

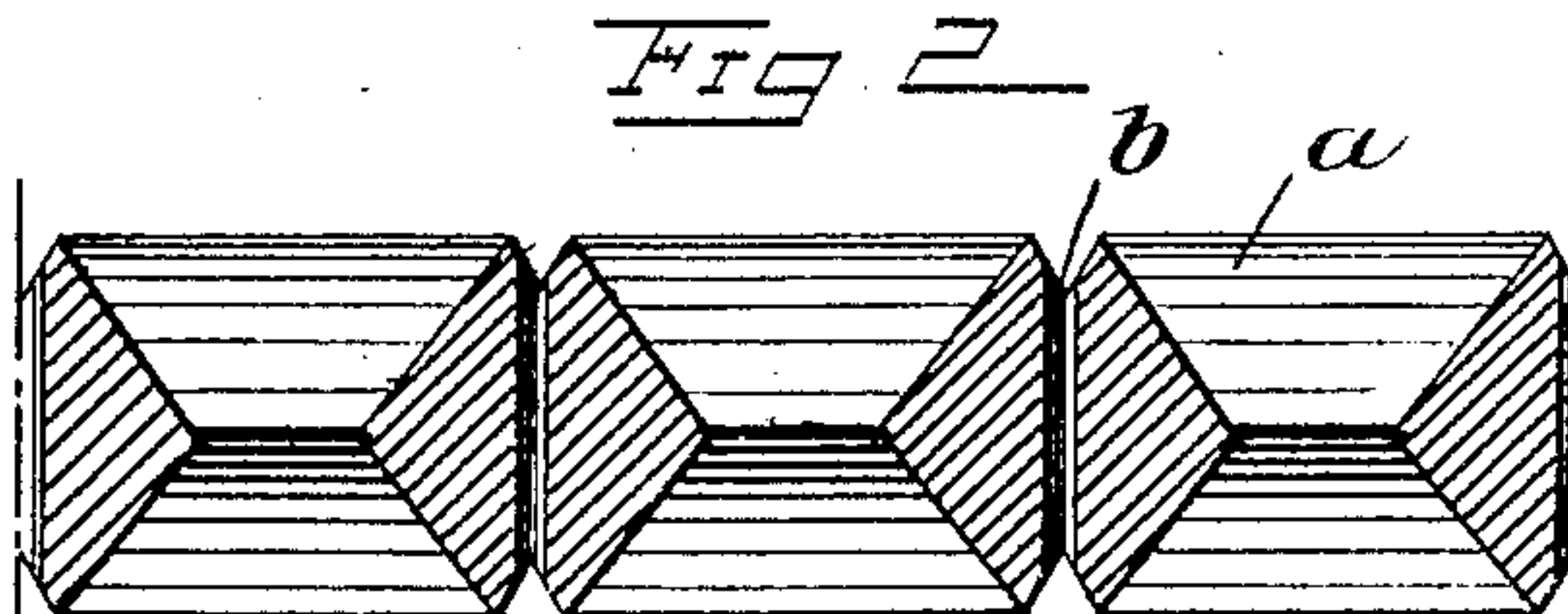
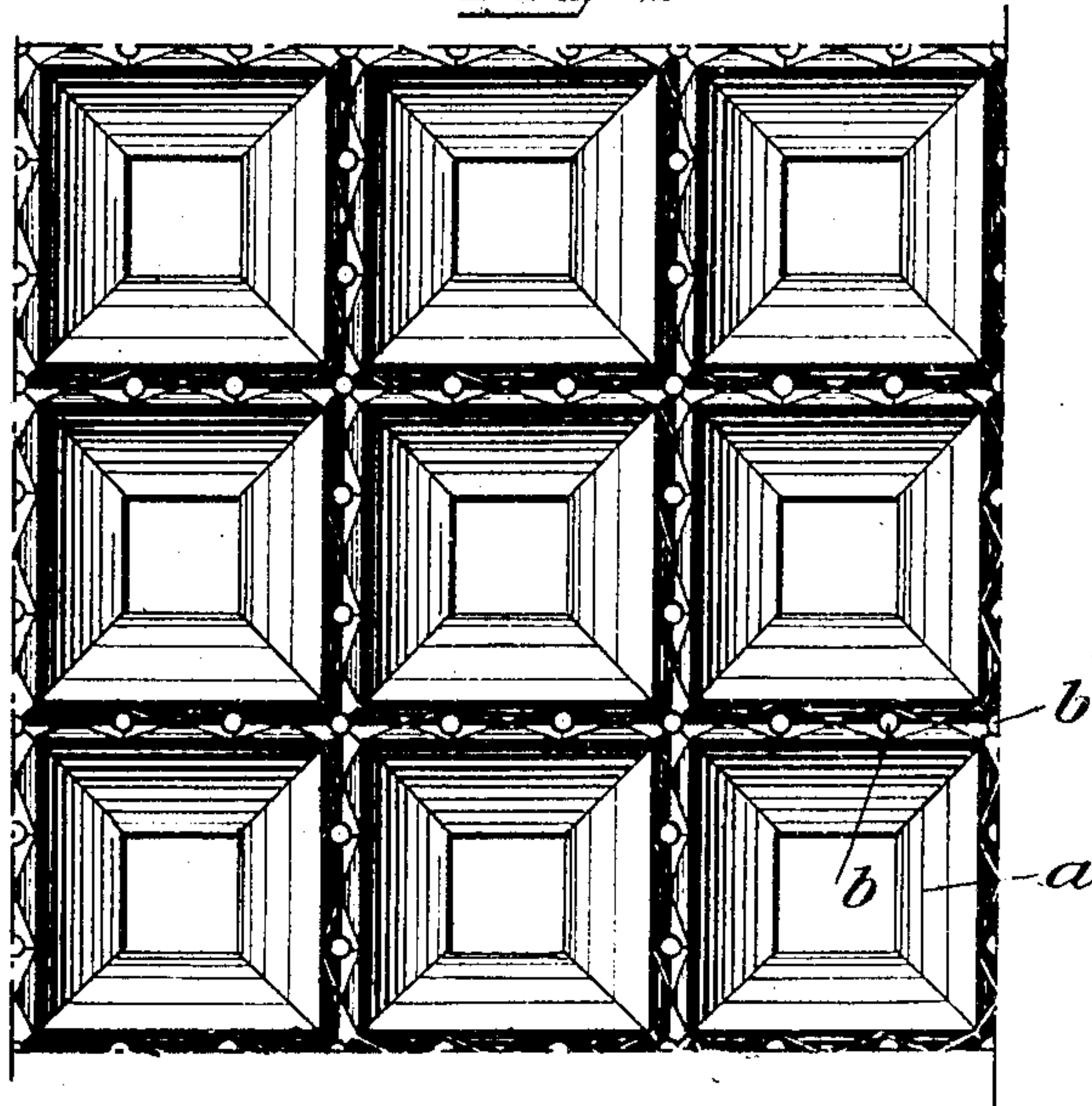
