

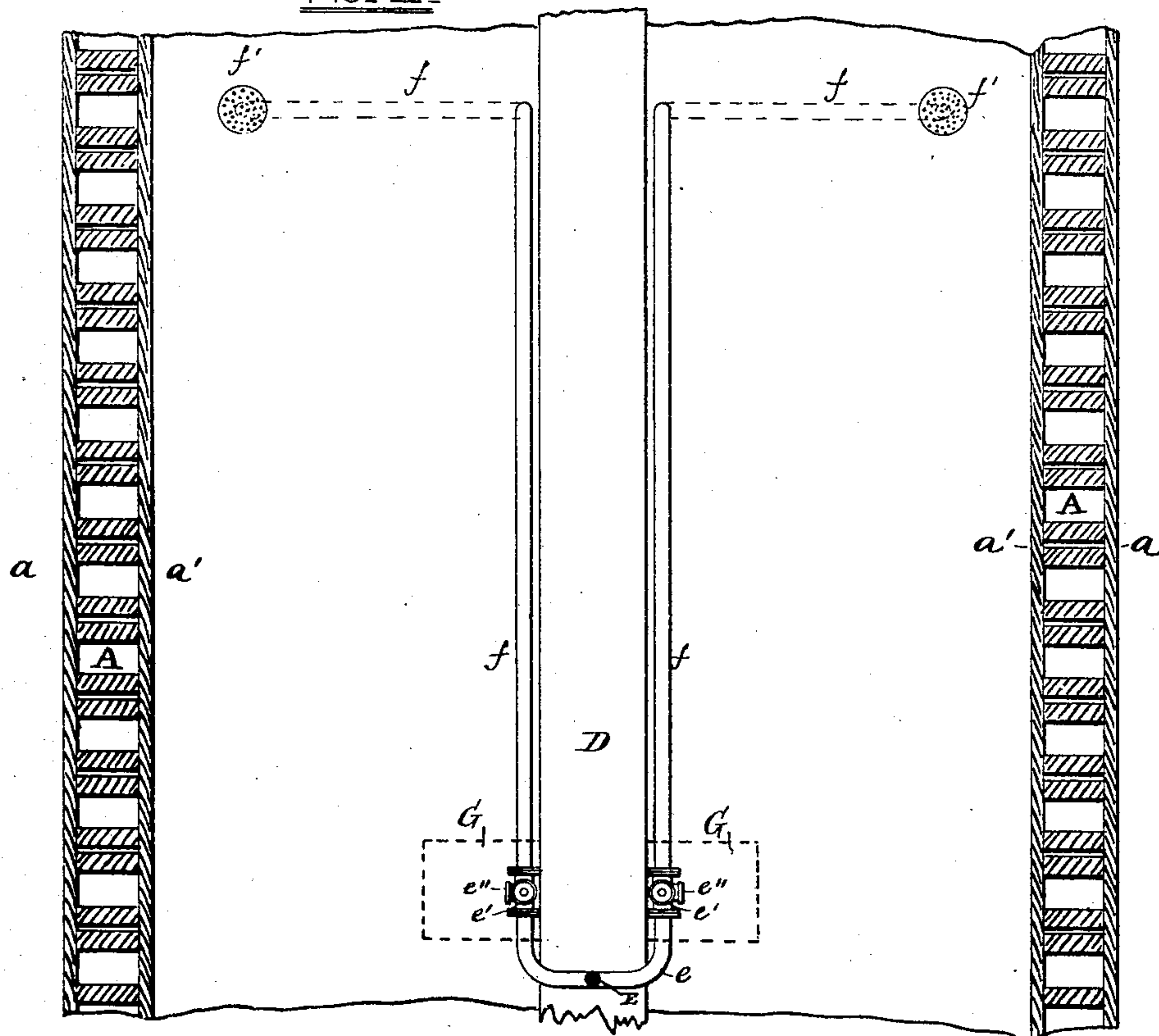
S. F. PAULLIN.

Ship-Pumps.

