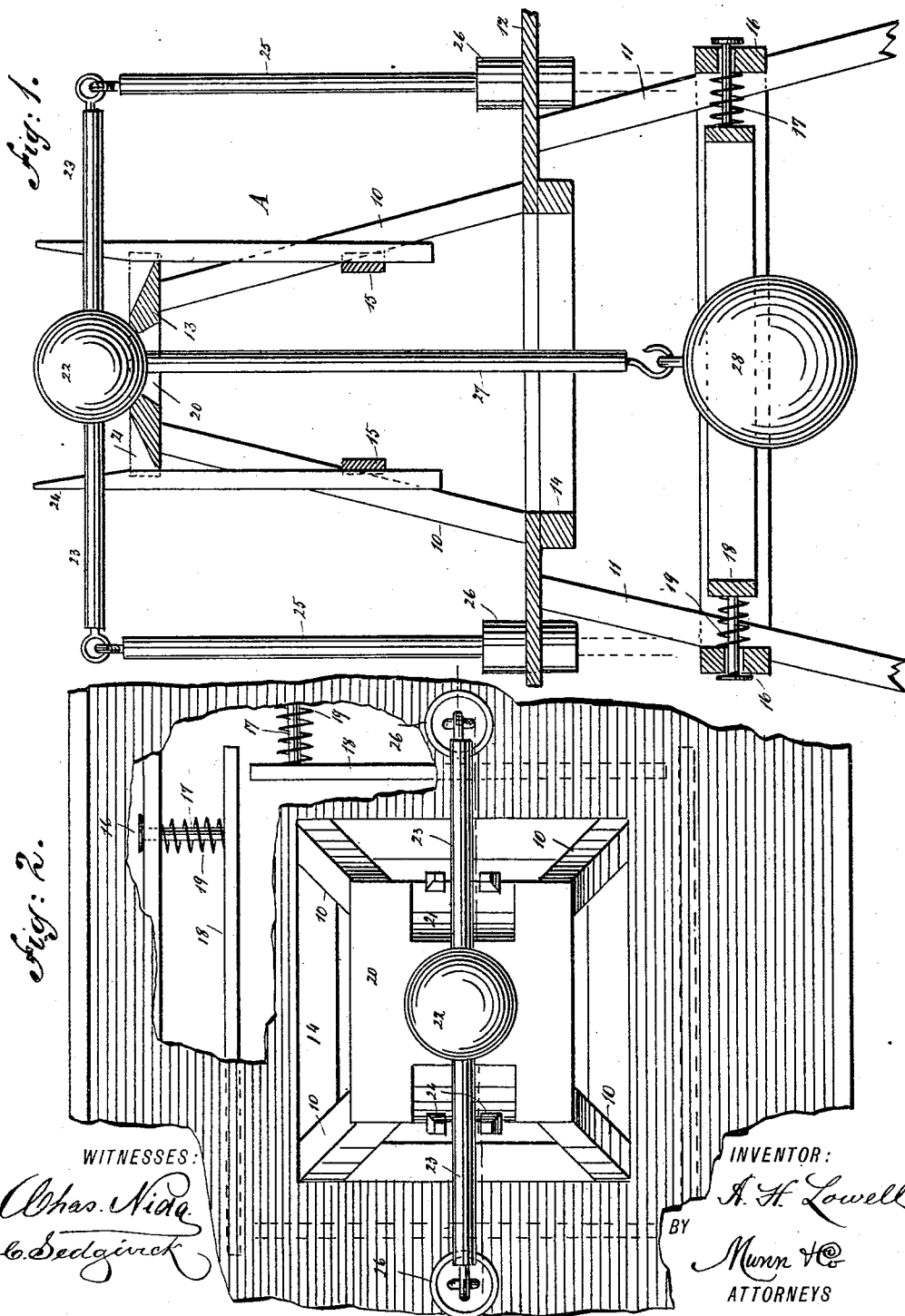


(No Model.)

A. H. LOWELL. PUMP.

No. 461,354.

Patented Oct. 13, 1891.



UNITED STATES PATENT OFFICE.

ALBERT H. LOWELL, OF WOODFORD'S, MAINE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 461,354, dated October 13, 1891.

Application filed January 27, 1891. Serial No. 379,237. (No model.)

To all whom it may concern:

Be it known that I, ALBERT H. LOWELL, of Woodford's, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description.

My invention relates to an improved pump of the reciprocating pattern, and has for its object to provide a pump especially adapted for use upon shipboard and to so construct the pump that it will be set in operation by the movement of the ship, also to build the pump in such manner that it will be exceedingly simple and durable and will occupy but a small space when set up.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in both the views.

Figure 1 is a central vertical section of the pump, and Fig. 2 is a plan view thereof.

The pump may be placed below deck in the hold or upon the deck at any desired point, as in practice may be found most advantageous.

