Feb. 26, 1929.

1,703,437

C. M. WILLS

VENTILATOR

Filed July 21, 1928

4 Sheets-Sheet 1

Fig. 1.

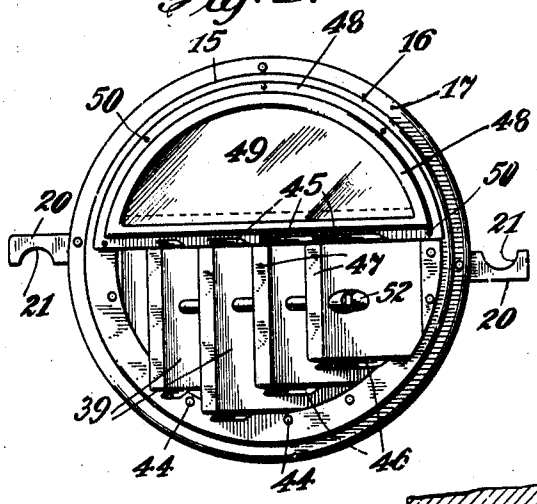


Fig. 2.

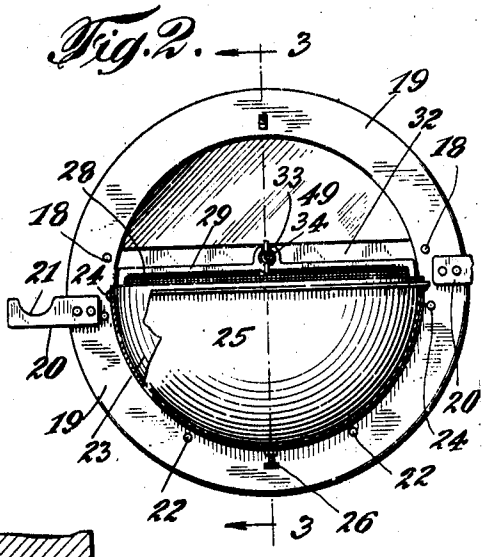
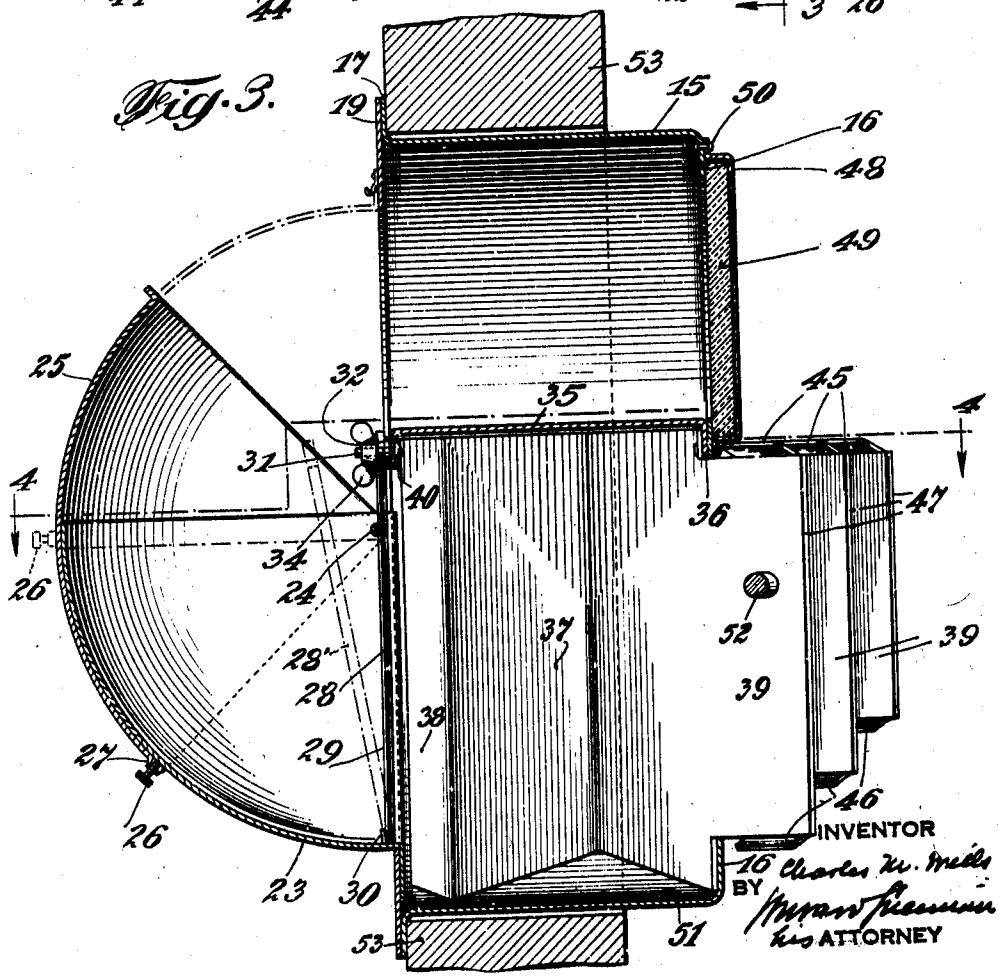


