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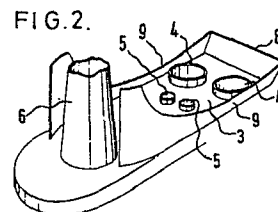
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54 **A funnel structure for a ship.**

57 The present invention provides a funnel section for a ship which mitigates the problem of gases from the exhaust pipe(s) (4) being driven onto the aft superstructure and deck of the ship. The funnel structure (2) provides a particularly enhanced advantage over known structures when the structure (2) is used in conjunction with a mast (6) and/or when the exhaust pipe(s) (4) is "fat".

The present funnel structure (2) comprises a floor (3) through which there projects at least one exhaust pipe (4) terminating above the floor (3) characterised by the floor (3) terminating at its aft end in an upwardly directed inclined wall (8), and two generally vertical walls (9) extending forwardly from the inclined wall (8) and terminating at their forward ends so that an aperture is formed between the forward ends of the generally vertical walls (9). When used in conjunction with a mast (6), the generally vertical walls (9) terminate on either side of the mast (6) with an aperture remaining between each of the terminations and the mast (6).



"A FUNNEL STRUCTURE FOR A SHIP"

This invention relates to a funnel structure for a ship.

The function of a funnel structure for a ship is of course, to discharge combustion gases and it may also serve to discharge other gases. It is important that the structure should direct  
5 the gases as far as possible away from the aft superstructure and deck.

It is difficult to design a funnel structure which will direct the gases away from the aft superstructure and deck when the funnel structure is in proximity to a mast. It is particularly  
10 difficult to direct the gases away from the aft superstructure and deck if gases leave through a funnel which is "fat" that is to say it has a transverse dimension which is a significant proportion of its fore and aft dimension as this can result  
15 in a downstream eddy formation causing the gases to flow down over the aft superstructure and deck.

It is an object of this invention to provide an improved funnel structure for a ship.

According to this invention, there is provided a funnel structure for a ship comprising a floor through which there projects  
20 at least one exhaust pipe terminating above the floor, the floor terminating at its aft end in an upwardly directed inclined wall, and two generally vertical walls extending forwardly from the inclined wall and terminating at their forward ends so that an aperture is formed between the forward ends of  
25 the generally vertical walls.

A funnel structure in accordance with this invention is usable without a mast but is particularly advantageous in conjunction

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with a mast in which case the forward ends of the generally vertical walls terminate on either side of a mast with an aperture on either side of the mast between the mast and the forward end of one of the generally vertical walls. It is  
5 also possible to utilize a funnel structure in accordance with this invention in conjunction with a plurality of masts, for example, twin masts with each mast mounted at the forward end of one of the generally vertical walls with an aperture between the two masts.

10 The floor of the funnel structure will usually be the superstructure of the ship and this floor may be planar or curved.

A funnel structure for a ship in accordance with this invention will now be described, by way of example only, with reference to the accompanying drawings, of which:-

15 Figure 1 is a side elevation of a ship incorporating a funnel structure in accordance with this invention; and

Figure 2 is a perspective view of the funnel structure alone.

Referring to the drawing, a ship 1 has a funnel structure generally indicated by numeral 2 on top of the machine room  
20 of the ship. The funnel structure 2 has a floor 3 which is part of the ship superstructure and through which there projects two main combustion gas exhaust stubs 4, which are located side-by-side aft of two small side-by-side outlet stubs 5. The rear end of the floor 3 is level with or higher than its  
25 front end. A communication mast 6 is mounted on the floor 3 and carries a platform 7 for communication and radar equipment. The funnel structure 2 has an attached or detached rear lip 8 at the aft end of the floor 3, the lip 8 being inclined upwardly. Generally vertical side walls 9 extend forwardly  
30 from the side edges of the rear lip 8 and curve inwardly towards

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their front ends to terminate on opposite sides of the mast  
6 so that an entry aperture 10 for air is formed on either  
side of the mast 6 between the mast 6 and the respective wall  
9. The walls 9 are extended upwardly at their front ends  
5 to reach the platform 7. The form of the mast 6 itself is  
designed to minimise flow disturbance.

In operation, with typical relative winds and exhaust gas  
rates, it was found that, in practice, the exhaust gases were  
deflected away from the aft superstructure and deck. By typical  
10 relative winds are meant winds primarily from the head quadrants  
and at sea the side walls 9 channel the air to the aft lip  
8 where it is deflected upwards thereby helping to maintain  
the upward path of the exhaust gases to a region free of the  
superstructure and deck and rendering induced eddy currents  
15 which would bring the gases down onto the aft superstructure  
and deck unlikely.

The air exhausted through the small outlets 5 will probably  
be machinery space ventilation air which unlike the products  
of combustion is noxious gas-free and will also be expelled  
20 over the lip 8 aiding the upward path of the combustion gases.

The funnel structure 2 was found to be satisfactory with various  
wind rates, wind directions and exhaust gas rates. The funnel  
structure 2 is effective for various widths.

CLAIMS

1. A funnel structure (2) for a ship (1) comprising a floor (3) through which there projects at least one exhaust pipe (4) terminating above the floor (3), characterised by the floor (3) terminating at its aft end in an upwardly directed inclined wall (8), and two generally vertical walls (9) extending forwardly from the inclined wall (8) and terminating at their forward ends so that an aperture is formed between the forward ends of the generally vertical walls (9).
2. A funnel structure (2) as claimed in claim 1, wherein the forward ends of the generally vertical walls (9) terminate on either side of a mast (6) with an aperture on either side of the mast between the mast (6) and the respective generally vertical walls (9).
3. A funnel structure (2) as claimed in claim 1, wherein the forward ends of the generally vertical walls (9) terminate on either side of a plurality of masts, with an aperture on either side of the plurality of masts, between the plurality of masts and the respective generally vertical wall (9), and with an aperture between each of the masts.
4. A funnel structure (2) as claimed in claim 2 or 3, wherein the mast or masts support a platform (7) above the floor (3) and wherein the forward ends of the generally vertical walls (9) extend upto the platform (7).
5. A funnel structure (2) as claimed in any preceding claim, wherein the upwardly directed inclined wall (8) is detached from the funnel structure (2).
6. A funnel structure (2) as claimed in any preceding claim, wherein the floor (3) is curved.

