

N. Hodges,

Ship Pump,

N^o 9,344.

Patented Oct. 19, 1852.

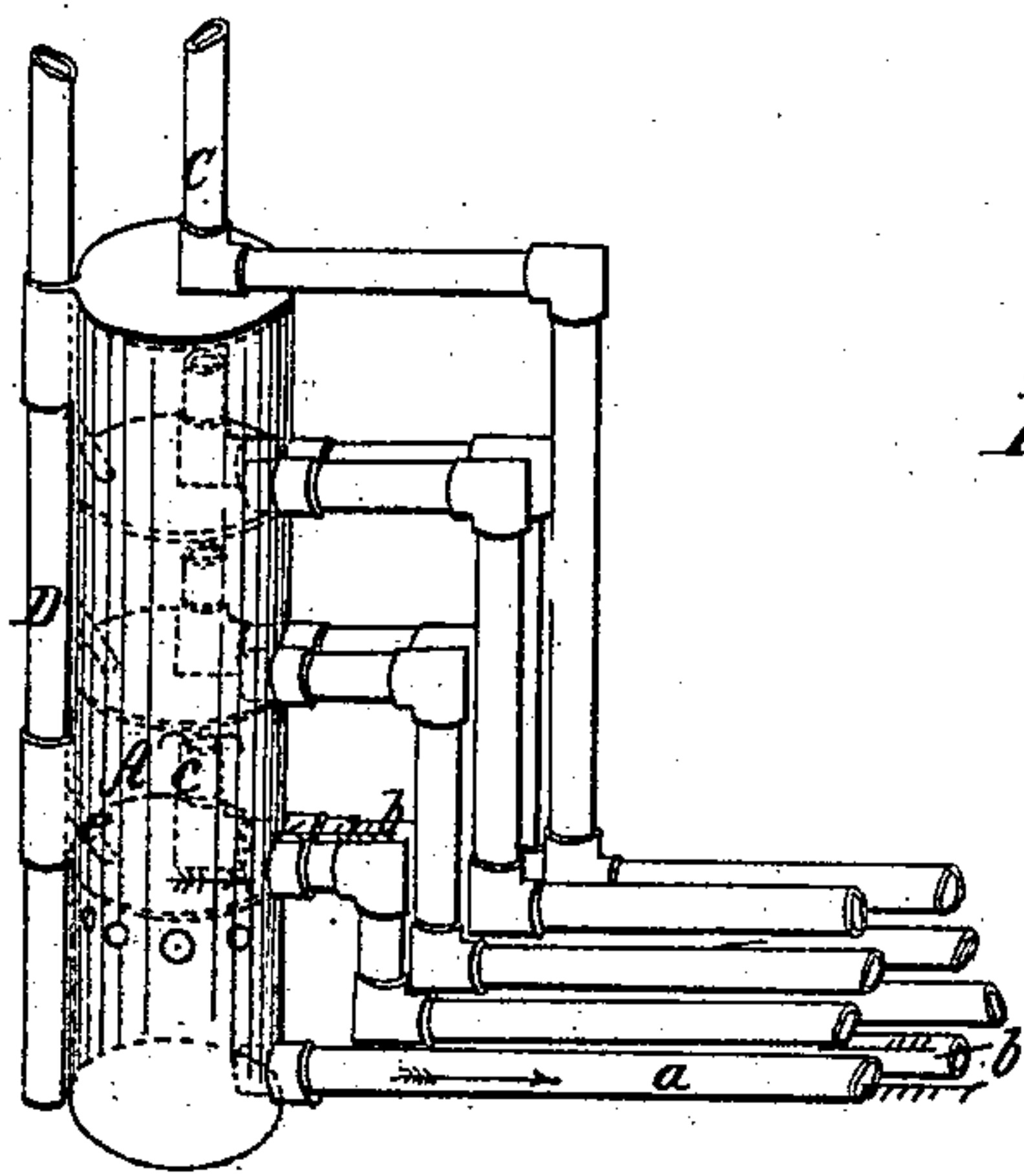


Fig. 1.