Fig. 3.



INVENTOR

Charles M. Wills

BY

Wyman Freeman

his ATTORNEY

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C. M. WILLS

VENTILATOR

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Fig. 4.

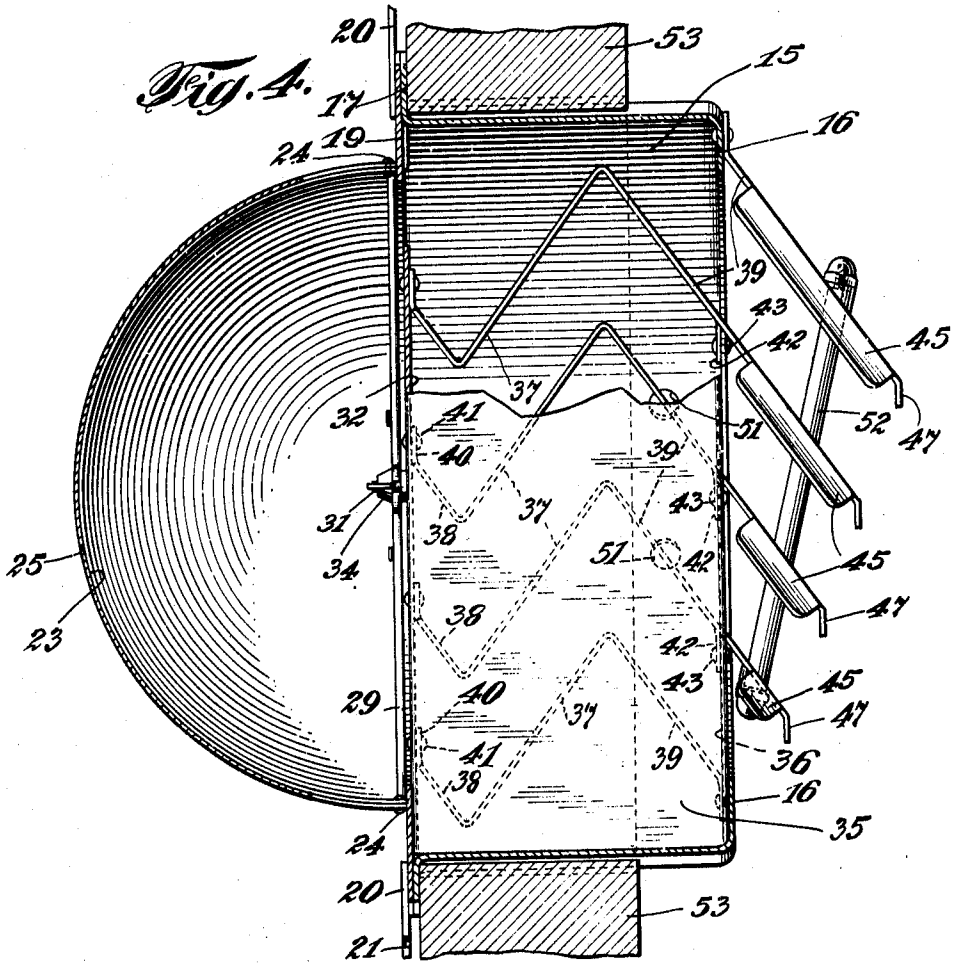
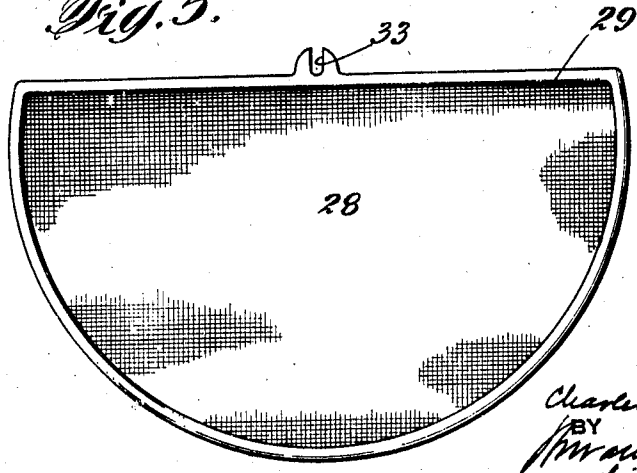


