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Patented Apr. 3, 1900.

A. ANGSTROM.

VENTILATING AND LIGHTING ARRANGEMENT FOR STEAMERS OR STEAMSHIPS.

(Application filed Oct. 7, 1899.)

(No Model.)

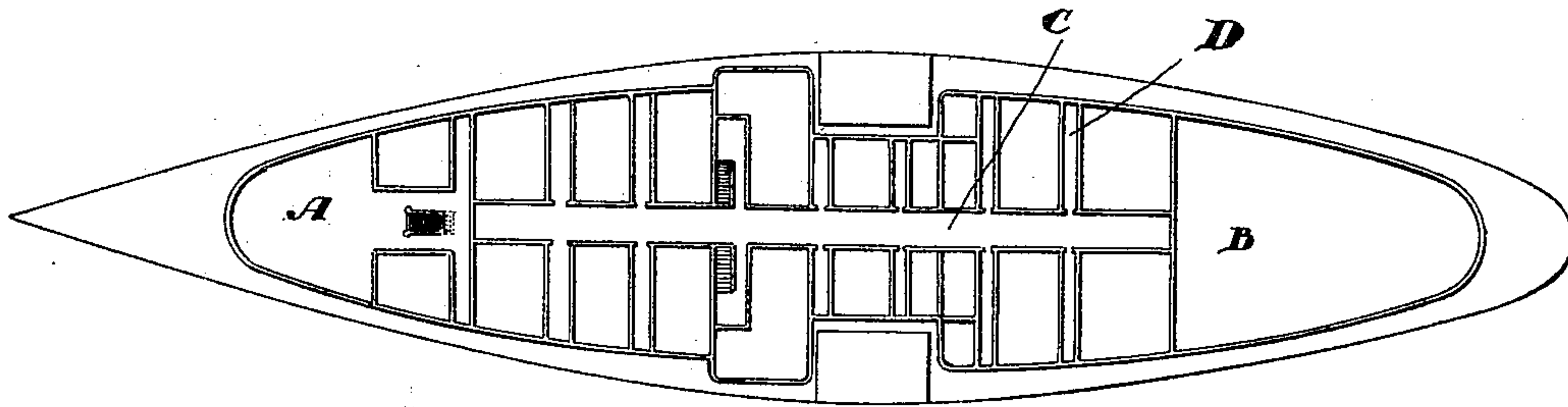


Fig. 1.

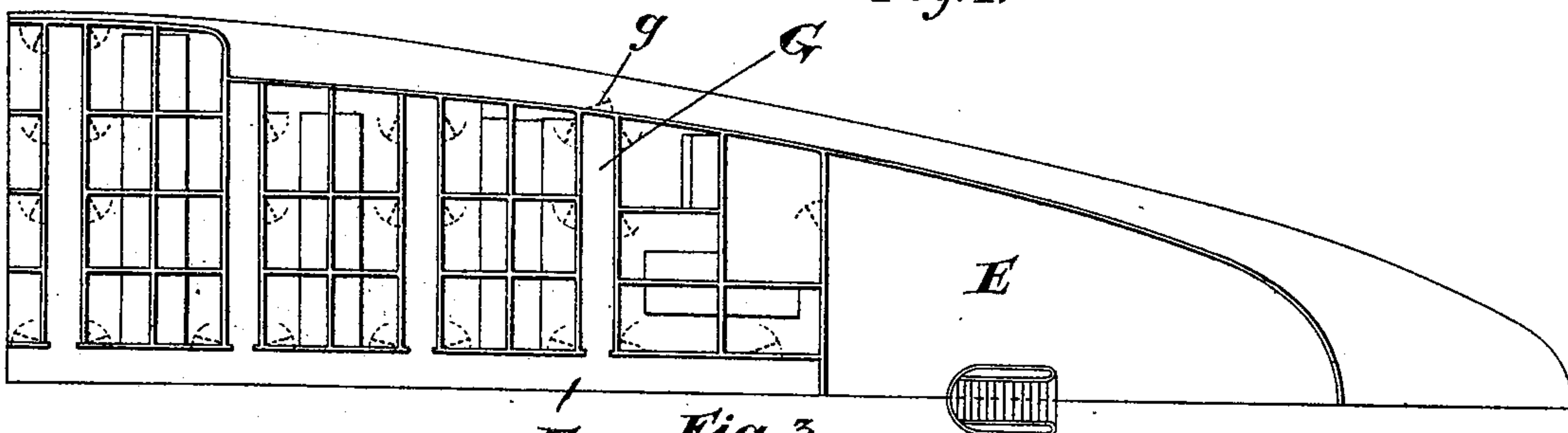


Fig. 3.

