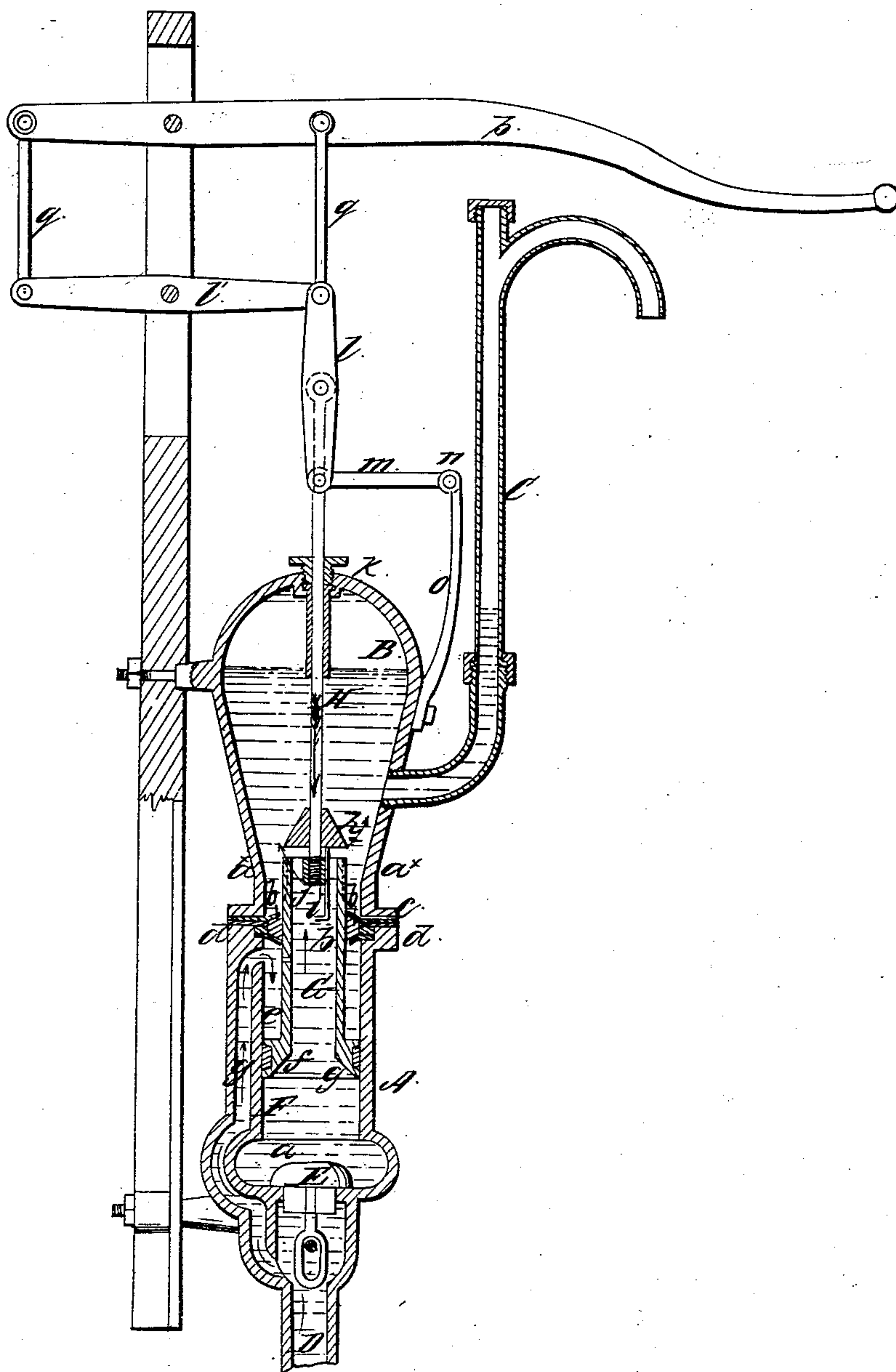


A. W. Lloyd,

Pump Lift.

