(No Model.) 2 Sheets—Sheet 1.

A. COOK.

BILGE WATER PUMP.

No. 419,929. Patented Jan. 21, 1890.

Fig. 1.

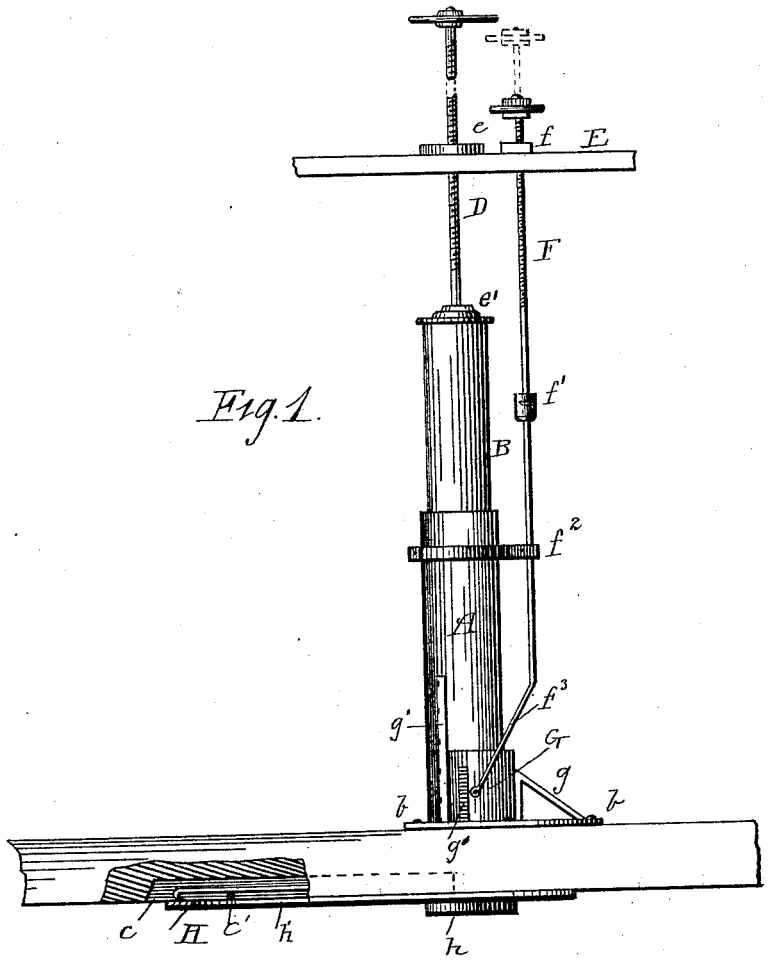
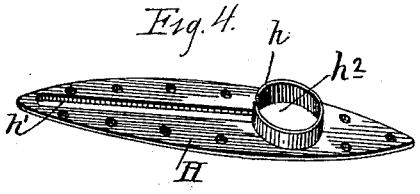


Fig. 4.



Witnesses
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Garnett L. Hobbs.

Inventor
Alonzo Cook
By his Attorneys
John S. Duffie

(No Model.) 2 Sheets—Sheet 2.

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No. 419,929. Patented Jan. 21, 1890.

Fig. 2.