The frame A of the pump approximates in shape the contour of a tower rectangular in cross-section and of much greater width at its base than at its upper end. The tower-frame usually consists of corner-posts 10 and 11, which posts are secured to a horizontal guard plate or bench 12, the said bench or plate being located in such manner as to surround the frame at or near its center. The lower ends of the lower corner-posts 11 may be secured to the deck or other support in any suitable or approved manner, their upper ends being attached to the guard plate or bench. The lower ends of the upper corner-posts 10, as heretofore stated, are preferably secured to the upper face of the bench, and the upper extremities of the said posts are attached in any suitable or approved manner to a cap-plate 13. The upper posts 10 at their lower ends are braced and strengthened by horizontal beams 14, one being preferably lo-

cated at each side of the frame, and the said posts are further strengthened or braced by horizontal cross-bars 15, which bars are parallel, face each other, and are attached at opposite sides of the frame. The lower corner-posts are likewise braced or strengthened by horizontal beams 16, corresponding in location to the beams 14 of the upper posts. Through the beams 16 rods or pins 17 are passed, the outer ends of the said rods or pins being provided with heads, and the inner ends of the rods or pins at each side of the frame are attached to a horizontal buffer beam or plate 18. Springs 19 are coiled around the pins or rods 17, the said springs having a bearing against the outer faces of the buffer-plates and the inner faces of the brace-beams 16.

The cap-plate 13 is provided with a central essentially conical opening 20, and at opposite sides of the cap-plate the upper face thereof is beveled downward and outward from the opening 20, forming thereby inclined surfaces 21. In the upper portion of the opening 20, which is shaped to form a cylindrical socket, a ball or other spherical body 22 is seated, which ball at two opposite sides is provided with radial arms 23, the said arms being horizontally located, and one extends outward over each of the inclined surfaces 21. Two guide pins or plates 24 are projected upward from each side of the center of the upper transverse beams 15, which guide-plates are attached to the edges of the cap-plate and extend some distance upward beyond the inclined surfaces thereof.

The sucker-rod 25 of any suitable form of pump is connected to the outer extremity of each of the radial arms 23, the upper ends of the pumps being preferably located in the table or bench 12, as illustrated.

From the under surface of the spherical body 22 a pendulum-rod 27 is downwardly projected, which pendulum-rod has pivoted to its lower end a weight 28, ordinarily of circular form. The radial arms 23 of the pump extend preferably fore and aft of the vessel. Thus when the vessel has a fore-and-aft pitch the pendulum-rod 27 is set in motion, which imparts a reciprocating movement to the spherical body 22, and a vertical reciprocating

ing movement is imparted by the spherical body to the sucker-rods through the medium of the radial arms 23, which rise and fall with the movement of the vessel.

5 If the sea is very high and the movement of the vessel therefore violent, the weight attached to the pendulum-rod in its movement fore and aft is brought in engagement with the spring-guards 18, and thereby prevented from
10 doing any damage, and also gives, by contact with the guards, movement in the direction of the opposite guard.

These guards of the structure are adapted to receive the shock of the pendulum-weight
15 when the vessel has a side roll, and upon such a roll the pumps are not operated. The pivotal connection of the socket-rods with the reciprocating upper cross-head of the pump, comprising the spherical body 22 and arms
20 23, admits of the sucker-rods remaining stationary while the cross-head is moved laterally sidewise.

It will be observed that the pump is very simple in construction and automatic in its
25 action, being set in motion the very moment that the vessel pitches fore and aft when the arms 23 of the cross-head point in that direction; but when they point in the direction of the port and starboard of the vessel the pump
30 will be operated when the vessel has a side roll only.

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

35 1. The combination, with a frame provided

with a horizontal annular socket, of a longitudinally-extending cross-head having a central ball-bearing resting in said socket, a bar extending from the ball down through the socket and provided at its lower end with a weight, and the pump-rods pivotally connected with the ends of the cross-head, substantially as set forth.

2. The combination, with the frame having the horizontal annular socket and the vertically-extending guides 24, of the longitudinally-extending cross-head working in said guides and having a central ball-bearing resting in the said socket, a rod extending from the ball down through the socket and having
50 a weight on its lower end, and the pump-rods pivotally connected with the ends of the cross-head, substantially as set forth.

3. The combination, with the frame having on its upper end an annular socket and horizontal yielding guards arranged in the form
55 of a square below the socket, of the longitudinally-extending cross-head having a central ball-bearing resting in the socket to rock forward and backward or laterally, a rod extending from the ball down through the socket and provided with a weight in the plane of the guards, and the pump-rods pivotally connected with the ends of the cross-head, substantially as set forth.

ALBERT H. LOWELL.

Witnesses:

AUGUSTUS F. MOULTON,
JOHN HOWARD HILL.