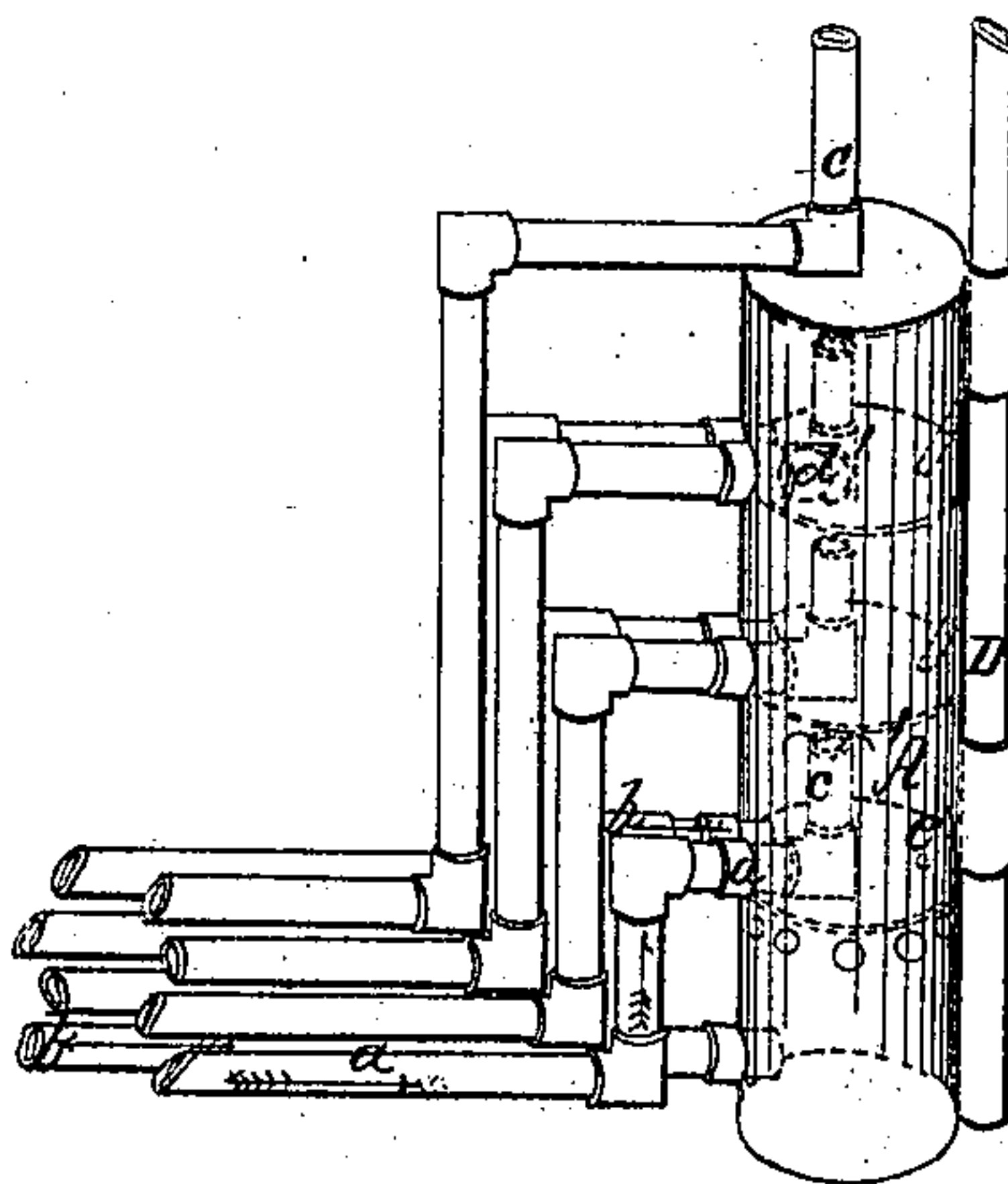


Fig. 3.