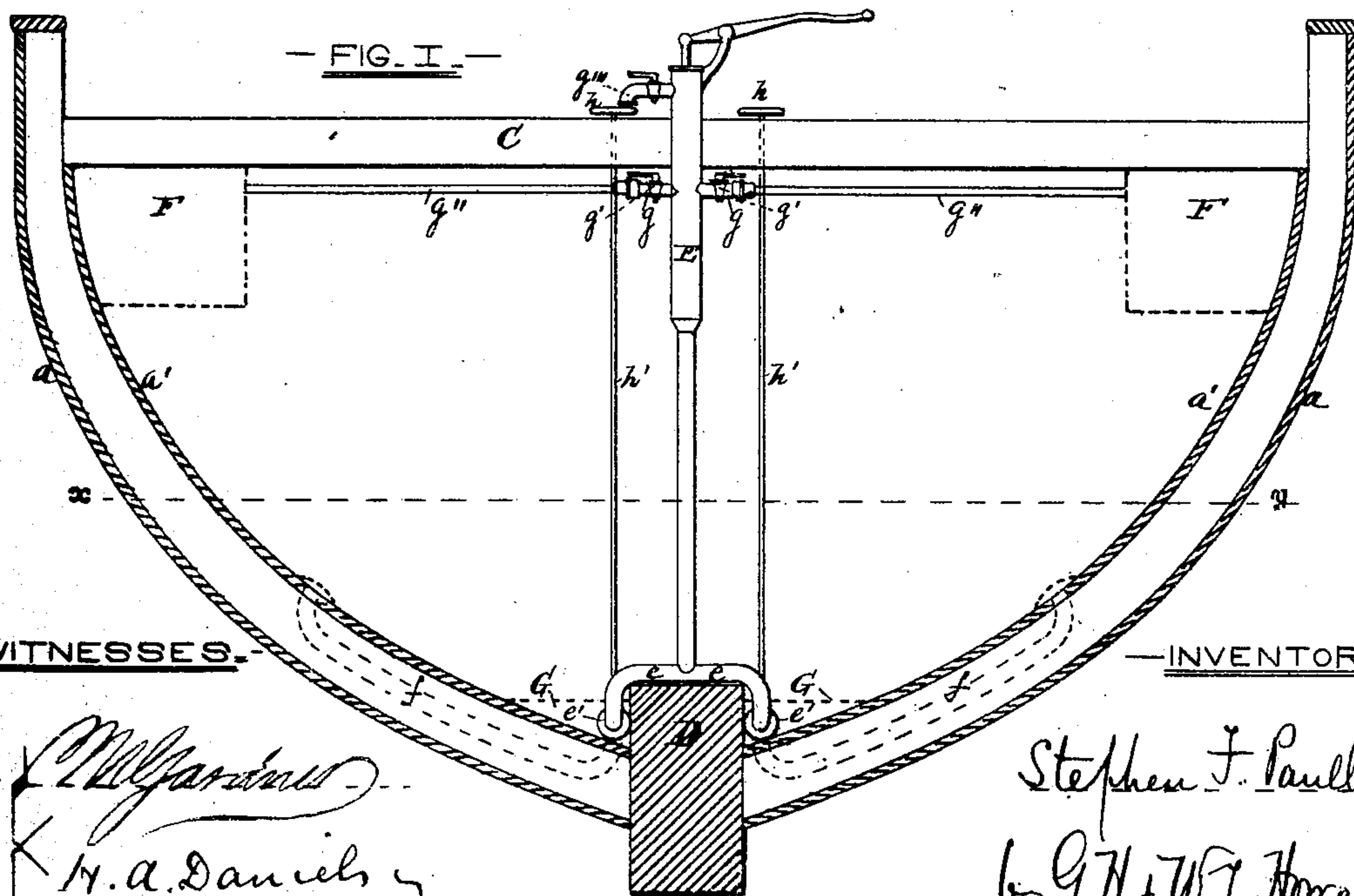
No. 133,950.

Patented Dec. 17, 1872.

— FIG. II. —



— FIG. I. —



— WITNESSES. —

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— INVENTOR. —

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UNITED STATES PATENT OFFICE.

STEPHEN F. PAULLIN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SHIPS' PUMPS.

Specification forming part of Letters Patent No. **133,950**, dated December 17, 1872.

To all whom it may concern:

Be it known that I, STEPHEN F. PAULLIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Ships' Pumps, whereby they may be adapted to lift from the holds of vessels any liquid freight which, during long or stormy voyages, may leak from the hogsheads or casks in which it is held, recovering and saving the same in a merchantable condition; and I do hereby declare that in the following is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to certain improvements on the devices for which Letters Patent of the United States, No. 127,364, dated May 28, 1872, were granted to me; and consists, first, in the addition to the suction parts of the pump of certain two-way cocks and pipes with strainer-ends reaching to amidships of the vessel, at which point the molasses or other liquid to be pumped out is most likely to collect. My invention relates, further, to certain tanks or chambers placed under or upon the deck, used in conjunction with other delivery ports and cocks of the pump, which tanks are intended to receive and store the recovered liquid freight.

In the further description of my invention which follows due reference must be had to the accompanying drawing, in which—

Figure 1 represents a cross-section amidships of a vessel having my invention thereupon; and Fig. 2 represents a sectional part plan of the vessel on line *x y* of Fig. 1.

Similar letters of reference indicate similar parts in both figures.