Fig. 5.



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Feb. 26, 1929. 1,703,437

C. M. WILLS

VENTILATOR

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Fig. 6.

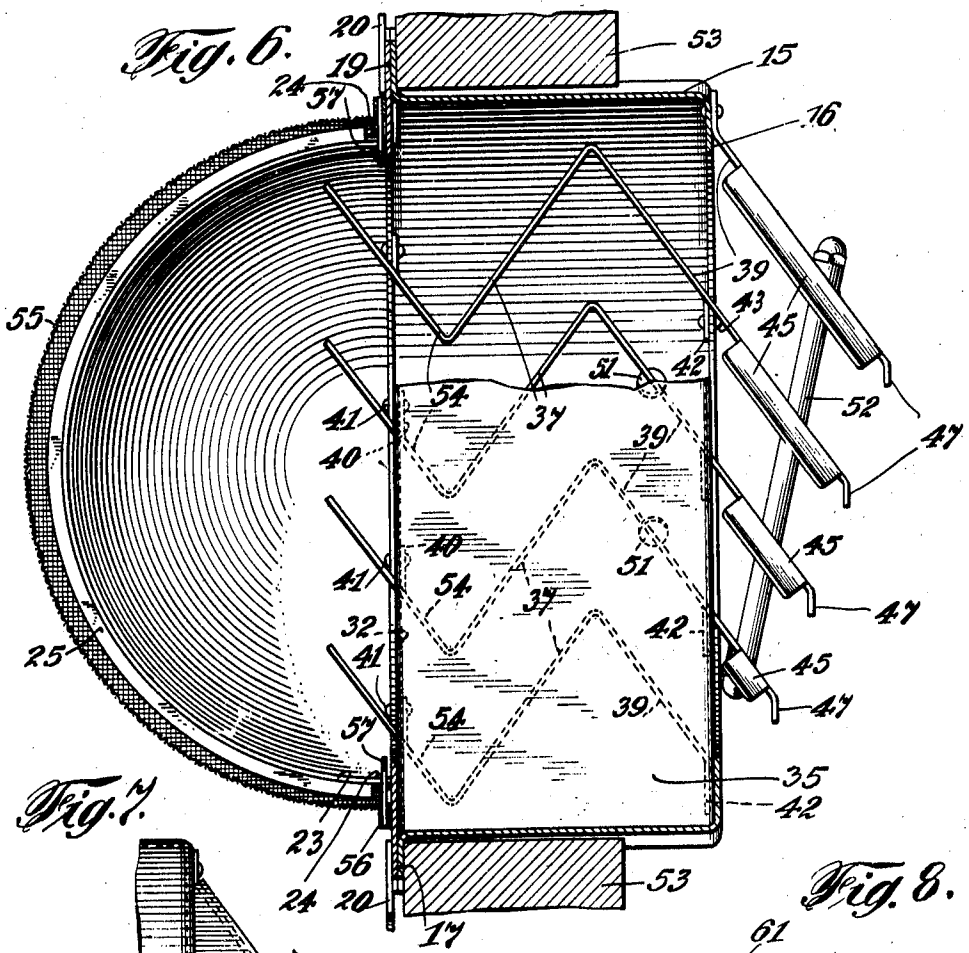


Fig. 7.

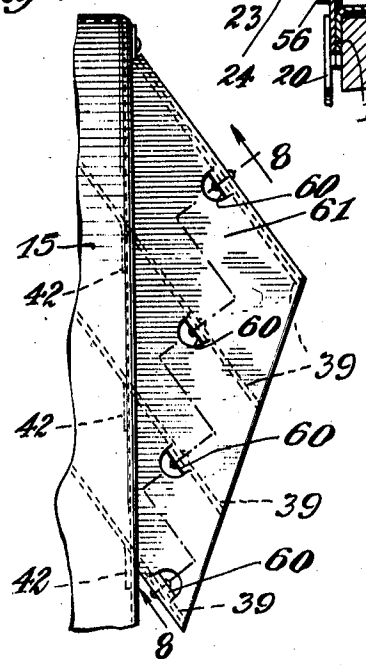