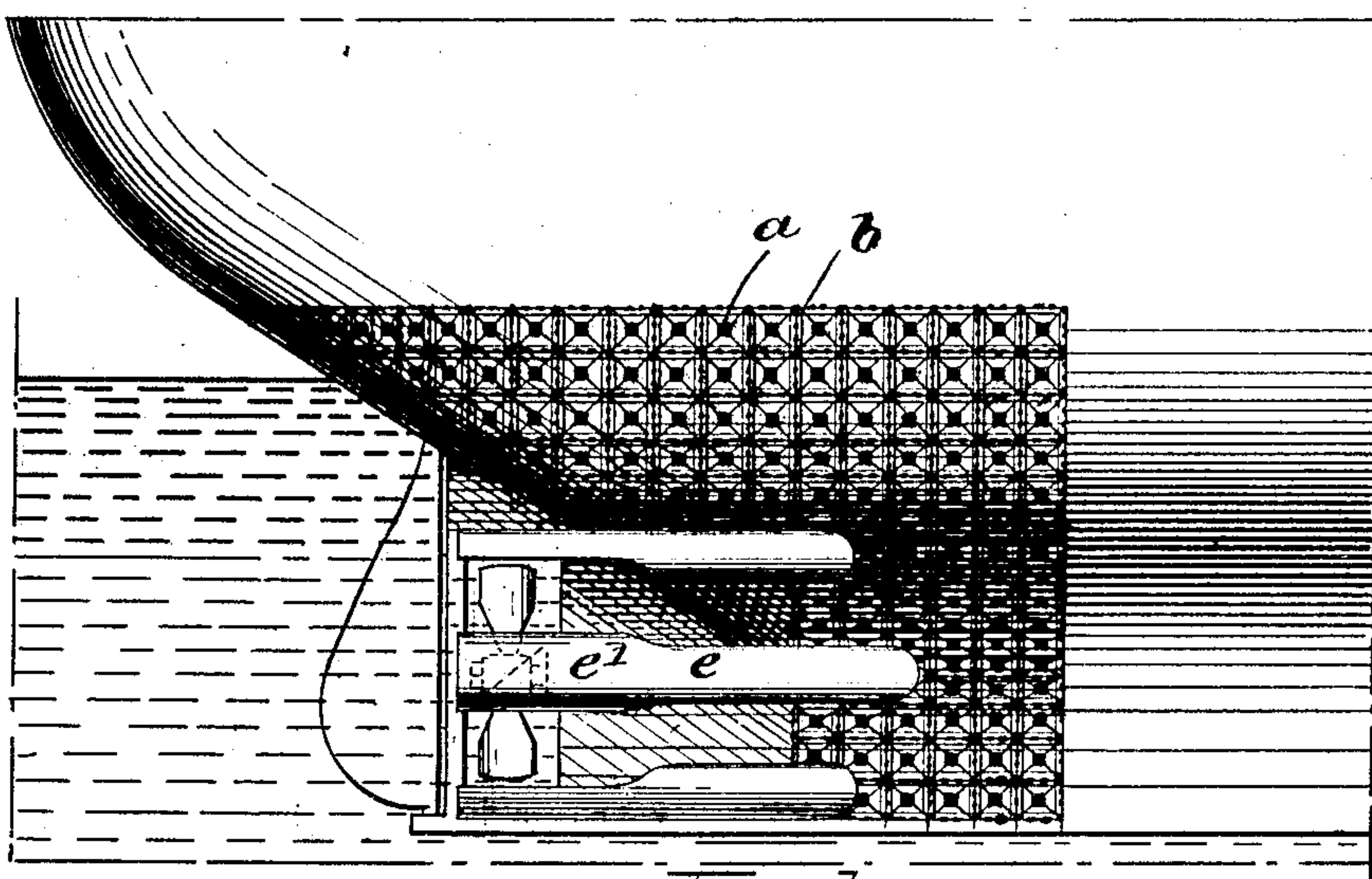
No. 888,274.