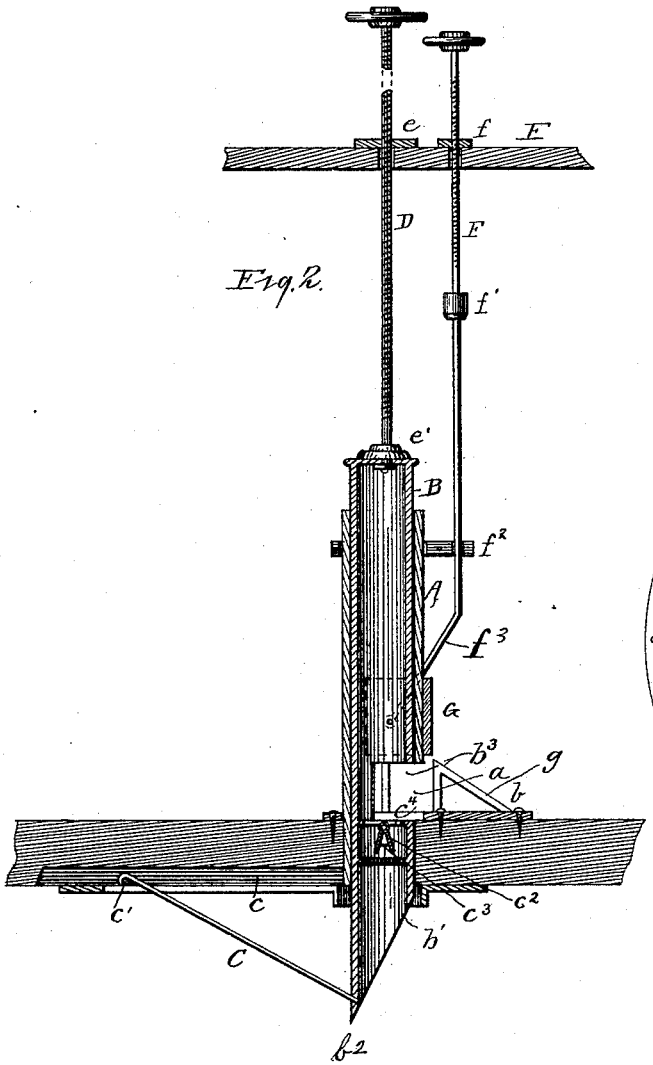
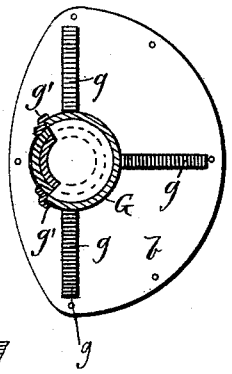


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

ALONZO COOK, OF ST. PAUL, MINNESOTA.

BILGE-WATER PUMP.

SPECIFICATION forming part of Letters Patent No. 419,929, dated January 21, 1890.

Application filed September 11, 1889. Serial No. 323,642. (No model.)

To all whom it may concern:

Be it known that I, ALONZO COOK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Bilge-Water Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention is a new improved bilge-water pump; and it consists in the novel construction and arrangement of its parts herein set forth.

In the accompanying drawings, Figure 1 is an elevation of the pump. Fig. 2 is a vertical section of the pump. Fig. 3 is a flange to be secured to the cylinder A. Fig. 4 is an oval flange to be secured to the bottom of the vessel.

Fig. 2 is a vertical sectional view of Fig. 1, the outside cylinder A standing perpendicularly and fastened down on the inner face of the bottom of the vessel by a flange *b*. Two-thirds, circumferential, of said cylinder A, near its lower end, is cut away on its rear side, leaving an opening *a*, one-third of said cylinder being left for its support, and the hollow cylinder B passes down on the inside of cylinder A down through the bottom of the vessel into the water below. The rear edge *b'* of the lower end of said cylinder is cut on a bevel, running down to a point b^2. The said inside cylinder has a rear opening b^3, two-thirds of its rear part being cut away to correspond with the opening *a* just described. To strengthen the said cylinder B there is attached to its point b^2 a sliding brace C, its free end extending up on an angle into a recess *c*, cut in the bottom of the vessel, and its hook end hooking over the stirrup *c'*, secured crosswise in said slot, said rod holding the lower end of said cylinder firmly and keeping it from bending backward, and also shearing off drifts when the pump is at work. When the cylinder B is hauled up, the said brace C' slides forward over the stirrup *c'* into the recess *c*, flush with the bottom of the vessel. Near the lower end of the said cylinder B are hinged two half-valves c^2, and when the vessel is in motion and said cylinder is shipped down said half-valves fall down of their own weight and by the downward suction produced by the forward movement of the vessel and rest against the block c^3, which holds said half-valves apart at the bottom, so that when the vessel stops the force of the water below throws them up against the shoulder c^4, and in this position they prevent the water from forcing its way up into the hull of the vessel.

The cylinder B is capped over on its upper end tight, and a screw-shaft D passes down through a threaded casting *e* and through the upper deck E into a swivel *e'*, set in the cap on the upper end of said cylinder B. There may be packing around said cylinder B, if deemed necessary. By means of said screw-shaft D the cylinder B is shipped up and down. There is another screw-shaft F passing down through a threaded casting *f*, and through the upper deck into a swivel *f'*, which connects it with the shaft f^3, which passes down on the outside of the cylinder A and through a sleeve f^2 in a brace secured to said cylinder, and down to and is secured to the safety-valve G, which covers and closes the opening *a* in the rear part of said cylinder. The lower end of said shaft f^2 is divided into two arms f^3, the lower ends of which are secured to said valve G. By turning the screw-shaft F said valve is shipped up and down, and when down its lower end fits into a circular groove in the flange *b* of the outside cylinder A. There are also three braces *g* extending up from the flange *b* against said safety-valve, holding it up against the said cylinder air-tight and keeping all water from coming up into the vessel when said valve is down.

