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[54] **VENTILATING APPARATUS**
16 Claims, 3 Drawing Figs.

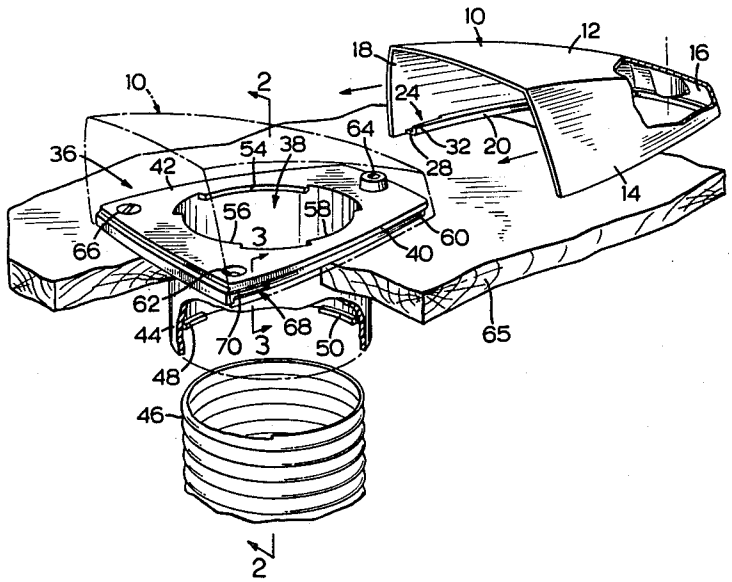
[52] **U.S. Cl.** **98/37,**
98/64, 114/211
[51] **Int. Cl.** **B63j 2/04**
[50] **Field of Search** 98/35, 61,
64, 37, 13; 114/211

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ABSTRACT: A ventilating apparatus suitable for use on the deck of a marine craft or the like, has a cowl attached to a plate. The plate, in one embodiment, is provided with stop means whereby an open-ended duct is prevented from abutting the inner top wall of the cowl. In another embodiment, the cowl and the plate are interlocked by means of interlocking channel members.