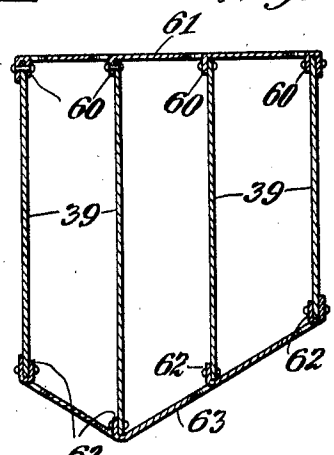


Fig. 8.



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C. M. WILLS

VENTILATOR

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Fig. 9.

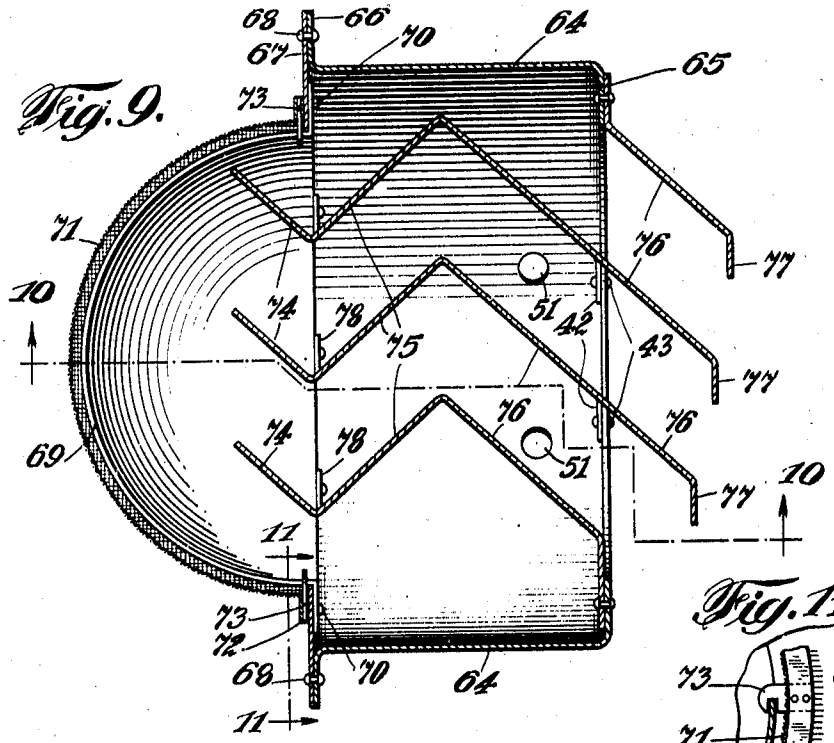


Fig. 11.