7. A funnel structure (2) as claimed in any preceding claim, wherein the aft end of the floor (3) is higher than the front end.

FIG.2.

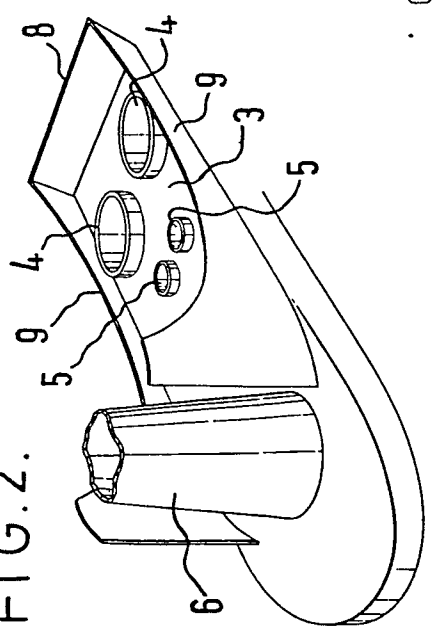
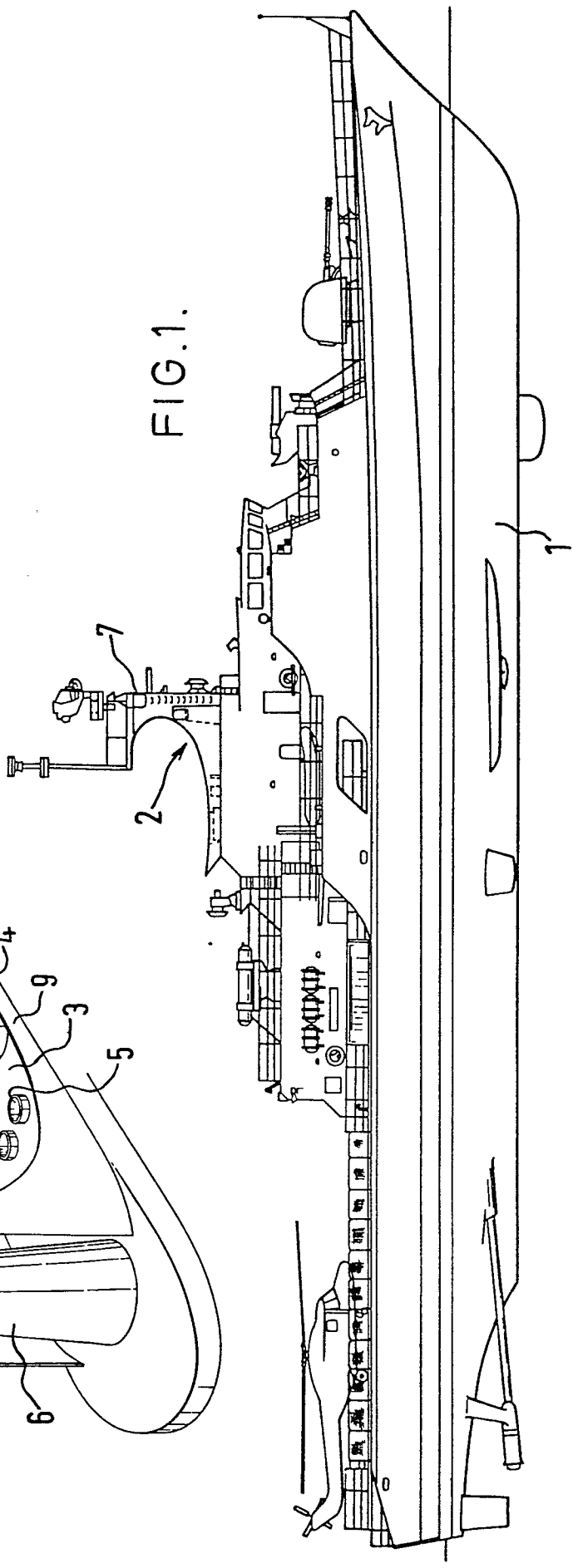


FIG.1.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. <sup>3</sup> )
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>GB - A - 685 875</u> (LASCROUX) * Figures 1-5; pages 2,3,9 *	1,5,7	B 63 H 21/34
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X	<u>FR - A - 1 010 269</u> (LASCROUX) * Whole document *	1,6,7	
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	<u>GB - A - 639 875</u> (SOC. DES FORGES ET CHANTIERS) * Figures 1,3; pages 1,2 *	1,2	TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )
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	<u>GB - A - 1 067 025</u> (MORTARING) * Figure 2 *	1,5,7	B 63 H B 63 B
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	<u>FR - A - 1 092 518</u> (SOC. DES FORGES ET CHANTIERS) * Figures 1,2 *	4	
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	SCHIFF UND HAFEN, vol. 12, no. 12, 1 December 1960, page 1071 "Strömungsvorgänge an Schiffsschornsteine" * Page 1071, figure 24 *	1	CATEGORY OF CITED DOCUMENTS
	----		X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
<input checked="" type="checkbox"/> The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	15-01-1981	LUKAS	