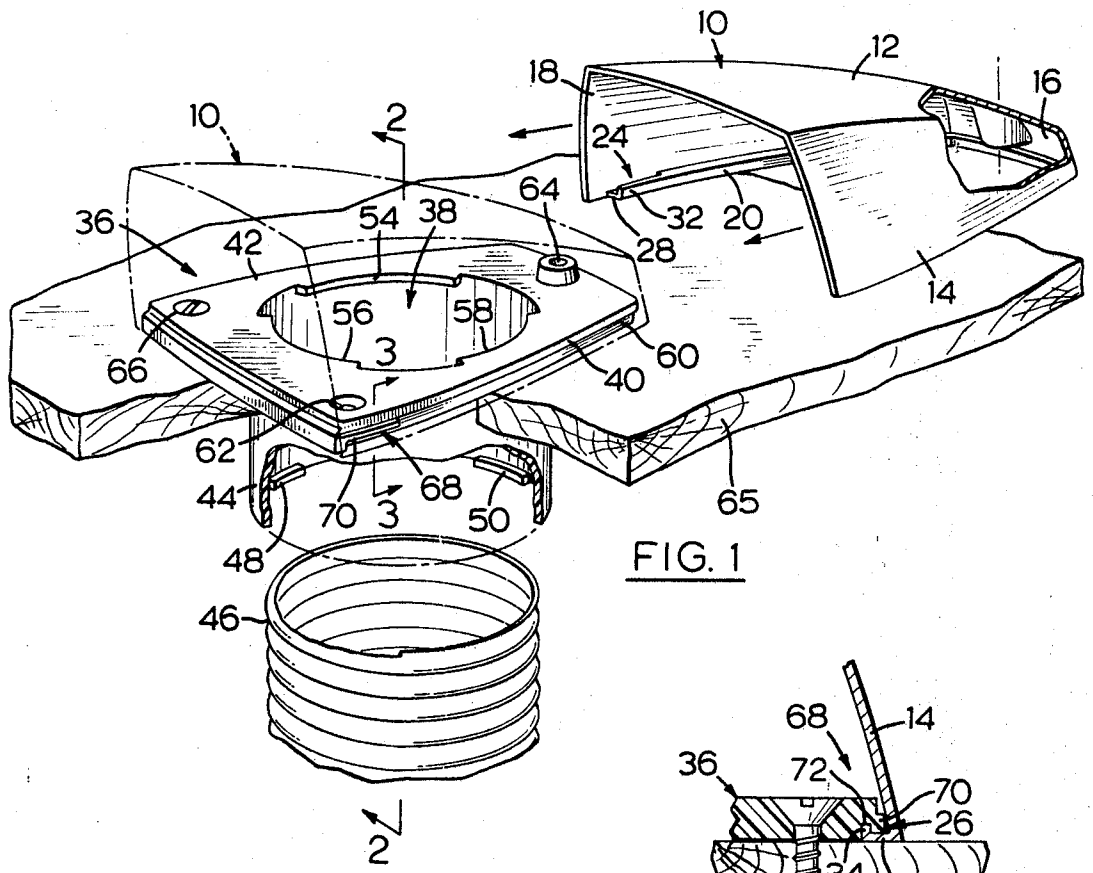


FIG. 1

FIG. 2

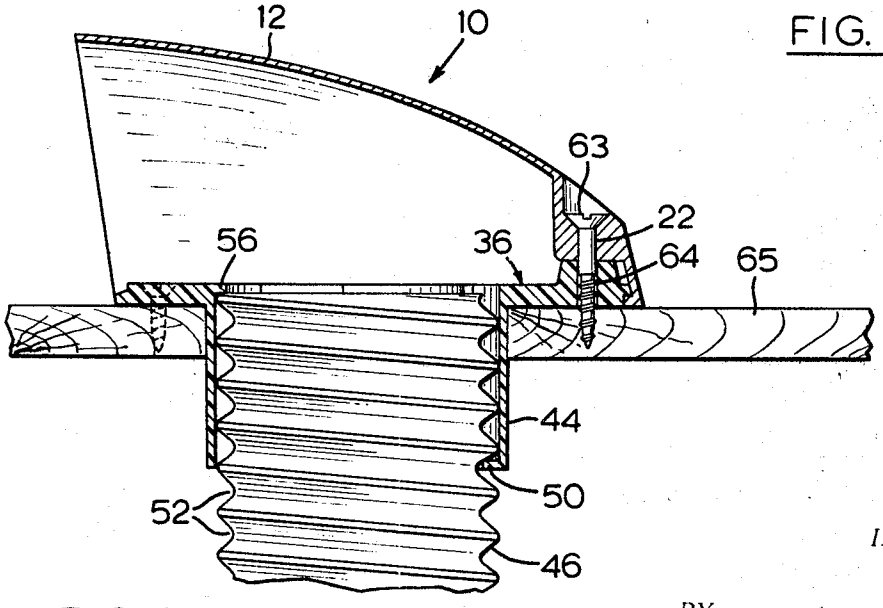


FIG. 3

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VENTILATING APPARATUS

This invention relates to ventilating apparatus, and, more particularly, to ventilating apparatus for use in water craft.

Certain ventilator cowls presently available for use with ventilators on water craft such as motor boats and yachts have a tendency in use to become separated from their mounting plates when pressure is applied to the top surface of the cowl accidentally, such as by a person stepping on the cowl, because of the consequent splaying of the side walls of the cowl.

It is an object of one embodiment of the present invention to provide a support plate and cowl which are designed so that the cowl will not separate from its support plate due to splaying of the side walls of the cowl.

Generally, the ventilator duct covered by the ventilator cowl terminates at the deck of the craft. It is possible, however, by accident, in some types of marine ventilating systems to have the duct pressed against the top wall of the cowl, thereby preventing the egress of air from the duct or the ingress of air into the duct.

It is an object of another embodiment of the present invention to provide a ventilating apparatus including a cowl and a duct in which the ventilator duct is prevented from abutting the cowl and thus always allows the egress or ingress of air from or to the duct.

Other objects will become apparent from the detailed description below.

Accordingly, one embodiment of the present invention provides a ventilator apparatus comprising a low silhouette ventilator cowl having a top wall and a plate having an opening therein defined by side walls, the ventilator cowl being positioned over the opening in the plate but with the top wall in spaced-apart relationship with respect thereto, the apparatus carrying means disposed in juxtaposition with respect to the opening in the plate to constitute a stop for an open-ended duct insertable into the opening in the plate and communicable in fluid flow relationship with the chamber defined by the cowl and the plate, the stop being positioned to prevent the open end of the duct from abutting against the top wall of the cowl.