N^o 23,849.

Patented May 3, 1859.



UNITED STATES PATENT OFFICE.

A. W. LLOYD, OF OTIS, MASSACHUSETTS.

PUMP.

Specification of Letters Patent No. 23,849, dated May 3, 1859.

To all whom it may concern:

Be it known that I, A. W. LLOYD, of Otis, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, said drawing being a vertical central section of my invention.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents the pump cylinder which has an air chamber B, at its upper end.

C, is the eduction pipe which communicates with the air chamber.

D, is the induction pipe which communicates with the lower end of the cylinder, a valve E, being placed over the upper end of the induction pipe, said valve opening upward.

F is a side water passage or tube placed at the side of the cylinder A, the lower end of said tube or passage communicating with the induction pipe D, just below the valve E, and the upper end communicating with the cylinder A, near its upper end as shown clearly in the drawing.

The lower part of the cylinder A, is enlarged as shown at *a*, and at the upper part of the cylinder an annular packing *b*, is placed within which packing the piston G, is fitted and works. Water tight packing *c*, is also interposed between suitable flanches *d*, at the junction of the air chamber and cylinder. The packing *b*, is placed just above the orifice of the passage or tube F.

The piston G, may be of metal smoothly turned so as to insure its working water tight within the packing *b*. The piston is of tubular form and the body or main portion of it is smaller in diameter than the interior of the cylinder so as to allow a space *e*, all around it. The lower end of the piston is provided with a flanch *f*, containing packing *g*, which works water tight against the inner side of the cylinder. The piston is provided with a conical valve *h*, at its upper end, the valve having a guide rod *i*, attached, which is fitted in the upper end

of the piston between a cross bar *j*, and one side of the piston.

H, is the piston rod which passes loosely through the valve *h*, and is screwed into the cross bar *j*. The piston rod passes through a stuffing box *k*, in the upper end of the air chamber and the upper end of the piston rod is attached by a pin or pivot to the center of a lever *l*, the lower end of which is pivoted to a lever *m*, which is connected by a pivot *n*, to an upright *o*, attached to the air chamber. The upper end of the lever *l*, is attached to a lever *l'*, which is connected at both ends to the brake *p*, by links *q*, *q*.

The operation is as follows: The brake or handle *p*, is operated in the usual way, and as the piston G descends the valve *h*, rises and the valve E, closes, and the displacement of the water in the cylinder A, together with the compressed air in the upper part of the air chamber B, will force the water through the eduction pipe C, at the same time water will be drawn up through the side tube F, into the space *e*, around the piston. As the piston G, rises the water in the space *e*, will pass down the tube F, into the pipe D, and will be drawn up through the valve E, into the lower enlarged part *a*, of the cylinder A, to be forced up through the piston G, when it again descends. The tube F, therefore it will be seen in connection with the piston G constructed and arranged as shown causes a quantity of water to be raised at every descent of the piston and therefore the labor of the piston during its upward movement is greatly assisted as a column of water in the induction pipe D, does not require to be raised directly its whole height a portion of the column which passes the valve E, having been previously elevated by the downward movement of the piston. By this invention the pump operates very evenly requiring a steady or constant amount of power, a continuous stream is raised, the construction is extremely simple and the pump may be manufactured at a moderate cost.

I would remark that the upper part of the piston G is provided at opposite points with grooves or indentations *a'* so that by

shoving down the piston a trifle below the lowest point of its descent when in operation, the grooves a^x will be opposite the packing b , and allow the water in B , to escape—
5 thereby preventing the pump being injured by the freezing of waste water.

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

The arrangement and combination of the 10 side tube F , pipe D , valve E , and piston G , as and for the purpose herein shown and described.

A. W. LLOYD.

Witnesses:

ALANSON CRITTENDOR,
WILLIAM P. WATERS.