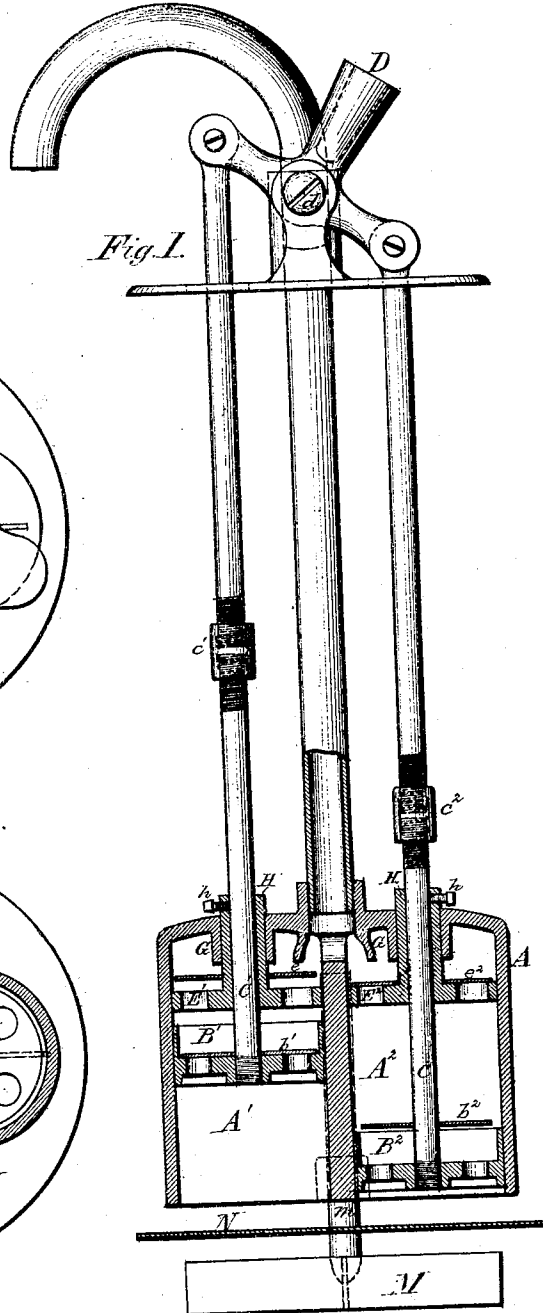


*E. Lamyhear,*

*Pump.*

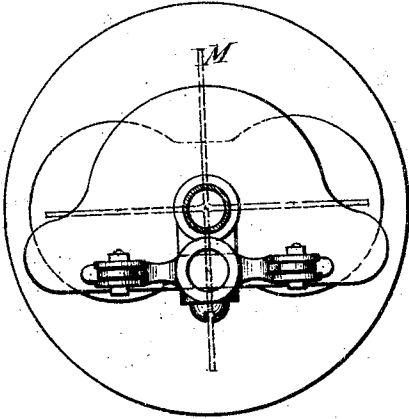
*No. 10,138.*

*Patented Mar. 22, 1870.*

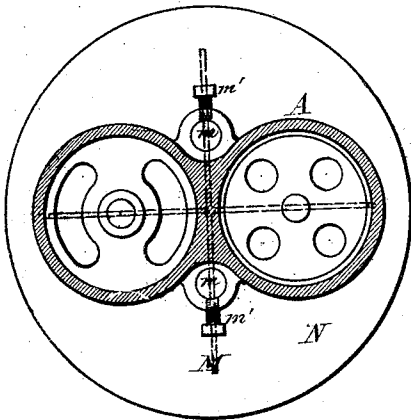


*Fig. 1.*

*Fig. 2.*



*Fig. 3.*



**Witnesses:**  
*A. Schaats,*  
*Chas. A. Burkhardt.*

*E. Lamyhear*  
*Inventor:*  
*by his atty*  
*J. D. Stearns*

# United States Patent Office.

EDSON LAMPHEAR, OF STEPNEY, CONNECTICUT.

Letters Patent No. 101,138, dated March 22, 1870.

## IMPROVEMENT IN PUMPS.

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

I, EDSON LAMPHEAR, of Stepney, in the county of Fairfield, in the State of Connecticut, have invented certain Improvements in Pumps; and I do hereby declare that the following is a full and exact description thereof.

My pump is intended to serve as a submerged pump, and is constructed with reference to conveniently placing and holding it in the bottom of wells or tanks, and in analogous positions, where it will be operated by rods descending from suitable mechanism above.

I will first describe what I consider the best means of carrying out my invention, and will afterwards designate the points which I believe to be new.