A further embodiment of the present invention provides, in combination, a ventilator cowl having a top wall, side walls and an open side, a cowl support plate having spaced-apart side edges and an opening in the plate between the side edges, the ventilator cowl being positioned with the top wall thereof disposed over the opening in the plate but in spaced-apart relationship with respect thereto, whereby air may pass into the ventilator cowl and through the opening in the plate, and interlocking means for interlocking the side walls and the plate, the interlocking means comprising means defining first channels associated with the side walls of the ventilator cowl within the outer surface of the ventilator cowl and including first lateral portions and first upstanding portions upstanding from the first lateral portions, and means defining second channels associated with the cowl support plate and including second lateral portions and second upstanding portions upstanding from the second lateral portions, the first and second upstanding portions being relatively located with the first and second upstanding portions abutting each other in overlapping relationship and extending respectively into the second and first channels, whereby the side walls of the ventilator cowl are prevented from relative outward lateral displacement upon the application of pressure on the top wall in the direction of the plate.

A preferred embodiment of the invention is provided by a combination of the two above-described embodiments.

The invention will now be further described by way of example with reference to the accompanying drawings, in which:

FIGURE 1 represents an exploded perspective view, partially in section, of one embodiment of the present invention;

FIGURE 2 is a section taken on line **2-2** of **FIGURE** 1; and

FIGURE 3 is an enlargement of a section taken on line **3-3** of **FIGURE** 1.

In the drawings, a ventilator cowl **10** has a top wall **12** and side walls **14**, **16** and **18**. Around the periphery of the free edge of the side walls is a flange **20** projecting inwardly of the side walls. Formed through the top wall **12** is an opening **22**. At the free ends of the flange **20** are located channels **24** and **26** defined in part by lateral portions **28** and **30** respectively and upstanding wedge-shaped portions **32** and **34** respectively. A cowl support plate **36** has an opening **38** formed therein between side edges **40** and **42** thereof. Projecting downwardly from plate **36** and integral therewith is a hollow cylinder **44** that defines opening **38**. The cylinder **44** receives an air duct **46**. The duct **46** is held in position by engagement of three equally circumferentially-spaced projections, only two of which, **48** and **50**, are shown, with the helical grooves **52** in the duct **46**. The duct **46** is prevented from passing beyond the surface of the cowl support plate **36** by the provision of three equally circumferentially-spaced projections **54**, **56** and **58** which project into the opening **38**. In this respect, duct **46** is threaded into cylinder **44**. Eventually the side walls defining the open end of the duct will engage projections **54**, **56** and **58** preventing the duct from being threaded any further into cylinder **44**. In this manner it is ensured that the open end of the duct will not abut against top wall **12** of cowl **10** preventing passage of air through the duct. If projections **54**, **56** and **58** were not present, this could occur.

On the underside of the plate **36** there is a wall **60** located inwardly of the edges of the plate. Formed through the plate are openings **62**, **64** and **66**, opening **64** being in axial alignment with opening **22** in cowl **10** when the cowl and the plate are assembled together as shown in **FIGURE** 2 so that a single screw **63** holds both the cowl **10** and the plate **36** to a mounting **65** such as the deck of a boat. The cowl and the plate have an interlock generally indicated as **68** consisting of a downwardly projecting wedge-shaped projection **70** on the plate defining with wall **60** a channel **72** and the upwardly projecting wedge-shaped projection **34** formed in the flange **20**. When assembled, as shown in **FIGURE** 3, the projections **70** and **34** abut each other in overlapping relationship and respectively project into channels **26** and **72**. The same type of interlock is employed at the opposite side of the plate and cowl.

In order to install the ventilating apparatus, plate **36** is screwed or otherwise secured to the deck **65** of the boat by screws passed through openings **62** and **66**. Cowl **10** then is slid into position from the rear of the plate as indicated by the arrows in **FIGURE** 1. When it is in position, screw **63** is inserted through openings **22** and **64** and screwed into deck **65**. Interlocks **68** positively prevent side walls **14** and **18** of cowl **10** from separating from plate **36** when pressure is applied downwardly on top wall **12** of cowl **10**.