PATENTED MAY 19, 1908.

G. F. TRISHMAN.
MARINE VESSEL.

APPLICATION FILED APR. 14, 1904. RENEWED APR. 9, 1908.

4 SHEETS—SHEET 1.



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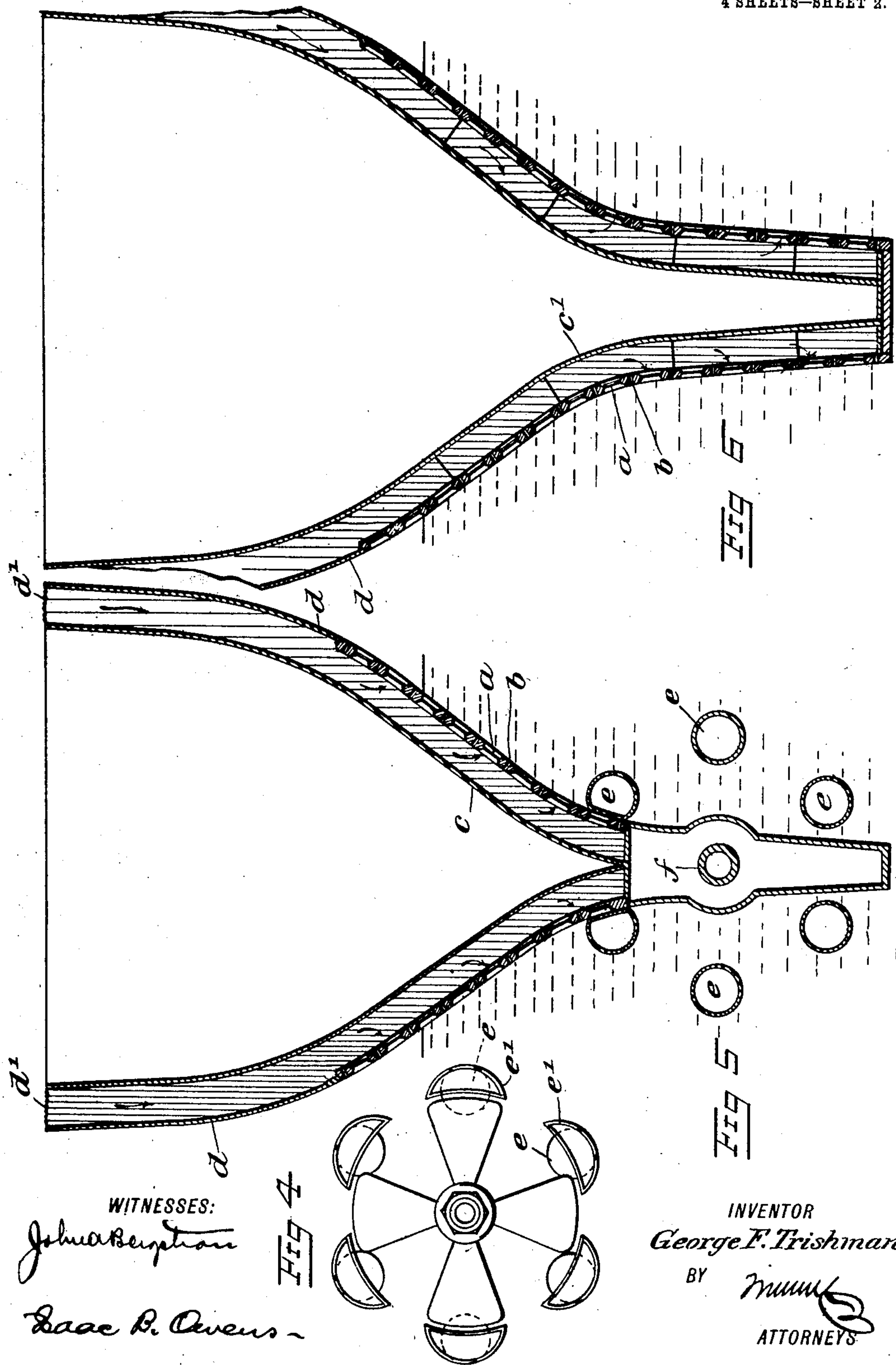
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4 SHEETS—SHEET 3.