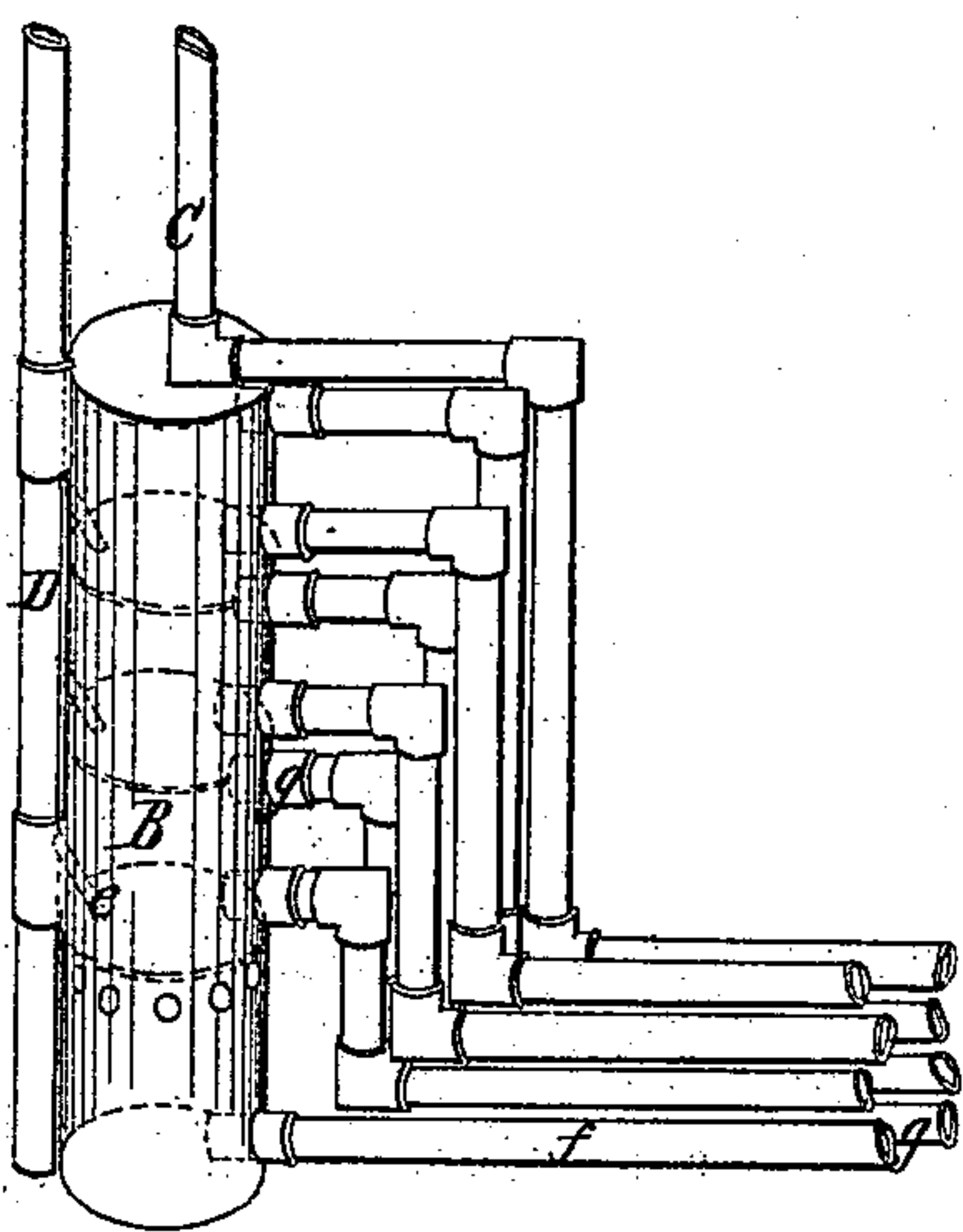
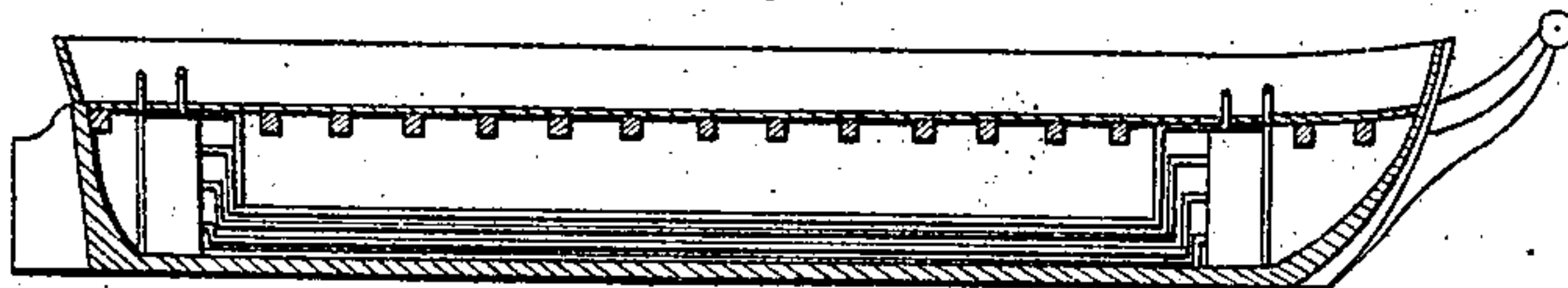
