W. D. PETERS & G. H. HOLT.

Device for Automatically Discharging Water from Ships, &c.

No. 164,477. Patented June 15, 1875.

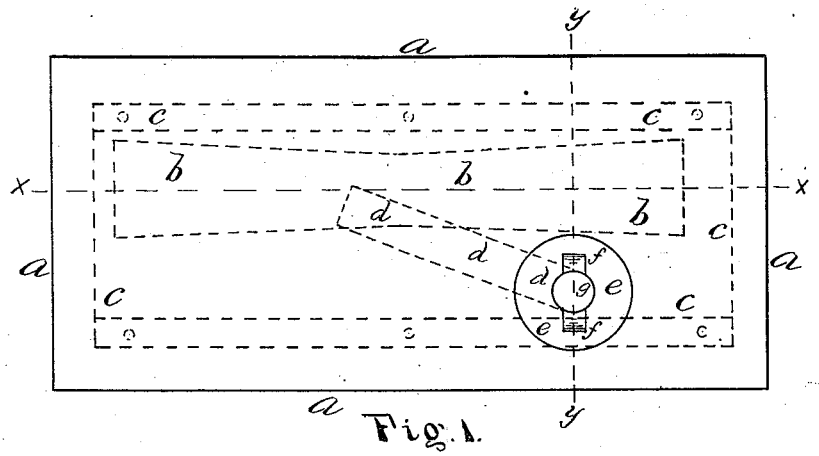

Fig. 1.

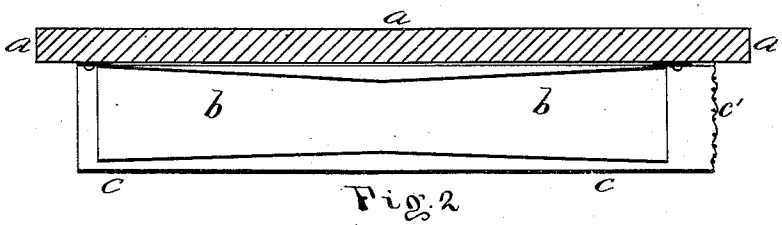

Fig. 2

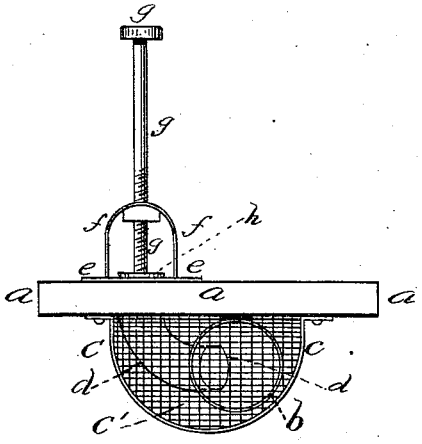

Fig. 3

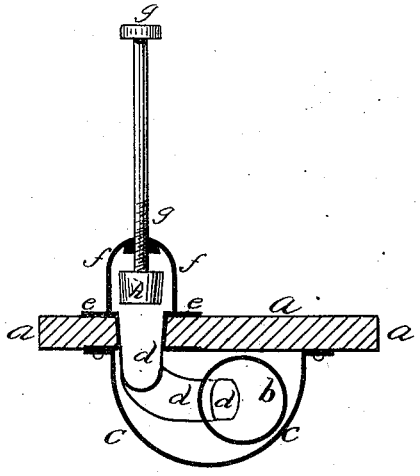

Fig. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM D. PETERS AND GEORGE H. HOLT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DEVICES FOR AUTOMATICALLY DISCHARGING WATER FROM SHIPS, &c.

Specification forming part of Letters Patent No. **164,477**, dated June 15, 1875; application filed April 15, 1875.

CASE A.

To all whom it may concern:

Be it known that we, WILLIAM D. PETERS and GEORGE H. HOLT, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful device for emptying the water out of a vessel which has sprung a leak; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention is suitable for application to steamers and sailing-vessels of every kind, both of light and heavy draft, especially the latter. By means of it any vessel which has sprung a leak can be quickly relieved of the water in her hold without any pumping whatever. By the mere opening of a valve the water instantly commences to remove itself automatically, without any labor whatever on the part of any one on board. It is only necessary that the vessel should be in motion, however slightly.