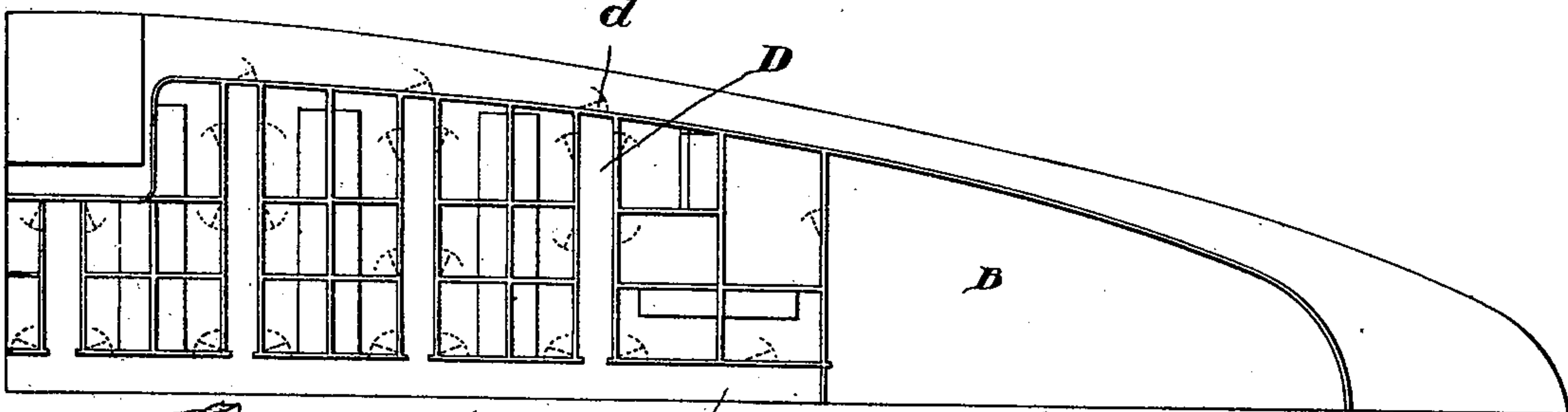


Fig. 2.

