

Dec. 29, 1936.

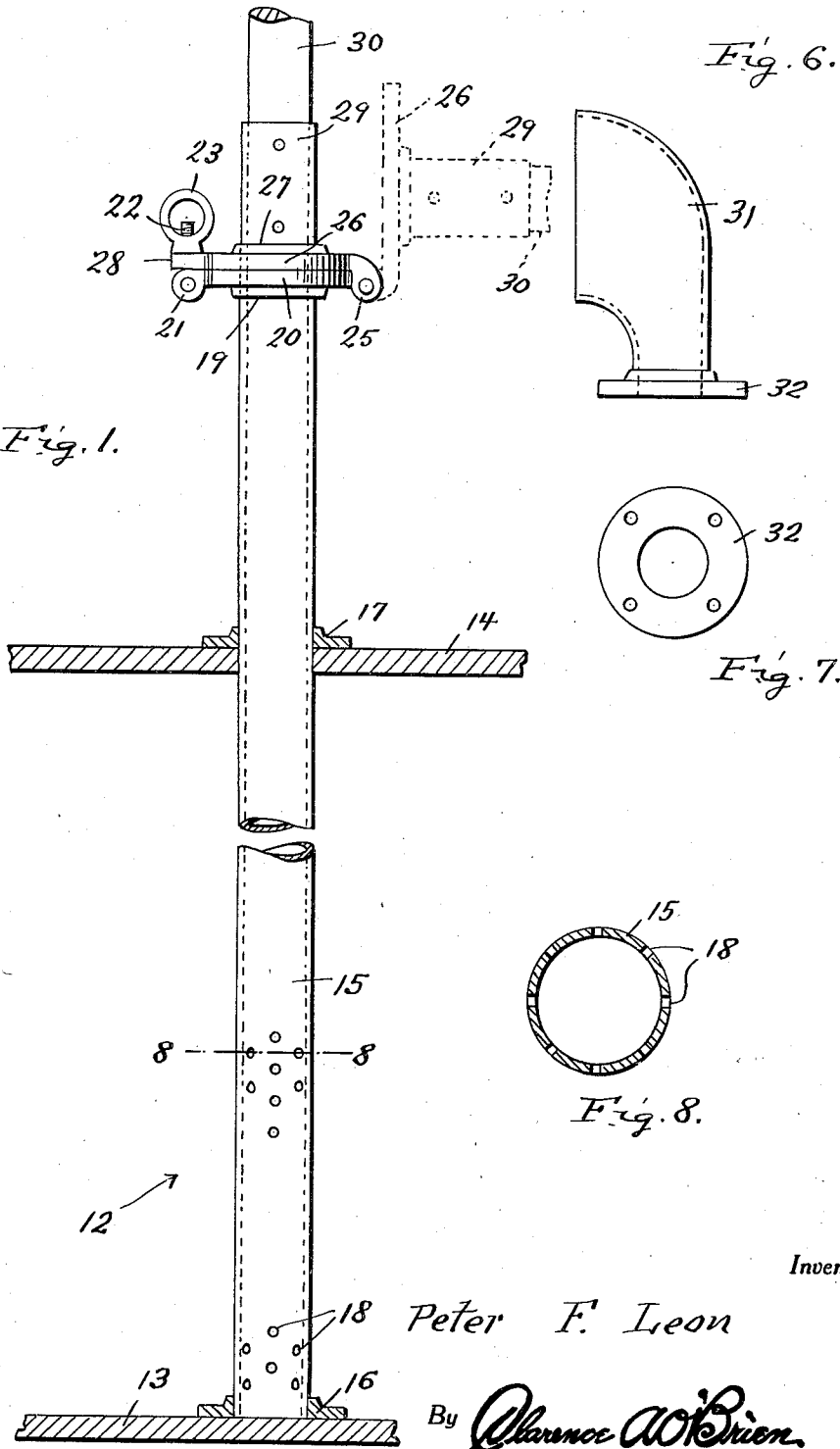
P. F. LEON

2,065,715

CONVERTIBLE MAST CONSTRUCTION

Filed Dec. 9, 1935

4 Sheets-Sheet 1



Inventor

Peter F. Leon

By

Clarence A. O'Brien

Attorney

Dec. 29, 1936.

P. F. LEON

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Fig. 2.