Fig. 7

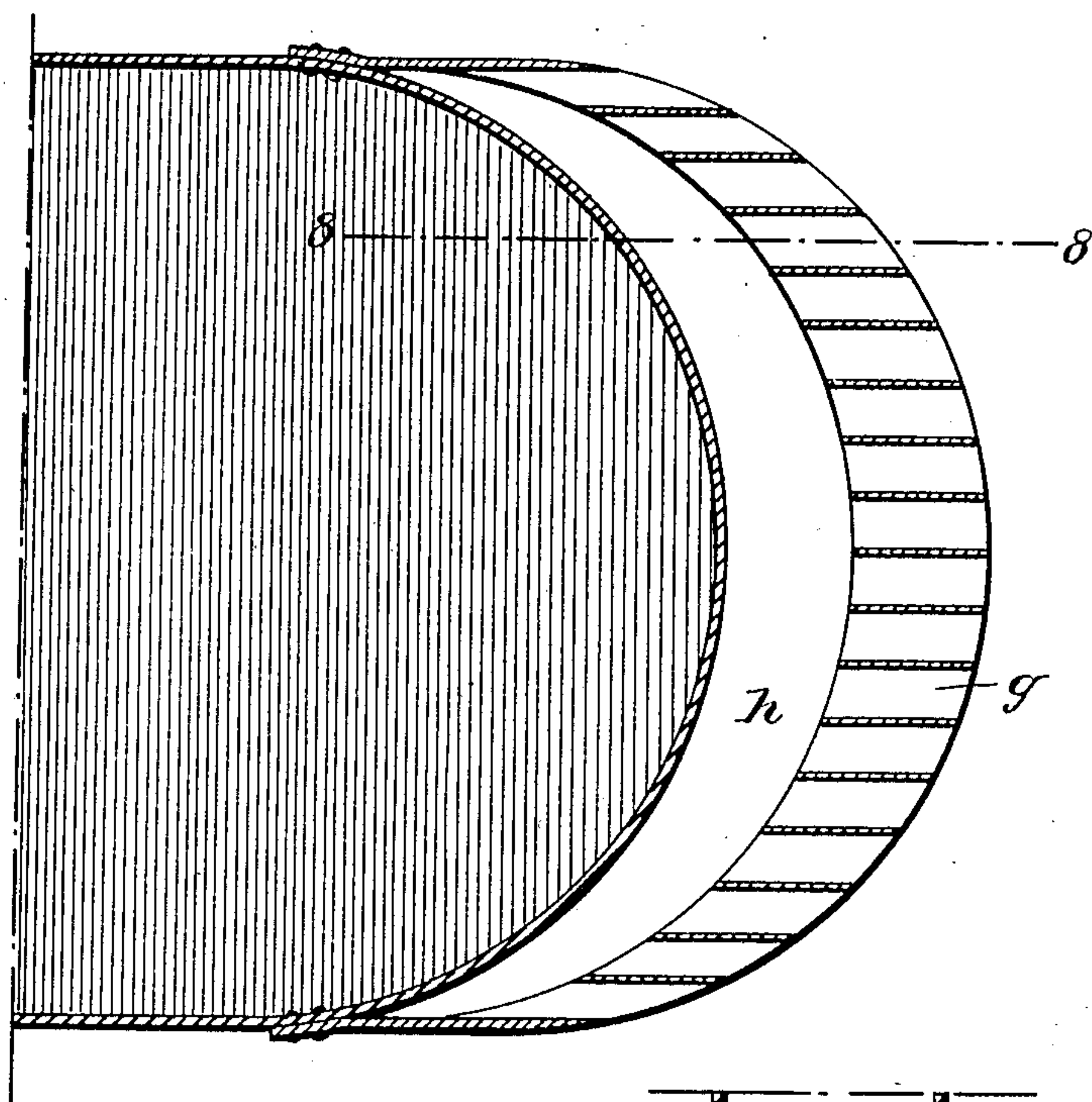
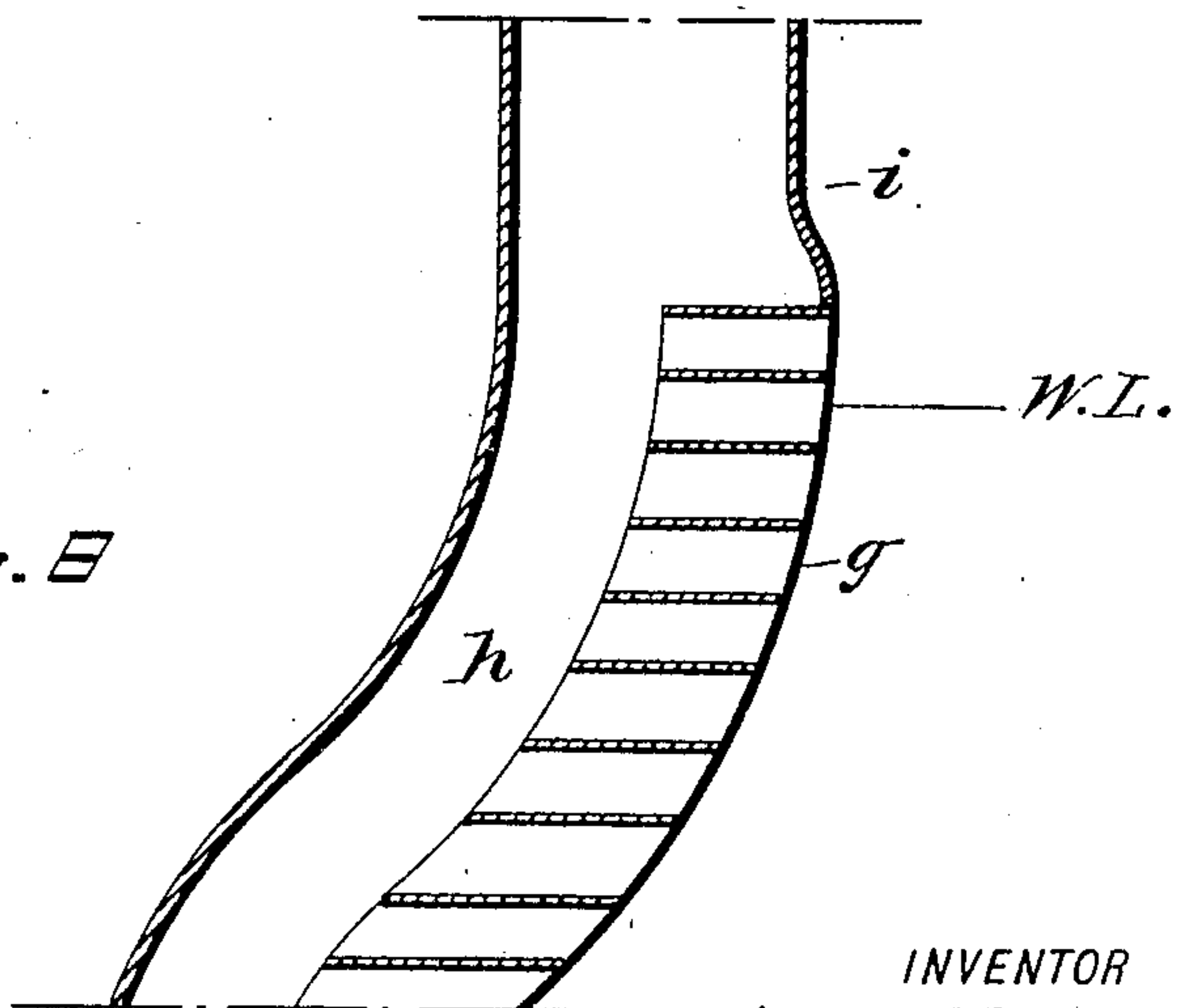