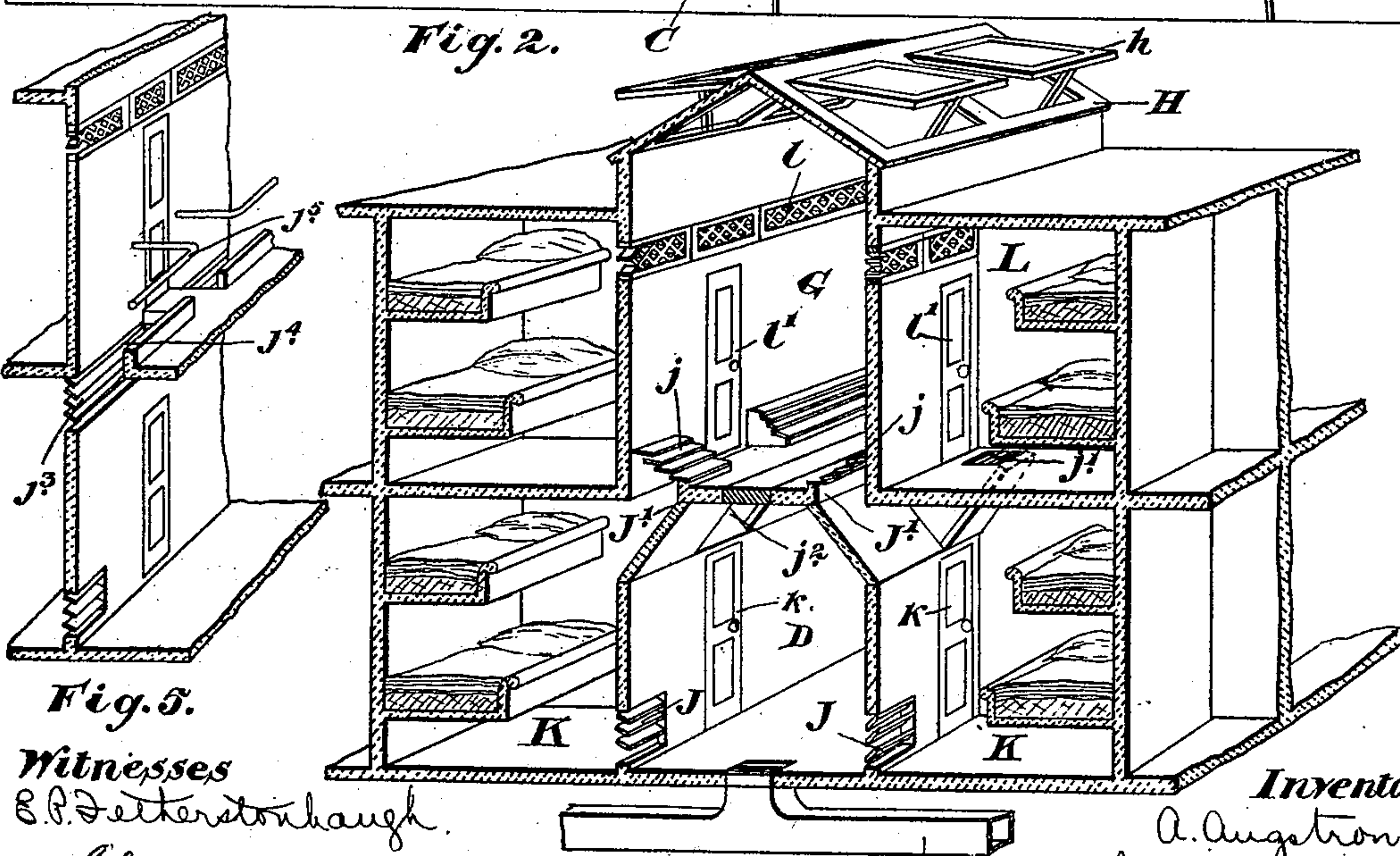


Fig. 4.

Fig. 5.

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# UNITED STATES PATENT OFFICE.

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VENTILATING AND LIGHTING ARRANGEMENT FOR STEAMERS OR STEAMSHIPS.

SPECIFICATION forming part of Letters Patent No. 646,591, dated April 3, 1900.

Application filed October 7, 1899. Serial No. 732,936. (No model.)

*To all whom it may concern:*

Be it known that I, ARENDT ANGSTROM, naval architect, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Ventilating and Lighting Arrangement for Steamers or Steamships, of which the following is a specification.

My invention relates to improvements in the construction of passenger steamers and steamships; and the object of the invention is to devise an arrangement in state-rooms with the passage-ways and saloons whereby a greater amount of state-room space may be provided, a more perfect system of ventilation and lighting for such state-rooms, and improved and more airy and better-lighted saloons; and it consists, essentially, of providing one or more state-room decks with the central passage-ways and lateral passage-ways extending outwardly therefrom to the outside of the upper works, such passage-ways, as well as the central passage-way, being provided with ventilating-openings and lighting-windows arranged as hereinafter more particularly explained.

Figure 1 is a sectional plan view of the lower state-room deck of a steamship arranged with my improvements. Fig. 2 is a quarter-section similar to Fig. 1. Fig. 3 is a quarter-section of the upper state-room deck. Fig. 4 is a sectional perspective view showing the arrangement of the passage-ways and the lighting and ventilating devices designed to be used with my particular construction of state-rooms and cabins. Fig. 5 is an alternative form of lighting and ventilating devices.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the bow cabin, and B the stern cabin on the lower state-room deck.