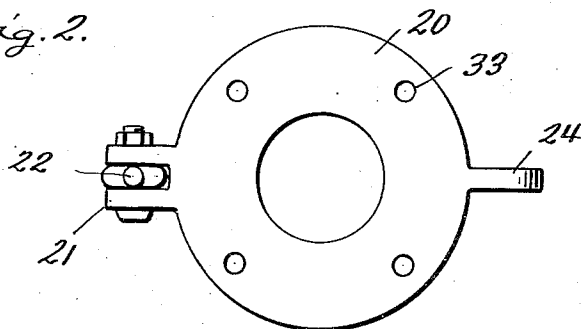


Fig. 3.

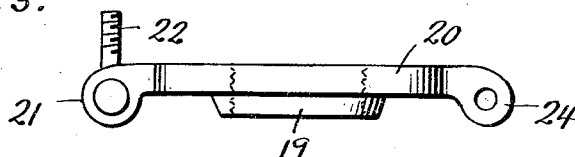


Fig. 4.

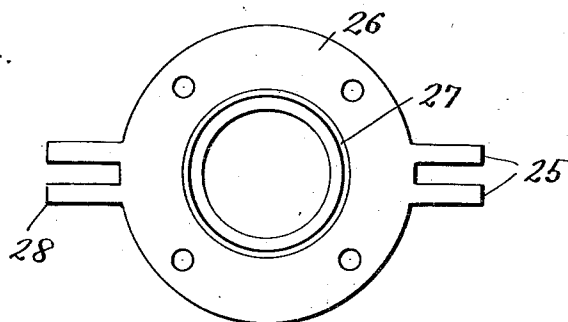
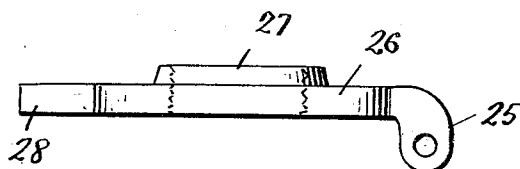


Fig. 5.



Inventor

Peter F. Leon

By *Charles A. O'Brien*
Attorney

Dec. 29, 1936.

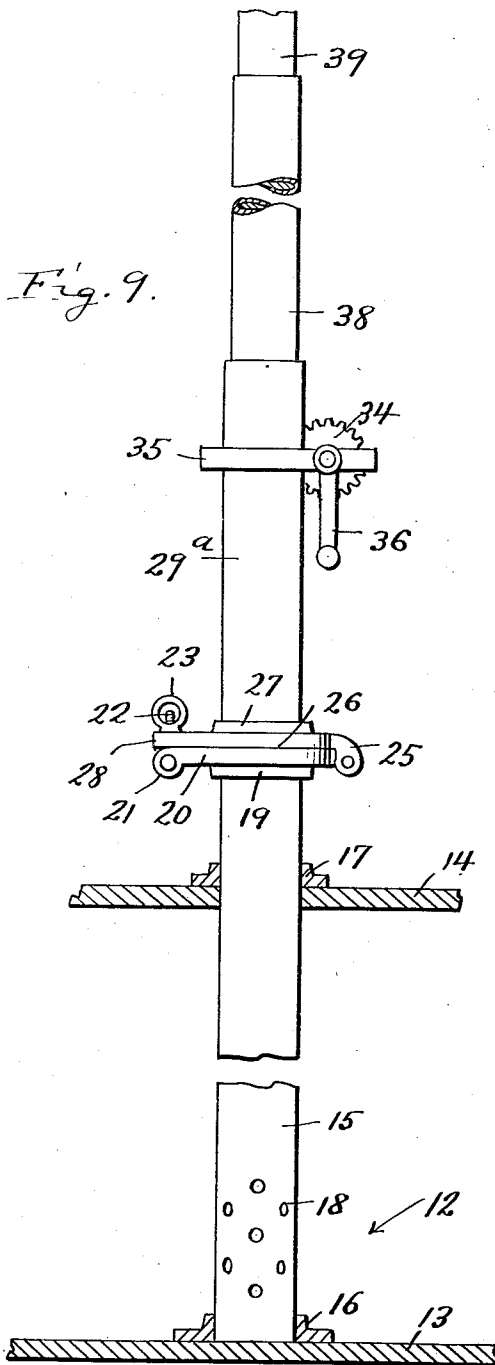
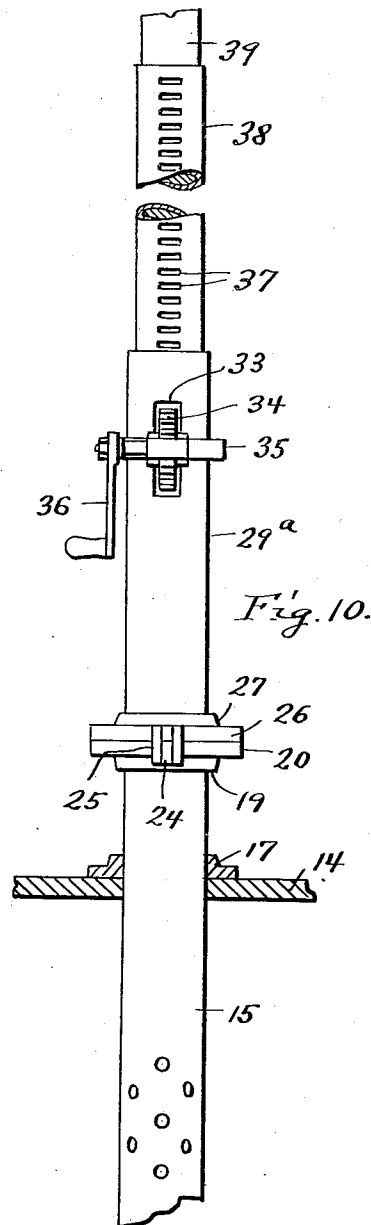
P. F. LEON