Fig. 8



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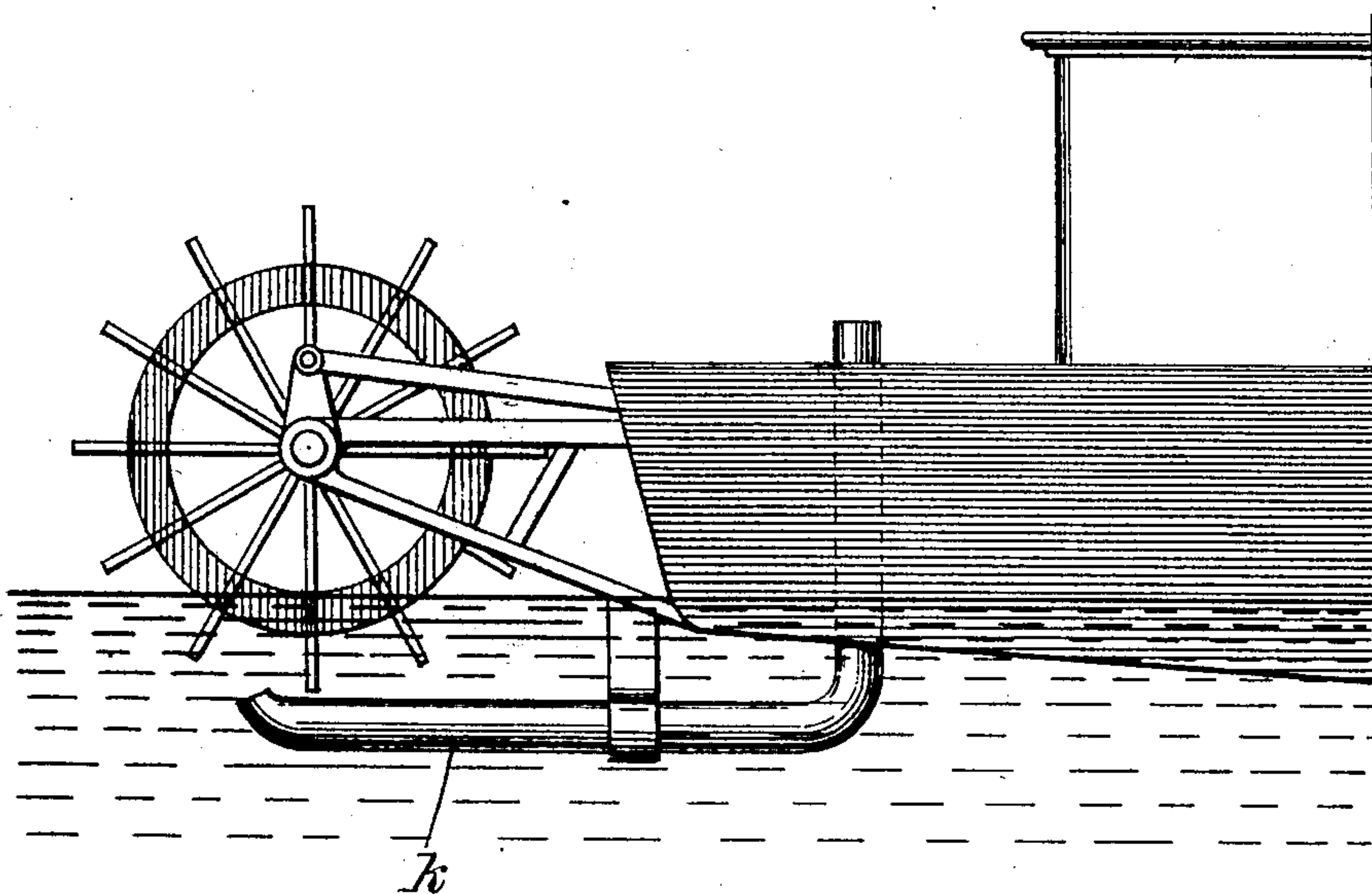
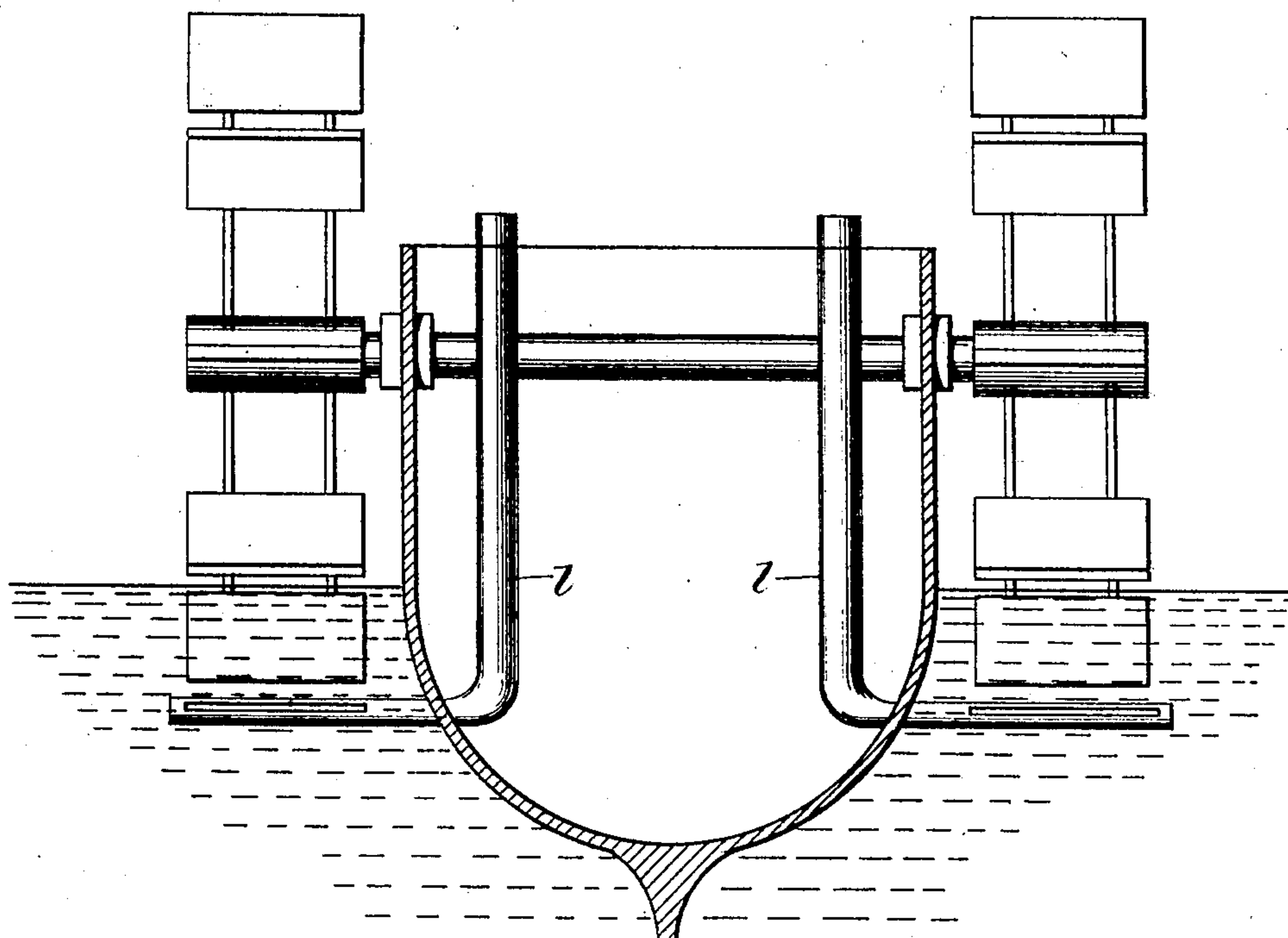