The nature and operation of the invention are described in detail below.

In the accompanying illustration, Figure 1 is a plan view of a portion of the bottom of a vessel, the broken lines representing that portion of the device which is upon the under side of the ship's bottom. Fig. 2 is a longitudinal section through the line *x*, Fig. 1. Fig. 3 is an end view, looking from the forward end of the vessel. Fig. 4 is a sectional view, the section being through the line *y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

a represents a small portion of the bottom of a vessel. *b* is a pipe attached to the under side of the bottom of the vessel, running lengthwise with the vessel, and made somewhat smaller in the center than at its ends, so that the water may pass the more swiftly through the center of the pipe when the vessel is in motion. This pipe *b* may be made of any suitable material, and is protected from injury by a guard, *c*, which is placed parallel with and over it. At the entrance or forward end of the guard *c* is placed a net-work, *c'*, which prevents anything of any size from entering the pipe *b*. Instead of the net-work *c'*, bars or any other suitable obstruction may be used, if desired. *d* is a conductor or pipe, entering the pipe *c* diagonally, with its mouth toward the stern of the vessel, and communicating at its upper end with the hold or interior of the vessel by passing through the bottom *a*. The shape and position of this pipe *d* are well shown in Figs. 1, 3, and 4. Supported from the flange or plate *e* (which surrounds the opening into the pipe *d*) is an arch, *f*. Running in the arch *f* is a screw, *g*, which carries a valve, *h*. The valve *h* fits into the hole in the ship's bottom, communicating with the pipe or conductor *d*.

It is understood that the forward end of the vessel is at the right of Figs. 1 and 2, the stern at the left. Now, under ordinary circumstances, the valve *h* is closed and pressed tightly into the hole in the bottom *a*, as seen in Fig. 3. The vessel is then perfectly tight. In case the vessel has sprung a leak, or for any reason there is water in her hold, the valve *h* is raised by means of the screw *g*, as in Fig. 4. The motion of the vessel draws the water through the pipe *b*. There is a tendency to produce a vacuum just outside or behind the lower end of the tube *d*, and the water passes from the hold through the conductor or pipe *d*, and is quickly carried off by the stream running through the pipe *b*. The faster the vessel is sailing, the swifter is the stream of water rushing through the pipe *d*, and the more quickly the water is drawn through the conductor *d*, emptying the hold of water. The only time when the hold could not be emptied of water would be when the vessel was perfectly motionless upon the water. If there is any motion at all, the device will do its work.

The screw *g*, which operates the valve, may pass through the vessel, so as to be operated from on deck or at any other point.

We do not confine ourselves to the screw *g*, as we propose to use a lever or any other power, if deemed desirable. Neither do we confine ourselves to the particular shape of the arch *f* or flange *e*.

The device will usually be placed at or near the center of the vessel, and in case compart-

ments are used, one may be placed under each compartment.

We have found by practical experiments that by employing the pipes or tubes *b* and *d* beneath the bottom of a vessel, and connected at an acute angle, the pipe *b* extending in both directions beyond the point of connection with the pipe *d*, in the manner described, all back or upward pressure against the outcoming water is avoided, and we are enabled to draw the water from the holds and interior of vessels of heavy as well as light draft at a lower rate of speed than has heretofore been accomplished.

Although the main object of the invention is to empty a vessel which has sprung a leak, yet it is equally useful in case a fire is discovered in the hold, as the vessel can be easily flooded by raising the valve and stopping the vessel, thus putting out the fire, after which she may be relieved of the water by the means above specified.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination, with a pipe or tube, *b*, arranged beneath the bottom of a vessel, of the conductor or pipe *d*, the said pipes *b* and *d* being connected at an acute angle, as shown, and the pipe *b* extending in both directions beyond the point where the said pipes are connected, substantially as herein specified.

WILLIAM D. PETERS.
GEORGE H. HOLT.

Witnesses:
HENRY W. WILLIAMS,
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