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CONVERTIBLE MAST CONSTRUCTION

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4 Sheets-Sheet 3



Inventor

Peter F. Leon

By *Clarence A. O'Brien*
Attorney

Dec. 29, 1936.

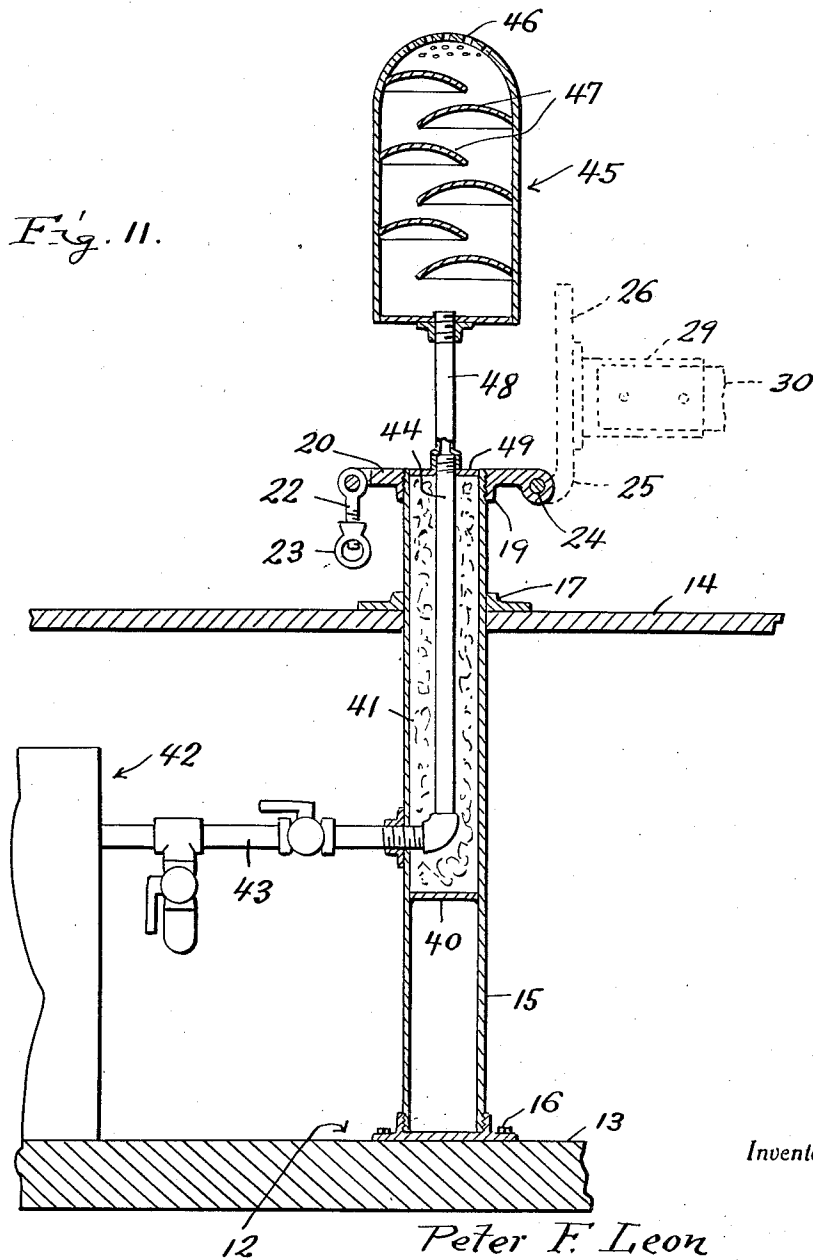
P. F. LEON

2,065,715

CONVERTIBLE MAST CONSTRUCTION

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4 Sheets-Sheet 4



Inventor

Peter F. Leon

By Clarence A. O'Brien
Attorney

UNITED STATES PATENT OFFICE

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CONVERTIBLE MAST CONSTRUCTION

Peter F. Leon, Oranjestad, Aruba,
Dutch West Indies

Application December 9, 1935, Serial No. 53,525

3 Claims. (Cl. 114—90)

This invention relates to an unique mast structure or assemblage which, due to its convertible and versatile characteristics it is referred to in generic language as a convertible mast construction.

By way of introduction, and inasmuch as the inventive conception involves diversified ideas, I would say that we will hereinafter be concerned with structural means involving individual but nevertheless properly coordinated embodiments. One embodiment of the invention has to do with a more or less simple mast structure wherein the upper portion is hingedly mounted to permit it to be folded down to an out of the way restful position. A similar embodiment of the invention has reference to the sectional or foldable mast structure having incorporated therein a telescoping mast pole with appropriate means for raising and lowering it.

Closely allied with the foregoing adaptations however, is the more or less basic idea which is common to the complete assemblage and which involves the use of a mast construction whose lower section is a rigidly mounted tube, this being adaptable for use under certain conditions for aerating and ventilating the bilge of the craft, serving also as a receptacle for the telescopically mounted pole when completely lowered and further as a special adapter for muffler equipped exhaust means, as well as in other ways to be hereinafter described.