Fig. 1 shows the pump down in position, cylinder B hauled up even with the bottom of the vessel, and the brace C shipped up over the stirrup *c'* in the recess *c* in the bottom of the vessel.

Fig. 2 shows the cylinder B thrust down into the water as when the pump is working and the vessel is moving through the water.

Fig. 3 shows the flange *b* with three braces *g* to hold the safety-valve G tight against the cylinder A when said safety-valve is down in place.

Fig. 4 shows the perforated oblong guard having the flange h for the lower end of the cylinder B to work through and a slot h' for the brace c. This guard H extends over the brace C and pump-hole, and is bolted up against the bottom of the vessel, with the flange h turned down in order to keep snags or drift from going up into the pump-hole.

The pump, as a whole, consists of a perpendicular cylinder A, with a circular flange b attached to its lower end, which is bolted down to the inside of the vessel and holds said cylinder securely in place, the pump proper or inside cylinder B, which works up and down on the inside of the large cylinder A and down through the bottom of the vessel into the water below to such a distance, depending upon the diameter of the pump, that the vessel will be thoroughly drained when in motion, the after side of said cylinder B being cut on an angle b', running down to the point b^2, which angle gives the pump its life and working-power, producing a suction which drains the vessel when in motion.

When the cylinder B and brace C are shipped up and the safety-valve G is down, as shown in Fig. 1, all water is kept from coming up into the vessel. The perpendicular edges of said safety-valve G run up and down in guides g', which are bolted to the outside of cylinder A.

This pump may be made small enough and adapted to the use of the smallest vessels, or large enough to thoroughly drain the largest vessel afloat. The valves c^2 are so constructed that they are entirely automatic, opening of themselves when the cylinder B is in the water and the vessel is moving forward, and closing of themselves when the vessel stops.

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

1. An automatic bilge-water pump consisting of an outer perpendicular cylinder A, having the rear opening a and flange b, secured to the bottom of the vessel by means of said flange, flange b, having a circular groove, safety-valve G, working against the outer face of said outer cylinder and in guides g' and adapted to close said opening a, shaft f^3, having its lower end divided into two parts and secured to said safety-valve, its upper end passing through sleeve f^2 and bearing the swivel f', screw-rod F, its lower end working in swivel f' and its upper end passing through deck E, working in a threaded nut f, secured to the upper face of said deck, hollow cylinder D, working on the inside of cylinder A, having on its rear part the angle cut b', the rear opening b^3, and on its upper end cap and swivel e', rod D, its lower end working in said swivel e' and its upper part passing through said deck E and working in a threaded nut e, secured to the upper face of said deck, substantially as shown and described.

2. In an automatic bilge-water pump consisting of a perpendicular hollow cylinder A, having the flange b and rear opening b^3, said flange secured to the inner face of the bottom of the vessel, hollow cylinder B, having the rear opening a registering with said opening b^3 and beveled end b', and working up and down in said cylinder A, and having on its inside and near its lower end the automatic valves c^2, screw-shaft D, its lower end swiveled in swivel e', secured on the upper end of said cylinder, its upper end and threaded part working in a threaded nut e, secured to the floor of the main deck E, substantially as shown and described.

3. In combination with a bilge-water pump, substantially as shown and described, and having in the after side of its cylinder A and B and near their lower ends openings a and b^3, the safety-valve G, adapted to close said openings and working up and down in guides g', braces g, one end secured to the flange b and the other resting against said valve, rod f^3, secured to said valve and passing up through sleeve f^2 and into the swivel f', screw-shaft F, its lower end swiveled in the swivel f' and its upper part passing through a threaded nut f, secured to the upper deck, substantially as shown and described, and for the purposes set forth.

4. In combination with an automatic bilge-water pump, substantially as shown and described, the brace C, having its rear end pivoted to the lower end of the cylinder B, its forward end hooked and resting over the stirrups c' in the bottom of the vessel and adapted to be countersunk into the slot c in said bottom when the said cylinder is hauled up, substantially as shown and described.

5. In combination with a bilge-water pump, substantially as shown and described, the perforated guard H, having the perpendicular flange h, opening h^2, for the lower end of cylinder B to work through, and perpendicular and horizontal slot h', for brace C to work through, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ALONZO COOK.

Witnesses:
FRANK FARISH PRICE,
ALFRED E. HESS.