the openings, said split shank portions being spread laterally below the openings and extending just beyond the margins of the openings, whereby an excessive upward pressure applied against the dome causes the rivets to pull upwardly through the openings effecting the last named means to release the dome.

3. In a ventilator structure having a shaft and a frame circumferentially spaced therearound, means securing said shaft to said frame, a plurality of bracket supports each having two elements one element attached to said frame and the other element extending in an upwardly inclined inward direction of said frame and terminating externally of said shaft, a plastic transparent dome extending over the shaft and having an outwardly and downwardly inclined peripheral flange fitting over said other elements in face to face relation therewith, means for clamping the peripheral flange to said other elements, said means comprising tab elements having portions offset in different parallel planes with one offset portion extending over said peripheral flange and the other offset portion in contact with said other elements, aligned openings formed in both the portion of the tab in contact with the said other elements and the other elements, rivets having split shank portions extending downwardly through the aligned openings and having heads at their upper ends larger than the openings, said split shank portions being spread laterally below the openings and extending just beyond the margins of the openings, whereby an excessive upward pressure applied against the dome causes the rivets to pull upwardly through the openings effecting the tabs to release the dome.

4. In a ventilator structure having a shaft and a frame circumferentially spaced therearound, means securing said shaft to said frame, a bracket support having a branch attached to said frame and a branch extending inwardly of the frame and terminating externally of the shaft, a plastic transparent dome extending over and covering the shaft and having an outwardly extending flange resting upon said inwardly extending branch, means coating the outwardly extending peripheral flange with a non-inflammable covering and securing means clamping said dome at its flange to said bracket said securing means comprising tab elements having portions offset in different parallel planes, with one offset portion extending over the peripheral flange and the other offset portion in contact with the inwardly extending branch, aligned openings formed in said other offset portion and the inwardly extending branch, rivets having split shank portions extending downwardly through the aligned openings and having heads at their upper ends larger than the openings, said split shank portions being spread laterally below the openings and extending just beyond the margins of the openings, whereby an excessive upward pressure applied against the dome causes the rivets to pull upwardly through the

openings allowing the tab elements to release the peripheral flange of the dome.

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