In keeping with my idea to provide a structure susceptible of meeting the requirements of engineering statistics as well as naval architect's specifications, I have found it expedient and practicable to accomplish what I have done through the use of more or less simple and economical easily procurable parts attainable in the open market, such as for example standardized pipes, couplings and similar accessories, whereby to accomplish my primary aim to generally improve upon similar prior art devices by the adoption of a comparatively simple and economical arrangement.

It goes without saying that one of the primary objects of the invention is to provide a foldable mast susceptible of adequate use on small boats such as are used to navigate a channel under bridges, such an arrangement being advantageous when "motor-sailers" must proceed under power only with folded sails, under which conditions the sails are collapsed to lower the center of gravity to overcome excessive rocking of the craft.

Other features and advantages will become

more readily apparent from the following description and the accompanying drawings.

In the drawings wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a view partly in section and partly in elevation showing the essential sections or portions of the simple foldable mast structure with the stationary lower part connected with the keel and deck respectively.

Figure 2 is a top plan view of one of the coupling collars, that is the one fixedly attached to the lower stationary tubular section of the structure.

Figure 3 is an edge view of the construction shown in Figure 2.

Figure 4 is a plan view of the upper relatively movable or hingedly mounted coupling collar connectable with the lower portion of the swingable section of the mast.

Figure 5 is an edge view thereof.

Figure 6 is a detail view of an air intake funnel used in connection with my improved ventilating arrangement.

Figure 7 is a bottom plan view of the attaching collar or ring therefor.

Figure 8 is a cross section on the line 8—8 of Figure 1.

Figure 9 is a view showing a modification or different embodiment of the invention wherein the rack and pinion operated telescoping form of the invention is shown.

Figure 10 is a view of Figure 9 observing it in a direction from right to left, the view being turned around at right angles.