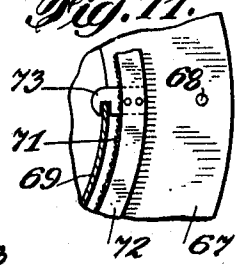
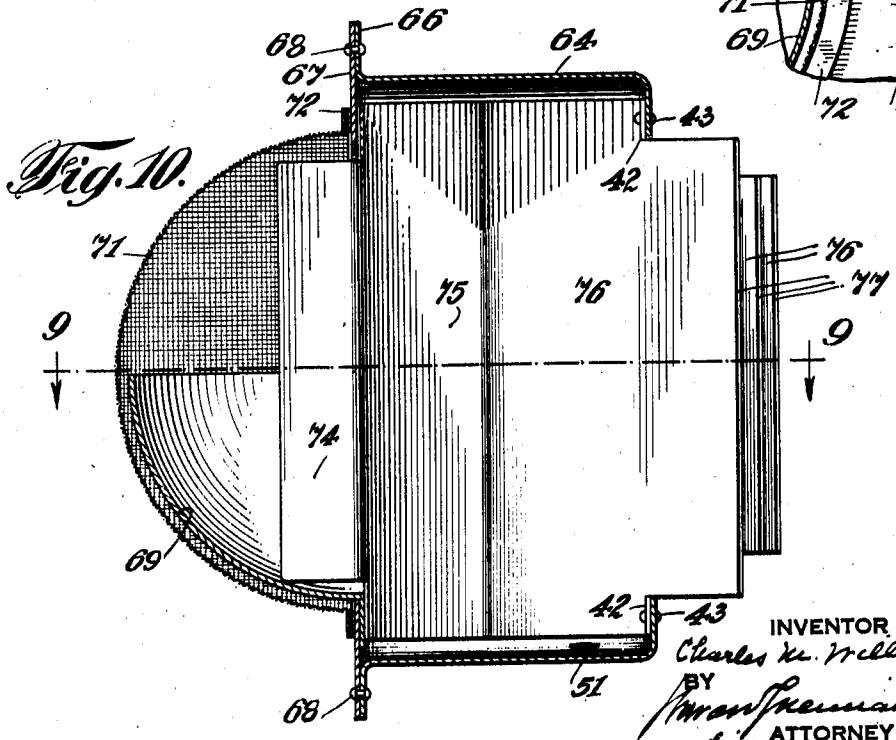


Fig. 10.



INVENTOR
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BY
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Patented Feb. 26, 1929. 1,703,437

UNITED STATES PATENT OFFICE.

CHARLES M. WILLS, OF ATLANTIC CITY, NEW JERSEY, ASSIGNOR TO THE MOLDIC CO., INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

VENTILATOR.

Application filed July 21, 1928. Serial No. 294,511.

My invention relates to ventilators and refers particularly to ventilators having special valuable features for incorporating in boats, ships and similar vessels.

While I illustrate and describe the device of my invention with special application to vessels, I do not limit myself to such special use as it is evident that its form and construction may be changed to adapt it for other uses without going beyond the scope of my invention.

One object of my invention is a ventilator which may be readily inserted within a window or porthole casing.

Another object of my invention is a ventilator through which air may readily pass and through which the passage of light and vision is prevented.

Another object of my invention is a ventilator having wind scoops of such shape and construction as to increase the normal amount of air which would pass therethrough.

Another object of my invention is a ventilator in which the amount of air passing therethrough may be regulated from within the room or vessel.

Another object of my invention is a ventilator through which air may pass but through which the passage of water is prevented.

Another object of my invention is a ventilator through which the passage of insects may be prevented.

Another object of my invention is a ventilator whereby vision therethrough without passage of water therethrough can be had if desired.

The advantages of a ventilator having any or all of the above attributes for use with a vessel is evident.