Fig. 9



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Fig. 10

UNITED STATES PATENT OFFICE.

GEORGE FREDERICK TRISHMAN, OF OAKLAND, CALIFORNIA.

MARINE VESSEL.

No. 888,274.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed April 14, 1904, Serial No. 203,128. Renewed April 9, 1908. Serial No. 426,083.

To all whom it may concern:

Be it known that I, GEORGE FREDERICK TRISHMAN, a citizen of the United States, and a resident of Oakland, in the county of Alameda and State of California, have invented a new and Improved Marine Vessel, of which the following is a full, clear, and exact description.

The object of this invention is to enable a marine vessel freely to clear herself when moving through the water.

It is well known that in marine vessels, and indeed, in all objects when moving through the water, there is a tendency to retard the forward movement of the vessel owing to the drag of water at the stern or in the wake of the vessel, and this condition is one of the chief resistances to the propulsion of a ship.

My invention seeks to overcome this retarding influence. I attain this end by providing walls establishing passages in the after body or run of the hull, these passages opening at the sternward facing portions of the surface of the hull of the ship, so that as the vessel moves through the water, air is drawn through the passages and passes out at the after portion of the vessel, thus overcoming the drag or suction at the stern which causes resistance to the forward movement of the ship through the water.

This specification is an exact description of several examples of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the after part or run of the hull of a vessel, showing my invention applied; Fig. 2 is an enlarged elevation of the foraminous wall which I preferably employ; Fig. 3 is a section of the same; Fig. 4 is a rear elevation of the propeller, showing the tubes for supplying air thereto; Fig. 5 is a vertical section of the stern portion of the vessel, showing the foraminous wall built therein; Fig. 6 is a similar section showing the wall as it will be when applied to a hull already constructed; Fig. 7 is a horizontal section showing a further form of my invention; Fig. 8 is a section on the line 8—8 of Fig. 7; Fig. 9 is a side view showing the application of the invention to the paddle wheel of a stern wheel vessel; and Fig. 10 is a cross sectional view of the inven-

tion, applied to the paddle wheels of a side wheel vessel.

One embodiment of my invention is shown in Figs. 1 to 5, and comprises a foraminous wall or sheathing for the after part of the hull. This sheathing has a number of major openings *a* preferably of rectangular form, with double beveled walls as shown, and surrounding these major openings *a* are a number of minor openings *b*, this arrangement being calculated to allow the passage of air outward through the openings and spread the same yieldingly along the entire submerged sternward facing portion of the vessel, so that the air will be spread over this portion. In Fig. 5 the foraminous sheathing is built into the vessel during the construction thereof, and in this case an auxiliary interior skin or sheathing *c* is constructed, so as to make that part of the vessel watertight. In Fig. 6 the foraminous sheathing is shown as it will lie when applied to a vessel already built, that is to say, outward from the sheathing or skin *c'* of the vessel.