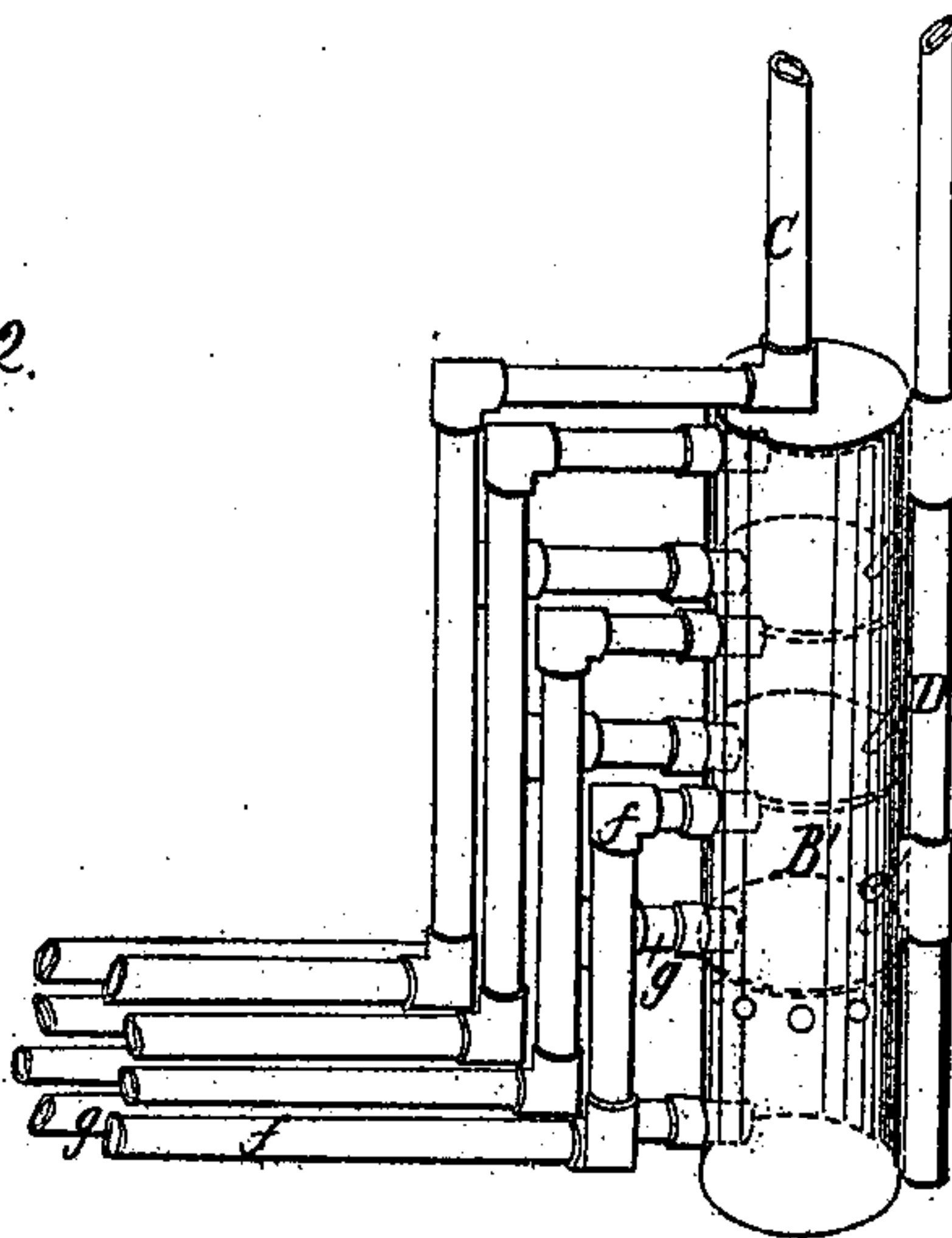