C is a central narrow passage-way connecting the cabins A and B, and D are lateral passage-ways extending out from the central passage-way C and provided with end doors or windows *d*.

E is the stern cabin of the upper state-room deck, and F the central passage-way connecting it with the front cabin, (not shown,) and G are lateral passage-ways pro-

vided with end doors or windows *g*. The passage-ways F are directly above the passage-ways C, and the passage-ways G above the passage-ways D.

H is a skylight having a central ridge and the hinged lights *h*, which are designed to be held up in any suitable manner.

In Fig. 4, in which the above-mentioned skylights are shown, I shall refer to the passage-ways G and D as the lateral passage-ways; but it will of course be understood that the central passage-ways C and F may be similarly arranged in the manner I now describe. I are cold-air ducts leading into the center of the passage-way D. J are registers made in the outside walls of the state-rooms K. J' are openings preferably inclined from the top of the state-rooms K and extending out into the passage-way G, where they are covered by suitably-arranged slats *jj*, of glass or a preferred form of prism. There are openings sufficient between the prisms to permit of the escape of air as well as to permit of the admission of light into the lower state-rooms K. *j'* are registers in the upper state-rooms L, through which the air is admitted from the ducts *j*<sup>2</sup> at the top of the sides of the passage-way D. The ducts *j*<sup>2</sup> are preferably situated above the doors *k* of the state-rooms K. *l* are ventilating-lights, preferably perforated, so as to allow of the egress of air. Such lights *l* extend along the top of the outer walls of each state-room, and they serve to throw the light down into the state-room from the skylights H, as well as to permit of the polluted air in the state-rooms passing out through them and the openings in the skylights. *l'* are the doors of the upper state-rooms.

It will be seen from the construction above described that the cold or warm air may be introduced through the duct I into the passage-way D, and thence not only pass through such passage-way, but pass through the register J up through the ducts *j'* and into the upper passage and through duct *j*<sup>2</sup> into the upper state-room L, whence it passes through the upper lights *l* and out through the skylights H, thereby providing perfect ventilation of the state-rooms. Not only is perfect ventilation provided, but the light from the skylight would pass through the ventilating-



lights  $l$  into the upper state-room and would also be deflected through the slats  $j$  into the lower state-room K.

Instead of providing the lights as indicated 5 for deflecting into the lower state-room I may provide lights  $j^3$  in the side and leave an opening  $j^4$  at the side of the upper passage-way, in which case I would provide a rail  $j^5$  at the top of the opening. (See Fig. 5.)

10 My ventilating and lighting apparatus and general arrangement of state-rooms hereinbefore described, it will be seen, are particularly advantageous in large palace steamers or steamships, and I find in practice that I 15 can procure about one-third more state-rooms and that the saloons will be lighter and more airy and better adapted for passenger traffic.

Although I describe the air as introduced at the bottom through the ducts I, it will of 20 course be understood that the air may be introduced through registers in the doors at the ends of the lateral passage-ways.

What I claim as my invention is—

1. In a steamer or steamship, the state-room 25 deck, passage-ways extending therethrough, at right angles one above the other, and to the outer wall of the upper works, an air-register located at the bottom of each state-room, an air-conducting and light-transmitting duct 30 at the top and a skylight for the top of the passage-way as and for the purpose specified.

2. In a steamer or steamship, the state-room decks located one above the other, passage-ways extending therethrough, at right angles one above the other, and to the outer wall of 35 the upper works, an air-register located at the bottom of each state-room and communicating with the passage-way, a duct leading from the top of the wall of the state-room above the register into the passage-way, a 40 suitable light-transmitting and ventilating cover therefor and a skylight for the top of the passage-way as and for the purpose specified.

3. In a steamer or steamship, the state-room 45 decks located one above the other, passage-ways extending therethrough, at right angles one above the other, and to the outer wall of the upper works, an air-register located at the 50 bottom of each state-room and communicating with the passage-way, a duct leading from the top of the wall of the state-room above the register into the passage-way, a suitable light-transmitting and ventilating cover therefor, 55 a skylight for the top of the passage-way and an air-duct leading into the lower passage-way as and for the purpose specified.

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