Many modifications of the above-described construction are possible within the scope of the invention. Thus, the interlock could be formed in several alternative ways: the upward projections **32** and **34** could be downwardly projecting and the projections **70** on the plate could be formed on the top surface of the plate and be upwardly projecting. Alternatively, the side walls **14** and **18** of the cowl could be made thick and the channels **24** formed in the walls at the bottoms thereof. In either case, the interlocks are within the outside surface of the cowl which gives a pleasing outward appearance with no upstanding edges of plate **36** extending around the outer periphery of the cowl. Moreover the interlocks are hidden from view.

The interlocks could be positioned at any location on the side walls of the cowl and the plate, but it is preferred that the interlock be positioned as illustrated, giving rise to ease of assembly.

The flange **20** need not be continuous, but it is preferred that it be so, so that the side walls of the plate overlap flange **20** of the cowl around the whole periphery of the side walls of the cowl.

The duct **46** may be held in position in a variety of different manners, such as by clamps affixed to the duct and engaging the side walls of the opening, or the provision of a series of tongues projecting downwardly from the plate and having

protrusions similar to projections 48 and 50 engaging the helical groove.

The duct 46 may be prevented from coming into engagement with the top wall 12 of the cowl 10 in a variety of different ways. Thus, projections could be provided on the internal surface of the cowl and engaging the duct. It is not necessary that three projections be employed to prevent engagement of the duct with the top wall, and the same effect can be achieved by the use of a single projection. It is preferred, however, to employ the construction illustrated, i.e., the provision of three equally circumferentially spaced projections which project into the opening 38, since this provides a pleasing appearance to the assembled combination, since the duct is not permitted to pass beyond the surface of the plate towards the cowl.

Further, it is not essential that the channels formed in the cowl and the projections formed in the plate be complementarily wedge-shaped. They could be any convenient complementary shape. It is preferred, however, that the channels and projections be complementarily wedge-shaped.

Many other modifications are possible within the scope of the appended claims.

I claim:

1. In a ventilating apparatus comprising a low silhouette ventilator cowl having a top wall and a plate having an opening therein defined by side walls, said ventilator cowl being positioned over the opening in said plate but with said top wall in spaced-apart relationship with respect thereto, a chamber defined by said cowl and said plate, an open-ended duct threadably inserted in the opening in said plate and communicating in fluid flow relationship with said chamber, cooperating means on said plate and said duct for threading said duct into the opening in said plate, stop means carried by said apparatus and immovably fixed with respect to said plate and disposed in juxtaposition with respect to the opening in said plate (to constitute a stop for said duct, said stop being positioned) and cooperatively engageable with the end of said duct to prevent the open end of said duct from abutting against said top wall of said low silhouette cowl.

2. The apparatus of Claim 1 wherein said means is a projection extending into the opening in said plate.

3. The apparatus of Claim 2 wherein there are at least three of said projections disposed in spaced-apart relationship with respect to each other around the periphery of the opening in said plate and formed integral with said plate.

4. The apparatus of Claim 1 wherein said duct is threaded and wherein said plate carries means adapted to threadably engage said threaded duct.

5. The apparatus of Claim 1 including a cylindrical member formed integral with said plate extending therefrom in a direction away from said ventilator cowl and communicating in fluid-flow relationship with the opening in said plate, said duct being of circular cross-section and externally threaded, said cylindrical member including means adapted to threadably engage said threaded duct.

6. The apparatus of Claim 5 including means for fastening said ventilator cowl and said plate together.

7. In combination, a ventilator cowl having a top wall and side walls a cowl support plate having spaced-apart side edges and an opening in said plate between said side edges, said ventilator cowl being positioned with the top wall thereof disposed over the opening in said plate but in spaced-apart relationship with respect thereto, said spaced-apart side edges being positioned wholly within said cowl, said ventilator cowl having an open side defined by said side walls, said top wall and said plate whereby air may pass into said ventilator cowl and through the opening in said plate and interlocking means for interlocking said side walls and said plate, said interlocking means comprising means defining first channels associated with said side walls of said ventilator cowl within the outer surface of said ventilator cowl and including first lateral portions and first upstanding portions upstanding from said first lateral portions, and means defining second channels associated with said cowl support plate and including second lateral portions and second upstanding portions upstanding from said second lateral portions, said first and second upstanding portions being relatively located with said first and second upstanding portions abutting each other in overlapping relationship and extending respectively into said second and first channels.

8. The combination of Claim 7 wherein said channels and said upstanding portions are complementarily wedge-shaped.

9. The combination of Claim 7 including a flange projecting inwardly from said side walls of said ventilator cowl, said first lateral and upstanding portions being formed integral with said flange and said first channels being formed in said flange, said cowl support plate being seated on said flange.