Figure 11 is a view in section and elevation showing a convertible phase of the invention wherein the lower tube section of the mast is usable, if and when necessary, as a special adapter for a muffler equipped exhaust set-up.

By way of introduction to the detailed description I deem it advisable to point out that the invention is applicable to boats either of the single or double-masted type. By using this duplex mast arrangement it is possible to employ the foldable and telescopic idea at the rear or aft portion of the craft and to use the conversion engine exhaust idea in the fore or bow portion of the boat. The significance of this preliminary discussion will become more evident as the description proceeds.

In keeping with my desire to convey by the description the factors or features of the several embodiments which are common but generic in nature, I will in placing the reference characters

on the figures use the same numerals throughout whether the mast be at the fore or aft portion of the boat. Proceeding with this in mind I call attention first to Figure 1 wherein the motor compartment or bilge is denoted by the numeral 12. The keel or bottom of the bottom is indicated at 13 and the deck, which is of suitable form is indicated at 14. In all forms of the invention the relatively fixed tubular lower section of the mast construction is denoted by the numeral 15 and this comprises a tube of suitable proportion and height, the same being fixed as indicated at 16 at its bottom and extending through and beyond the deck and stabilized through the instrumentality of a collar or ring 17 on the deck. In some instances that portion of the tube within the compartment 12 is formed with a multiplicity of ventilating holes 18 which function in a manner hereinafter made clear. On the upper end of the tube is a suitable detachable collar 19 having an appropriate flange 20, the flange being formed on one side with ears 21 between which a clamping bolt 22 is hingedly mounted. The clamping bolt is provided with a nut, that is a ring nut or thumb nut as indicated at 23. Diametrically opposite to these features is the hinge lug 24, this being straddled by companion hinging lugs 25 on the flange 26 of the relatively movable or swingable collar unit or coupling 27. The collar 27 is provided with keeper ears 28 to accommodate the bolt and nut so as to clamp the two couplings or collars together in superimposed relationship as shown in the drawings when the mast is set up for use. In each instance the swingable collar 27 is provided with a socket 29. The socket 29a however in Figures 9 and 10 is slightly different as will be described.

In the simple mast construction shown in Figure 1 the pole or mast proper indicated at 30 is fastened in the socket and is susceptible of being either locked in a perpendicular sail supporting position or folded down to an out of the way position to collapse the sails and to lower the center of gravity. The principal idea in folding the mast down however is to permit the boat to pass under relatively low bridges. The description thus far covers the simple foldable mast arrangement depicted in Figure 1. As before stated this arrangement however is convertible. That is to say without changing the structure it is possible to use the tube 15 as ventilating means for the compartment 12. To accomplish this all that is necessary is to attach the air inlet funnel 31, by way of its apertured collar 32 to the apertures 33 of the fixed flange 20 on the collar 19. In other words referring to Figure 1 and swinging the foldable section of the mast down it is possible to attach the funnel to the flange 20 so that when the boat is operating under motor power the incoming air will pass into the compartment 12 by way of the ports 18 for effective ventilating purposes. The advantage of having ventilating means on sail boats is evident beyond doubt, and to utilize a part of a mast structure to accomplish this is an innovation, it is believed.

Referring now to the telescoping mast construction emphasized in Figures 9 and 10 it will be observed that the socket 29a is slightly longer than the one indicated at 29 and is provided at its upper end with a slot 33 to accommodate a pinion 34 mounted on a shaft carried by a bracket 35 secured to the socket, said shaft being operated by a hand crank 36. The pinion is mani-

festly cooperable with rack teeth or slots 37 in the ferrule or sleeve 38 on the wooden pole 39. With this arrangement it is possible to telescope the pole completely down to the bottom of the boat to cause it to bridge the hinged joint between the socket and part 15. This will employ the pole as a reinforcing core or filler for these otherwise seemingly fragile tubular parts. Moreover in many instances there will be sufficient height in the combined features 15 and 29a to allow the pole to be dropped down sufficiently for bridge clearance purposes. It is evident however, that the pole can be lowered into the socket 29a to the point of the hinge connection between the parts 29a and 15 and then swung down on the deck to a folded position by simply releasing the clamping means.