My device allows of the use of lights in the cabin when the vessel is "running dark" while air is being admitted.

As the size of a porthole is small in comparison with the size of the cabin, and as the wind passage is normally along the side of the hull and hence past the open porthole the advantages of the wind scoops of my device are evident.

The advantages of preventing water from passing through an open porthole are possessed by my device.

The advantages of allowing vision through the open porthole while the passage of air is admitted therethrough are evident in my ventilator.

The prevention of the passage of insects through the open porthole while the vessel is in anchor and the ability to regulate the amount of air passing therethrough are further advantages of my ventilator when applied to vessels.

The above-mentioned, and other, valuable attributes of the device of my invention will be evident upon a consideration of my specification and its accompanying drawings.

In the accompanying drawings illustrating modified forms of the device of my invention, similar parts are designated by similar numerals.

Figure 1 is a rear view of one form of the device of my invention.

Figure 2 is a front view of the device of Figure 1.

Figure 3 is a section taken on the line 3—3 of Figure 2 with the water catch cover partly closed.

Figure 4 is a section taken on the line 4—4 of Figure 3.

Figure 5 is a plan view of the screen member of the device shown in the preceding figures.

Figure 6 is a horizontal cross-section of a modified form of my device.

Figure 7 is a fragmental downwardly view of a modified form of wind scoop.

Figure 8 is a section through the line 8—8 of Figure 7.

Figure 9 is a section through the line 9—9 of Figure 10 of a modified form.

Figure 10 is a section through the line 10—10 of Figure 9.

Figure 11 is a section through the line 11—11 of Figure 9.

The particular form of the device of my invention illustrated in Figures 1 to 5 inclusive comprises an annular container casing having the side wall 15, the inwardly extended flange 16 and the outwardly extended flange 17.

Fixedly attached to the outer face of the peripheral flange 17 by means of rivets 18, 18 is a ring-shaped member 19 carrying the opposed extended fastening arms 20, 20, having recesses 21, 21 opposed to each other.

Fixedly attached to the flange 17 and the ring 19 by means of rivets 22, 22, is a quadrispherical basin, or water catch, 23.

A pair of pins 24, 24, passing through the basin 23 act as a pivot for the basin closure 25, which is practically the same shape as the basin 23. The basin closure 25 carries the threaded member 26, threaded within the boss 27 which acts as a means for locking the basin closure in any desired pivotal position.

A screen 28 carried by the semi-circular frame 29 is placeable within the extended member 30 of the basin 23 and lockable in upright position by means of the threaded bolt 31 passing through a flange 32 of a partition wall described later, the bolt 31 passing through the recess 33 of the frame 29 and being maintained in position by the wing-nut 34 threaded upon the bolt 31.

The casing is divided into an upper compartment and a lower compartment by means of a partition wall 35 having the two downwardly extended flanges 32 and 36.

Within the lower compartment of the casing are a plurality of Z-shaped louvres, each having a central portion 37, and two end portions 38 and 39. Each end portion 38 has an extended ear 40 fixedly attached to the flange 32 by a rivet 41. The lower end of each end portion 38 being fixedly attached to the flange 17 by one of the rivets 22.

The upper end of each louvre end 39 has an extended ear 42 fixedly attached to the flange 36 by a rivet 43, and the lower end of each end portion 39 having an extended ear fixedly attached to the flange 16 by a rivet 44.

The louvre ends 39, 39 extend beyond the casing in progressively increased lengths, the extremities being in a plane positioned angularly with respect to the plane of the casing flange 16, each end 39 forming a scoop having the base 39, the upper flange 45, the lower flange 46 and the end flange 47.

The louvres are so positioned with respect to each other as to admit the passage of air through the device while preventing the passage of light and vision therethrough.

A semi-circular frame 48 carries the transparent glass 49 and is fixedly attached to the outer face of the casing flange 16 by rivets 50, 50 thus covering the upper compartment of the casing.

The lower portion of the casing has a plurality of holes 51, 51.