As shown in Figs. 5 and 6, the foraminous sheathing and the skin of the vessel form an air chamber between them. The foraminous sheathing extends up slightly above the water line, and from this point an imperforate extension *d* passes to the deck of the vessel, continuing the air chamber to the deck line, at which point a screen *d'* is located to prevent foreign matter clogging the air chamber. As the vessel moves through the water, currents of air will be drawn down from the upper part of the vessel through the air chambers and out through the foraminous sheathing, as indicated by the arrows in Figs. 5 and 6. I also purpose applying this principle to the propeller, and if desired, to the after-edge of the rudder of the vessel.

Figs. 1 and 4 show an arrangement for use in connection with the propeller, which consists in air tubes *e* leading rearward from a suitable source of air, and having their ends *e'* lying around the propeller. Air is drawn through these tubes with the same result as explained with the foraminous sheathing. Also the propeller shaft *f* as shown in Fig. 5 may be tubular, so that air currents may be drawn through the shaft.

A further form of the invention is shown in Figs. 7 and 8, and comprises a wall below the water line made up of a number of separate horizontal, square tubes *g* arranged closely together as the drawings show and

separated from the bottom and sides of the vessel by an air chamber *h*. This tubular wall extends from the bottom of the vessel upward to a point approximately on the water line and above the tubes is a coaming *i* which extends up to the deck line. The air chamber is open at the top and the action of this form of the invention is controlled by the same principle as that before explained.

10 In applying my invention to the stern wheel of a steamer (see Fig. 9) I arrange, for example, tubes *k* passing from a point in the hull above the water line downward below the paddle wheel and opening at this point, 15 thereby establishing the before mentioned air passage, and relieving the submerged part of the paddle wheel of the suction ordinarily following the same. The same result may be had in side wheel steamers by tubes arranged, for example, like the tubes *l* in Fig. 20 10. These tubes *k* and *l* may be of any number desired.

Various other forms of the invention may be resorted to at will, without departing 25 from the principle of my invention, which lies in the arrangement of walls in the after part or run of the hull of the vessel, or in or at the after part of another submerged part of the ship by which to form an air passage 30 or passages leading from a point above the water line to a point below the same, and through which passages air may be drawn by the suction attending the forward movement of the ship, this air serving to enable 35 the vessel to clear itself from the drag of the water at the stern.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

40 1. A means for enabling a marine vessel to clear itself from the drag of the water at the stern when the vessel is under way, which consists in devices forming a foraminous wall covering the submerged sternward facing 45 portion of the after part of the hull, and spaced from the main sheathing of the vessel to form an air chamber, the upper portion of the air chamber communicating with the atmosphere above the water line, whereby 50 as the vessel moves through the water air is drawn down through said chamber and out through said foraminous wall.

2. A means for enabling a marine vessel to clear itself from the drag of the water at the 55 stern when the vessel is under way, which consists in devices forming a foraminous wall covering the submerged sternward facing after portion of the hull, and spaced from the main sheathing of the vessel, the said foraminous wall extending slightly above the 60 water line, an imperforate extension reaching from the upper end of the foraminous wall to the deck line of the vessel, the foraminous wall and the extension forming 65 with the sheathing of the vessel an air cham-

ber communicating at its upper portion with the atmosphere, whereby as the vessel moves through the water air is drawn down through said chamber and out through said foraminous wall, the said foraminous wall being 70 formed of a number of essentially horizontal tubes lying closely together and open throughout their length.

3. The combination with a propeller driven marine vessel, of a foraminous wall 75 covering the submerged sternward facing after portion of the vessel and spaced from the main sheathing thereof to form an air chamber, the upper part of which is open to the atmosphere above the water line, and 80 one or more tubes open at both ends and extending from a point adjacent to the propeller of the vessel upward into communication with the atmosphere above the water line, whereby when the vessel is under way 85 air is drawn down through the said chamber and through the tubes.

4. The combination with a propeller driven marine vessel, of a tube open at each end and extending from a point adjacent to 90 the propeller of the vessel upward to a point above the water line, whereby upon the operation of the propeller air is drawn down through the tube and out of the submerged end thereof. 95

5. The combination with a propeller driven marine vessel, of a foraminous wall covering the submerged sternward facing after portion of the hull and spaced from the main sheathing of the vessel, the said foraminous wall extending slightly above the 100 water line, an imperforate extension reaching from the upper end of the foraminous wall to the deck line of the vessel, the foraminous wall and the extension forming with 105 the sheathing of the vessel an air chamber extending to the deck line and communicating at its upper end with the atmosphere, the said foraminous wall consisting of a number of horizontal tubes lying closely together 110 and open throughout their length, and one or more tubes open at both ends and extending from a point adjacent to the propeller of the vessel upward into communication with the atmosphere above the water line. 115

6. A marine vessel having a propeller or propellers, and means establishing an air passage leading from a point above the water line to the vicinity of the propeller, the said means comprising a series of tubes projecting rearward from the hull and having their ends lying around the propeller. 120

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE FREDERICK TRISHMAN.

Witnesses:

W. T. HESS,

R. W. GILLOGLEY.