A A represent the frame-work of a vessel, of which *a* is the outer and *a'* the inner skin. C represents a deck-beam, and D the center keelson. E is an ordinary pump running down within the hold of the vessel and joining at a point immediately over the top of the center keelson with a double branch, *e*, which straddles the keelson, the two parts of the branch then turning and running parallel with the respective sides of the keelson. A two-way cock, *e'*, is attached to each of the pipes *e*, the branch of the cock *e''* being designed to reach the liquid freight settling at that point in the

hold of the vessel. The remaining branch of each cock is secured to a pipe, *f*, running parallel with the keelson at the respective sides thereof, the two pipes *f* turning at right angles at or near amidships, then passing through the inner skin of the vessel, and running between it and the outer skin to a desired distance up the sides of the vessel, then bending again so as to pierce the inner skin and terminating thereat, at which point the ends of the pipes are covered by strainer-plates *f'*. F F are tanks, preferably placed in the position shown, under the deck-beams. The pump-barrel is connected, by means of its branches *g* and and the hose or pipes *g''*, with the tanks, the branches *g* being provided with cocks *g'*. The branch or spout *g'''* of the pump is also furnished with a cock.

The various cocks herein shown are usually operated at different times, their mode of use being hereinafter fully described.

Supposing the vessel to be on an even keel, and it is desired to pump out the liquid freight which may, by reason of the straining of the casks or other causes, have issued into the hold, and to raise it to the deck through the spout *g'''*, the two-way cocks are turned so that communication is closed between the pump and the pipes *f* and open through the branch *e''* of the cock to the pump. The branches *e''* are inclosed within strainer boxes or guards G, similar to those shown and claimed in my Letters Patent, as aforesaid. The cocks *g'* in the branches *g* are also closed and the cock in the spout *g'''* opened. The pump is then operated by means of the lever (if a hand-pump) in the ordinary manner, the molasses or liquid freight is lifted from the hold and transferred to such receptacles as may be placed upon the deck to receive it. Supposing the vessel to be not upon an even keel, and the side of the ship shown at the left of the figures to be the leeward side, the two-way cock at the right of the keelson would be shut, the cock at the other side being the only one which would be submerged within the liquid freight, and efficient as a suction part of the pump. If the vessel, as now supposed, were much to the leeward the pump would be more effective if the cock to the left of the keelson were so adjusted as to carry the suction part of the pump to the strainer-plate *f'* at that side of the ves-

sel, for the reason that as it is placed amidships it is at a point the lowest in the hold of the ship, and which the liquid freight would naturally seek.

The mode of using the tanks as receptacles for the liquid freight is apparent. The cock in the spout *g'''* would of course be closed, and if the vessel were on even keel the molasses would be pumped through the hose or pipes *g''*, probably into both tanks *F*; but upon other occasions—for instance, on long tacks in one quarter—it might be advisable to pump into but one tank, and necessary to pump but from one side of the vessel. Any exigency is provided for by means of the various cocks above and below, readily opened or shut. The two-way cocks are operated from the deck by means of the handles and rods *h h'*.

The mode of using my invention with respect to the various cocks and pipes, as hereinbefore described, is not arbitrary, and in all cases the intelligence or experience of the hands manning the pump must guide them as to the proper course to pursue in regulating the suction or other parts thereof.

In the carrying of liquid freight it may by some shipmasters and owners be deemed unnecessary to use casks or hogsheads if the seams of the inner skin or ceiling are rendered tight. This rendering of the ceiling tight is also necessary when the liquid freight is to be recovered and saved in a merchantable condition by means of my invention. With the view of preparing a vessel for its reception I therefore place over the seams of the inner skin, to a desired height, strips of prepared canvas, secured by metallic fastenings.

In case of a disaster at sea, by which a dangerous leak were caused, allowing the water to rise within the interior of the vessel beyond the inner skin thereof, my invention could be immediately called into requisition without any change in its parts being made. From the fact that it is placed in the center of the vessel, it is in rough weather much more safely and conveniently manned than the pumps ordinarily situated at the starboard and larboard sides of the vessel. It is of common occurrence that in heavy weather the pump at the leeward, which is the only effective one in such a case, is almost under water, and the danger to the hands manning it is easily seen.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. In combination with the double-branch pipe *e* and two-way cocks *e'*, operated as set forth, the pipes *f* and strainer-plates *f'*, substantially as herein specified, for the purposes named.

2. The combination of the pump, having the branches and cocks *g g'* and spout and cock *g'''*, with the tanks *F*, by means of the hose or pipes *g''*, substantially as herein set forth, for the purposes specified.

In testimony whereof I have hereto subscribed my name in the city of Baltimore, this 18th day of October, in the year of our Lord 1872.

STEPHEN F. PAULLIN.

Witnesses:

JOSEPH CRUGG,
WM. T. HOWARD.