# J. Brokenshire,

## Ship Pump,

No. 80,905, Patented Aug. 11, 1868.

Fig. 1.

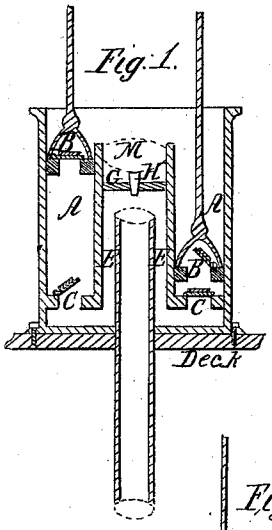



Fig. 2.

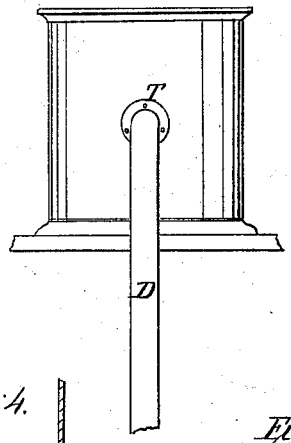



Fig. 3.

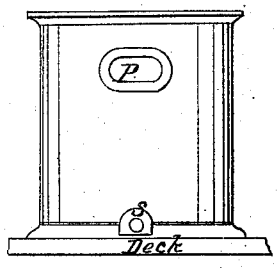



Fig. 4.

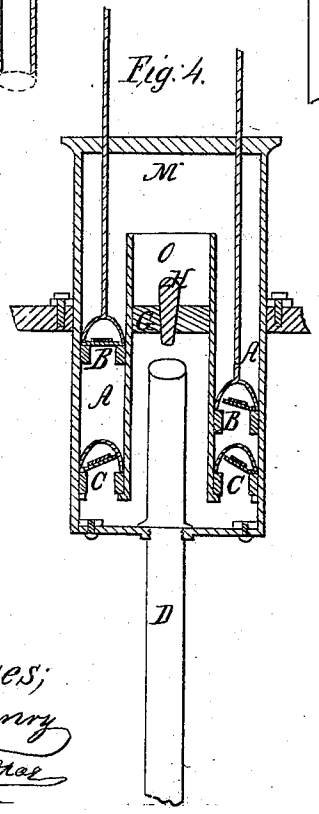
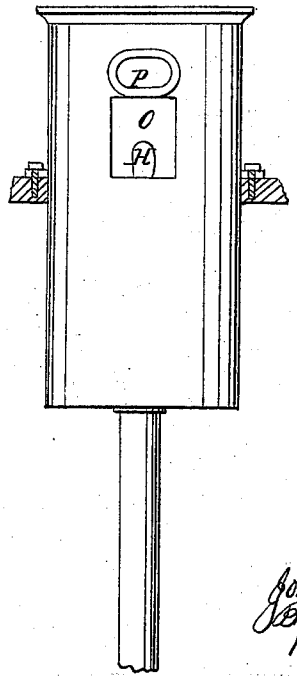



Fig. 5.

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# United States Patent Office.

JOHN BROKENSHIRE, OF OSWEGO, NEW YORK.

*Letters Patent No.* 80,905, *dated August* 11, 1868.

## IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN BROKENSHIRE, of Oswego, in the county of Oswego, and State of New York, have invented a new and useful Improvement in Ships' Pumps; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a vertical central section of a pump illustrating my invention.

Figure 2 is a back view thereof.

Figure 3 is a front view of the same.

Figure 4 is a vertical sectional view of my pump, as modified to suit deep sea-going vessels, and

Figure 5 is an elevation of the form shown in fig. 4.

Similar letters of reference indicate corresponding parts in the several figures.

The subject of this invention is a double-acting pump for pumping water from vessels. The invention consists chiefly in providing a chamber situated between the barrels, which receives the elevated water at a point somewhat above the lower stationary valves, so that such water on its way to the exit-nozzle shall be compelled to descend in said chamber, in such a manner as to produce a vacuum around the suction-pipe in the chamber, and thus aid the plungers in elevating the water.

In figs. 1 and 4, A A are the pump-barrels, B B the plungers bearing the upper valves, and C C the lower stationary valves; D is the suction-pipe, and E E a chamber situated centrally between the barrels A A, and into which the suction-pipe leads and discharges. The suction-pipe communicates with the chamber E E, at a point somewhat above the lower valves C C, as clearly shown in figs. 1, 2, and 4. The suction-pipe D may pass up through the deck and enter the chamber E E vertically, as shown in fig. 1, in which case it is to be secured to the bottom plate of the pump by a screw-joint or otherwise. But the pipe D, as arranged in fig. 1, may be dispensed with, and a hose or other pipe may be attached to the side of the pump, as shown in fig. 2, in order to pump the bilge-water from either side of the vessel, or from midship, at will. To enable the ready attachment and detachment of the hose D or other pipe, a threaded thimble, T, is inserted in the side of the pump.

G is a partition closing or extending across the chamber E E, at a point somewhat above that at which the pipe D communicates with said chamber E. The chamber E E communicates at bottom with the two pump-barrels A A. M is intended to designate the chamber in the upper part of the pump, through which the water passes on its way to the discharge-nozzle P, (see figs. 3 and 5.) The partition G has an opening, closed by a plug, H, to enable the vessel to be sounded, and when the pump is constructed as shown in figs. 4 and 5, an opening, O, fig. 5, is formed above deck between the barrels A A, and beneath the upper chamber or outlet, so as to afford ready access to said plug-opening, which is near the deck. In fig. 3, *s* represents a plug closing an opening through which water is allowed to escape from the pump in winter to prevent freezing. It will be observed that the pump shown in figs. 4 and 5, differs from that shown in figs. 1, 2, and 3, merely in that it extends below as well as above the deck.

Before describing the operation of this pump, I will state that when it is of the particular construction indicated in the drawings, it will be preferably of metal, but when made of wood, I first form an opening in the side of the log or piece of timber, from which the pump is to be made, and then bore the log longitudinally, so as to form the two barrels and an ascending duct or passage, all communicating with said opening in the side, which is to be afterward closed by a cover or plate, so as to form a chamber of communication between the barrels and suction-pipe.

*Operation.*

This being essentially a suction-pump, the operation, so far as the plungers and valves are concerned, need not be explained. It will be observed that before the water can pass into the barrels A A, (thence to be ejected through chamber M and nozzle P,) it must be elevated within the chamber E E, above the valves C C, and then

descend, in order to pass through said valves. Now, as the chamber E E is closed above the outlet of the pipe D by the partition G, said chamber forms, in conjunction with the pipe D, a sort of siphon, inasmuch as the water, as it descends in chamber E E, leaves a vacuum above, the effect of which is to cause the pump to be in a measure self-acting, and thus reduce the power required to elevate a given amount of water. Thus the pump may be said to require only the power necessary to discharge its own contents, and the water thus ejected is made available as a means to raise the water from the vessel. The pump is adapted to hold its own priming, that is to say, to retain the water which it receives, even though the lower valves should be removed from the pump. The barrels being in communication, a constant discharge may be maintained, and the consequent steady flow of the water prevents the pump from being choked with grain, &c. Choking frequently results from momentary stoppages or the intermittent action of pumps, as heretofore constructed.

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

1. The internal chamber E E, in conjunction with the suction-pipe D, as arranged relatively with the barrels A A, plungers B B, valves C C, and discharge-outlet P, substantially as herein described and for the purpose set forth.

2. In combination with the parts of the above, I also claim the opening in the partition G, said opening being in line with the suction-pipe D, as and for the purpose described.

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