10. The combination of Claim 9, wherein said plate includes walls depending downwardly therefrom in a direction away from said top wall of said ventilator cowl and inwardly of said side edges of said cowl support plate and abutting against said flange, said side edges abutting against said side walls.

11. The combination of Claim 7 wherein said interlocking means are located adjacent said open side of said ventilator cowl.

12. The combination of Claim 7 wherein said first upstanding portions project upwardly towards said top wall of said ventilator cowl and said second upstanding portions project downwardly away from said top wall of said ventilator cowl.

13. In combination, a ventilator cowl having a top wall and side walls, a cowl support plate having spaced-apart side edges and an opening in said plate between said side edges, said ventilator cowl being positioned with the top wall thereof disposed over the opening in said plate but in spaced-apart relationship with respect thereto, said ventilator cowl having an open side defined by said side walls, said top wall and said plate, whereby air may pass into said ventilator cowl and through the opening in said plate, said cowl support plate having a plurality of openings therethrough adapted to receive fastening devices for fastening said plate to a mounting, said ventilator cowl having an opening extending therethrough in registry with one of the openings extending through said plate and adapted to receive one of said fastening devices for preventing disengagement of said ventilator cowl and said cowl support plate when said fastening device has been inserted through the opening in said cowl and the one opening in said plate and fastened to said mounting, and interlocking means for interlocking said side walls and said plate, said interlocking means comprising means defining first channels associated with said side walls of said ventilator cowl within the outer surface of the ventilator cowl and including first lateral portions and first upstanding portions upstanding from said lateral portions, and means defining second channels associated with said cowl support plate and including second lateral portions and second upstanding portions upstanding from said second lateral portions, said first and second upstanding portions being relatively located with said first and second upstanding portions abutting each other in overlapping relationship and extending respectively into said second and first channels.

14. The combination of Claim 7 wherein said interlocking means are located adjacent said open side of said ventilator cowl and including a flange projecting inwardly from said side walls, said first lateral and upstanding portions being formed integral with said flange and said first channels being formed in said flange with said first upstanding portions projecting upwardly towards said top wall, said cowl support plate being seated on said flange and said second upstanding portions projecting downwardly away from said wall.

15. An apparatus comprising a ventilator cowl having a top wall, side walls and an open side, and a plate having spaced-apart side edges and an opening in said plate between said side edges, said ventilator cowl being positioned with said top wall thereof disposed over the opening in said plate but in spaced-apart relationship with respect thereto, whereby air may pass into said ventilator cowl and the opening in said plate, said side walls depending from said top wall and terminating in

base edges, at least the portions of said side walls below said top wall and adjacent said open side being disconnected from each other, whereby the parts of said base edges of said portions may move relative to each other upon application of pressure between said top wall and said base edges, and means for restraining such movement comprising means defining first channels associated with said side walls within the outer surface of said ventilator cowl and including first lateral portions and first upstanding portions upstanding from said first lateral portions and means defining second channels associated with said plate and including second lateral portions and second upstanding portions upstanding from said second lateral portions, said first and second upstanding portions being relatively located with said first and second upstanding portions abutting each other in overlapping relationship and extending respectively into said second and first channels.

16. In a ventilating apparatus comprising a ventilator cowl having a top wall and a plate having an opening therein defined by side walls, said ventilator cowl being positioned over the opening in said plate but with said top wall in spaced-apart relationship with respect thereto, a chamber defined by said cowl and said plate, an open-ended duct inserted in the opening in said plate and communicating in fluid flow relationship with said chamber, means carried by said apparatus disposed in juxtaposition with respect to the opening in said plate to constitute a stop for said duct, said stop being positioned to prevent the open end of said duct from abutting against said top wall of said cowl, said ventilator cowl also having side walls and an open side defined by said side walls, top wall and plate whereby air may pass into said ventilator cowl and through the opening in said plate, and including interlocking means for interlocking said side walls and said plate, said interlocking means comprising means defining first channels associated with said side walls of said ventilator cowl within the outer surface of said ventilator cowl and including first lateral portions and first upstanding portions upstanding from said first lateral portions, and means defining second channels associated with said plate and including second lateral portions and second upstanding portions upstanding from said second lateral portions, said first and second upstanding portions abutting each other in overlapping relationship and extending respectively into said second and first channels.