Fig. 2.



UNITED STATES PATENT OFFICE.

NEHEMIAH HODGES, OF NORTH ADAMS, MASSACHUSETTS.

APPARATUS FOR ELEVATING AND DISCHARGING BILGE-WATER, &c.

Specification forming part of Letters Patent No. 9,344, dated October 19, 1852; Reissued February 1, 1853, No. 229.

To all whom it may concern:

Be it known that I, NEHEMIAH HODGES, of North Adams, in the county of Berkshire and State of Massachusetts, have invented
5 certain new and useful Improvements in the Method of Raising and Discharging Bilge-Water From the Holds of Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same,
10 reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1 represents an isometrical view of one method of arranging the parts, and Fig. 2 represents a similar view of a modification of the plan represented in Fig. 1.
15

The nature of my invention consists in combining with a series of tanks and tubes or their equivalents a ventilating or air tube, which has communication with the tanks
20 for allowing the air to escape from the tanks as the water flows into them, the whole being so placed in the hold of a ship or other sea-going vessel, for the purpose of elevating and discharging the water from the
25 holds thereof, as that they shall be operated by the fore and aft or rolling motion of the vessel, thus making what I term "a self working ship's hydrant."

To enable others skilled in the art to make and use my invention, I will proceed to describe the same in connection with, and reference to, the explanatory drawings accompanying this description.
30

A, A', represents two upright cylinders, which may be divided horizontally into any
35 suitable number of large tanks or reservoirs and may be placed in the bow and stern or any convenient points between them, or on each side of the vessel, so that they may be filled (as will be hereafter described) by the
40 fore and aft, or by the rolling motion of the vessel, or by both, as the case may be. These tanks are connected together by a series of pipes or tubes which may run parallel with
45 or alongside of the keelson of the vessel when arranged fore and aft. The lowermost tanks of the series have openings near their tops, to allow the bilge or other water to flow freely therein, and by the fore
50 and aft motion of the vessel the water is raised from one tank to the opposite one above it by means of the connecting tubes aforesaid, it finding its own level. The tubes in the drawings are represented as
55 broken off in the centers, their length de-