The accompanying drawings form a part of this specification.

Figure 1 is a vertical section through the body of the pump, and side elevation of the connected parts above and below.

Figure 2 is a plan view of the working-parts, the delivery-pipe being represented as broken off or cut across horizontally.

Figure 3 is a horizontal section through the body of the pump.

Similar letters of reference indicate like parts in all the figures.

I construct the pump with two cylinders, and with two pistons working therein, both delivering the water into a common discharge-pipe.

The cylinders are cast together, and I provide novel means of forming an air-chamber in the top of each, for securing the upper box in each, without endangering the leakage of the air, and for supporting the pump in position by taking hold of the earth below.

I take in the water through very liberal openings at the bottom, so that my pump will continue to perform successfully when the water is very low.

Referring to the figures—

A<sup>1</sup> A<sup>2</sup> are the cylinders, cast together, as represented. I shall refer to these collectively as the casting A.

M is a winged foot, mounted on stems *m*, which are adjusted in sockets in the casting A by means of the screws *m'*, as shown in fig. 3.

B<sup>1</sup> B<sup>2</sup> are pistons, fitting snugly without packing within their respective cylinders, and provided with openings through their bodies, and with covering-valves *b<sup>1</sup> b<sup>2</sup>*, as represented.

C<sup>1</sup> C<sup>2</sup> are piston-rods, provided with adjustable connections *c<sup>1</sup> c<sup>2</sup>*, as represented, by which their lengths may be adjusted properly.

D is a lever turning upon the pivot *d*, and provided with a socket, to receive a hand-lever not represented, by which the lever D may be rocked and

the pistons B<sup>1</sup> B<sup>2</sup> reciprocated up and down, as will be obvious.

E<sup>1</sup> E<sup>2</sup> are the fixed valves.

They are mounted near the upper portion of each cylinder, and are provided with apertures, and with covering-valves *e<sup>1</sup> e<sup>2</sup>*, which have liberty to play up and down to a moderate extent, as represented.

The play of these valves is limited by an internal lip or reinforce, G, cast on the under side of the top of each cylinder.

The holes within these reinforces G in the tops of the cylinders are larger than the piston-rods which play through them and allow space for the insertion of a sufficiently stout sleeve, H, which is cast or otherwise fixed on each of the fixed valves E<sup>1</sup> E<sup>2</sup>. It will be understood that these sleeves are introduced from below.

After they are tightly in place, a screw, *h*, in each, prevents their dropping back again.

It will now be seen that the fixed valve-seats are held in place by their sleeves H, and screw or pin *h*; that the reinforces G hold the sleeves H very firmly and tightly, and that they provide an annular space around them, which will serve as an air-chamber; and if there is any leakage through the joints in the top of each cylinder, the leakage will be of water and not of air.

My pump is very simply constructed, and is easy to keep in order. It requires no packing around either the pistons or the piston-rods, and it may endure for an indefinite period without requiring attention.

It will be understood that the delivery-pipe may be connected in any approved manner to the common orifice at the center, and that it may be led up and caused to deliver at one or more points where the water is required.

In introducing my pump in a new well, I adjust the depth of the foot M below the body of the pump, according to the hardness of the sand, clay, mud, or other material which forms the bottom of the well.

In case there is a considerable depth of soft material, it is desirable to adjust the parts, so that the stems *m*, and consequently the foot M shall stand at a considerable depth below the bottom of the cylinders A<sup>1</sup> A<sup>2</sup>.

To avoid the agitation of the bottom materials which might otherwise result from the active intermittent flow of water between the foot and the bottom of the cylinders, I fix a horizontal plate, N, in the position represented. It may be secured on the rods or stems *m*, either in a fixed position or adjustably.

I claim—

1. The within-described arrangement of the fixed valves E<sup>1</sup> E<sup>2</sup>, held in position by means of the sleeves H surrounding the piston-rod, and secured by the pins h, and adapted to serve relatively to the cylinders A<sup>1</sup> A<sup>2</sup>, pistons B<sup>1</sup> B<sup>2</sup>, and piston-rods C<sup>1</sup> C<sup>2</sup>, as herein set forth.

2. In combination with the above-named elements, the air-chambers formed in the top of the cylinders A<sup>1</sup> A<sup>2</sup> by the aid of the reinforces G, for the purposes specified.

3. The foot M and adjustable stems m and shield N, arranged to serve relatively to open-bottomed cylinder or cylinders of a submerged pump, as specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

EDSON LAMPHEAR.

Witnesses:

LAURA A. HUBBELL,  
E. SHURTES.