The wind-scoops are strengthened by means of a stay-bolt 52.

The operation of the device is as follows:—

The device is placed within the porthole within the side 53 of a vessel, with the wind scoops external of the vessel, the device being so positioned that the shortest wind scoop will be forward of the line of travel, or toward the bow of the vessel. The device is locked in position by the usual porthole locking swing bolts being positioned within the recesses 21, 21.

When so positioned the movement of the vessel will cause the wind scoops to deliver air through the device, the amount of air so passed being enhanced and increased by the extended progressive angular position of the scoops.

It will be noted that any water entering the device will either pass directly outwardly of the device and of the vessel through the holes 51, 51 while any water which is not interrupted by the louvres but which passes therethrough will be caught by the water catch basin from which it will run into the lower portion of the casing and thence outwardly through the holes 51, 51.

I prefer to have the casing extend beyond the side of the vessel hull, as shown, as by this means waves striking the casing will be broken into spray and the amount entering the device will be reduced and further because when so positioned the water running along the side of the hull will spend its force upon the strongly constructed casing rather than upon the extended wind scoops.

When it is desired to reduce the amount of air passing through the device, or increase the efficiency of the water catch, the basin closure 25 is raised and locked into position.

When it is desired to prevent the entrance of insects through the device, the screen 28 is placed in position shown.

The modification of my device illustrated in Figure 6 is similar to that previously described except in the form of the louvres and of the screen. In this device the arm, or end, 54 extends through the opening in the ring-shaped member 19 and the screen consists of a semi-spherical shaped screen 55, carried by the frame 56, capable of placement around the water catch 23 and the upper compartment of the casing. The screen is maintained in position by two hook supports 57, 57, carried by the frame 56 and capable of placement over the upper edge of the water catch 23.

The modification of my device illustrated in Figures 7 and 8 is similar to that shown in Figure 6, except in the form of wind scoops. In this device the wind scoops consist of the extended louvre ends 39, 39, the upper portions of which are attached to the downwardly extended ears 60, 60 of the upper plate, or cover, 61, and the lower portions of which are attached to the upwardly extended ears 62, 62, of the lower plate, or cover, 63.

The modification of my device shown in Figures 9, 10 and 11 comprises a casing having the side wall 64, the inwardly extended flange 65 and the outwardly extended flange 66. A ring shaped member 67 is fixedly attached to the flange 66 by means of rivets 68, 68. A quadri-spherical water catch 69 is fixedly attached to the ring member 67 by the rivets 70, 70. A removable semi-spherical screen 71 carried by the frame 72 is removably placeable over the water catch 69 and the front of the casing, by means of the hooks 73, 73, carried by the frame 72 having recesses

therein to receive the upper edge of the water catch. The casing contains a plurality of louvres, each having the angularly positioned elements 74, 75, 76, 77, the elements 77, 77, being progressively further removed from the face of the casing. Each louvre has an ear 78, fixedly attached to the lower inner face of the ring 67 and corresponding ears fixedly attached to the upper inner face of the ring 67.

The application of these modified forms of my device is similar to that of the device shown in Figures 1 to 5 inclusive.

I do not limit myself to the particular size, shape, number, arrangement or material of parts as shown and described, as these are given simply as a means for clearly describing the device of my invention.

What I claim is:—

1. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being bent into planes parallel to the face of the casing; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing and means whereby water within the casing will flow outwardly thereof.

2. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being bent into planes parallel to the face of the casing; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and means capable of closing the inner casing opening.

3. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being bent into planes parallel to the face of the casing; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means capable of closing the inner casing opening and screen means capable of placement over the inner casing opening.

4. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being scoop shaped; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing and means whereby water within the casing will flow outwardly thereof.

5. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being scoop shaped; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and means capable of closing the inner casing opening.

6. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended rearwardly and outwardly of the casing and being of progressive lengths from the rear face of the casing and the extended ends of the louvres being scoop shaped; a water catch carried by the lower portion of the opposite front face of the casing, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means capable of closing the inner casing opening and screen means capable of placement over the inner casing opening.

7. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit

the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being bent in reverse direction to the louvre ends extending through the front casing opening; a water catch covering the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing and means whereby water within the casing will flow outwardly thereof.

8. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being bent in reverse direction to the louvre ends extending through the front casing opening; a water catch carrying the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and means capable of closing the inner casing opening.

9. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being bent in reverse direction to the louvre ends extending through the front casing opening; a water catch covering the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means capable of closing the inner casing opening and screen means capable of placement over the inner casing opening.

10. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being scoop shaped and bent in reverse direction to the louvre ends extending through the front casing opening; a water catch covering the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing and means whereby water within the casing will flow outwardly thereof.

11. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being scoop shaped and bent in reverse direction to the louvre ends extending through the front casing opening; a water catch covering the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and means capable of closing the inner casing opening.

12. In a ventilator, in combination, a container casing having an opening therethrough; a plurality of Z-shaped louvres within the casing so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough; one series of louvre ends being extended through the front opening of the casing angularly with respect to the casing face and the other series of louvre ends being extended through the rear opening of the casing, the last mentioned ends being of progressive lengths from the rear casing face and the end portions thereof being scoop shaped and bent in reverse direction to the louvre ends extending through the front casing opening; a water catch covering the lower portion of the front casing opening, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means capable of closing the inner casing opening and screen means capable of placement over the inner casing opening.

13. In a ventilator, in combination, a container casing having an opening therethrough, a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended through the rear casing opening, the ends being of progressive lengths from the casing and then bent into angular position to the face of the casing; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and a sheet of transparent glass covering the upper casing compartment.

14. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended through the rear casing opening, the ends being of progressive lengths from the casing and then bent into angular position to the face of the casing; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the watch catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means allowing the closure of the inner casing opening and a sheet of transparent glass covering the upper casing compartment.

15. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, the ends of the louvres being extended through the rear casing opening, the ends being of progressive lengths from the casing and then bent into angular position to the face of the casing; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means allowing the closure of the inner casing opening, screen means capable of placement over the inner casing opening and a sheet of transparent glass covering the upper casing compartment

16. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, one series of louvre ends being extended through the front casing opening angularly with respect to the casing face and the other series of louvre ends being extended through the rear casing opening at progressively extended distances from the casing face, the extremities of the latter ends being bent in reverse direction to the other series of louvre ends; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof and a sheet of transparent glass covering the upper casing compartment.

17. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, one series of louvre ends being extended through the front casing opening angularly with respect to the casing face and the other series of louvre ends being extended through the rear casing opening at progressively extended distances from the casing face, the extremities of the latter ends being bent in reverse direction to the other series of louvre ends; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof; means capable of closing the inner casing opening and a sheet of transparent glass covering the upper casing compartment.

18. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, one series of louvre ends being extended through the front casing opening angularly with respect to the casing face and the other series of louvre ends being extended through the rear casing opening at progressively extended distances from the casing face, the extremities of the latter ends being scoop shaped and bent in reverse direction to the other series of louvre ends; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow

outwardly thereof and a sheet of transparent glass covering the upper casing compartment.

19. In a ventilator, in combination, a container casing having an opening therethrough; a partition dividing the casing into an upper compartment and a lower compartment, a plurality of louvres within the lower casing compartment so positioned as to admit the passage of air therethrough while preventing the passage of light therethrough, one series of louvre ends being extended through the front casing opening angularly with respect to the casing face and the other series of louvre ends being extended through the rear casing opening at progressively extended distances from the casing face, the extremities of the latter ends being scoop shaped and bent in reverse direction to the other series of louvre ends; a water catch covering the inner opening of the lower casing compartment, so positioned that water within the water catch will flow into the casing; means whereby water within the casing will flow outwardly thereof, means capable of closing the inner casing opening and a sheet of transparent glass covering the upper casing compartment.

Signed at New York city in the county of New York and State of New York this 16th day of July, 1928.

CHARLES M. WILLS.