pending upon the size of the vessel or the location of the tanks. Suppose the tank A, Fig. 1, which may be presumed to be located forward in the vessel, to be filled with water. Now as the bow of the vessel rises
60 to ride the waves, the water from said tank will pass rapidly through the pipe or tube *a* (as seen by the red arrows) into the second tank of the series in A', and from thence by the rising of the stern of the vessel (following the direction of the arrows) it passes
65 back through the pipe or tube *b*, into the second tank of the series at A, and so on through the entire series of tanks and tubes, until it escapes through the pipe *c*, whence
70 it may be discharged in any manner low down on the sides of the vessel to prevent the gas from rising and escaping to the annoyance of those on board. The water may
75 start from either or both of the lowermost tanks of the two series, each being connected to the other by pipes, through which it will pass in finding its level, the principle being to retain the water when raised up by
80 the rising of the vessel and causing the series of undulations of the vessel to carry up and eventually discharge the water from the hold of the vessel. As before stated these tanks and tubes may be arranged
85 across the vessel, so as to be operated by the rolling of the vessel, or they may be arranged both ways. The delivery of the water into each succession of tanks may be from a pipe *c*, therein, which reaches up to
90 near the top of the tank, the discharge being through a pipe *d*, at the bottom of each. Instead, however, of extending the tube *c* up into the tanks a swinging or balanced
95 valve or a ball valve, as seen at *d'*, in dotted lines, on the right of Fig. 1, may be used, in which case the operation of raising the water would commence immediately upon the
100 least inclination of the vessel from a horizontal line, and in the other case the operation would be limited to a motion equal to the height of the tube *c*. Outside of the series of tanks is a ventilating tube or pipe
105 D, communicating with each of the tanks by means of the inclined tubes *e*, which should rise sufficiently high in the main tubes D, to prevent any water from escaping through them, while the air contained in the tanks may freely pass out and allow the
110 the water to freely flow into them. Without the air tubes D, a few motions of the ap-

paratus would so condense the air in the tanks as to make it inoperative, while by its introduction I can use tanks or reservoirs much larger than the pipes which connect them together, and rid them entirely of the air which would otherwise materially injure, if not entirely destroy, their operation. These tubes D, like the pipes C, may also for the same purpose discharge low down on the sides of the vessel. Fig. 2, represents a modification of this plan where B, B', are also a series of tanks. The tube *f* conveys the water and delivers it into the top of the second of the opposite series of tanks, and it is then conveyed back by another pipe *g*, each motion of the vessel raising it from a lower to the next higher tank until discharged. In this case the tubes and connecting joints inside of the tanks are avoided. When a vessel has more than one deck, in order to prevent the pipes from being in the way or to protect them from danger there should be a series of longitudinal pipes placed underneath each deck, making as it were a duplication of the apparatus for each additional deck, or until high enough to discharge the water from the side of the vessel. By this arrangement a ship under way is always pumped out and in case of a storm, when the vessel is taking in more water, the power of the apparatus is increased in proportion to the motion of the vessel, and it thus furnishes a capacity equal to the emergency.

Fig. 3 represents on a smaller scale the outline of a vessel with the tanks and tubes arranged therein. Instead of making the

tanks all in the form of an upright cylinder, as represented in the drawings, and which may be the most economical in the first cost of the apparatus, I may avail myself of the curved or inclined forms of the sides or bow and stern of the vessel and allow each succeeding tank above the lowermost ones to recede and be accommodated to the interior form or shape of the vessel, and thereby economize stowage room.

I am aware that rocker pumps have been constructed to be operated by hand power, but in these no adequate provision has been made for receiving and retaining the water as it is raised up; besides, their action is limited to a continuous rapid propelling power, while by my arrangement any varying inclination of the vessel from a horizontal line, however slow, puts the apparatus in operation, and as heretofore constructed could not, without encumbering the hold of the vessel be placed therein. I do not therefore lay claim to any such pumps; but

What I do claim herein as new and desire to secure by Letters Patent is—

In combination with a series or system of tanks, and tubes or their equivalents the ventilating tubes D, substantially as described, for the purpose of elevating and discharging water from the holds of vessels, the whole being operated or worked by the motion of the vessel as set forth.

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Witnesses:

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