Coming now to Figure 11 I have found it expedient and practical to also give the part 15 additional utility. In other words by putting a plug 40 in the lower portion thereof and loading it or charging the portion above it with an asbestos filler 41 it then becomes a special adapter to accommodate the engine exhaust means. The engine is indicated at 42 and the valved exhaust branch 43 passes through an opening drilled or otherwise formed in the part 15 where it connects with a perpendicular discharge pipe 44 extending up through and beyond the filler. If desired the arrangement may include a muffler 45 having exhaust orifices 46 and internal baffles 47. The muffler is secured in place by an attaching pipe 48 connectible to the upper threaded end of the outlet pipe 44 and provided with a closing base or disk 49 fitting into the upper end of the stationary mast tube 15. The idea here is that in most instances the boat will be provided with fore and aft mast constructions. Sometimes it will be necessary to use only the rear mast and rather than keep the forward one idle it is possible to simply charge it with asbestos and use it as a special adapter and mounting for the muffler equipped exhaust means. This added utility for the part 15 without interfering with the upper hinged structure is believed to be within the range of the single inventive conception.

Not only does the stationary part 15 serve as an exhaust pipe adapter as a ventilating tube and mounting for the foldable section of the mast, but it can be employed under emergency conditions as a cylinder for removing water from the compartments. In other words by utilizing a makeshift plunger (not shown) and reciprocating it in the apertured tube 15 as shown in Figure 1 an emergency or makeshift pump can be provided.

By way of brief summation I would call attention first to the simple foldable mast structure illustrated in Figure 1 which has practical utility within itself in the manner and for the purposes heretofore described. Secondly I call attention to the adaptability of the apertured tube 15 to accommodate the funnel 31 to serve as a ventilator for the motor compartment 12, this being capable of accomplishment by simply swinging the relatively hinged section of a structure to the dotted line position. Third the same basic principle illustrated in Figures 9 and 10 permit the adoption and use of a telescoping mast arrangement. With this arrangement the ventilator or any of the other special adaptations could be employed. This is also evident from the advantageous set-up shown in Figure 11 wherein by simply swinging the upper part down on the

deck and adding the filler and other details it is possible to employ the part 15 as a special mounting and adapter for the muffler construction. Incidentally in this arrangement the valved branch 5 43 permits the exhaust to be carried on up through the muffler or be exhausted out in the water whichever is required by city regulations. Finally, as before indicated the tube 15 is used as a temporary part for emergency conditions, that is as the cylinder of the pump.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description 15 is regarded as unnecessary.

Minor changes in shape, size, and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired. 20

Having thus described my invention, what I claim as new is:

1. A foldable mast for a boat comprising a lower stationary tubular section, an upper relatively 25 movable section hingedly connected to the upper end of said tubular section, fastening means for holding the two sections together in vertical alignment, said upper section including a socket having a crank operated pinion, a pole having a rack equipped sleeve fitted telescopically in said socket 30 and cooperable with said pinion, said pole being adapted to pass down through the socket and into said tubular section to reinforce the parts collectively and to at the same time lower the pole to a predetermined position. 35

2. In a foldable mast for a boat, a lower rela-

tively fixed tubular section provided with venting openings, an upper companion relatively movable section hingedly connected to the upper end of said stationary tubular section, fastening means for holding the two sections together in vertical alignment, said upper section including a socket, a pole receiving section fitting in said socket and said lower tubular section bridging the hinged joint between the sections, and manually controlled mechanical means for raising and 10 lowering said pole receiving section, said means being carried by said upper section.

3. A combination mast and ventilating structure for a boat having a bottom, a deck and an intervening motor compartment; a relatively 15 fixed tube secured at its lower end to said bottom and extending up through said compartment and through the deck and beyond the deck, said tube having ventilation apertures therethrough below said deck, a collar secured to the upper end 20 of said tube, a mast accommodating socket disposed in normal vertical alignment with said tube, a second collar secured to said socket, said collars being provided with complemental outstanding abutment and stabilizing flanges hingedly 25 connected together on one side and separately connected together on a diametrically opposite side to allow the socket and its collar to be swung at substantial right angles to said tube to expose the flange on said first-named collar and 30 leave a ventilation duct to the motor compartment, said first-named collar being provided with means whereby a ventilation cowl may be secured thereto when said second-named collar is swung 35 as recited.

PETER F. LEON.