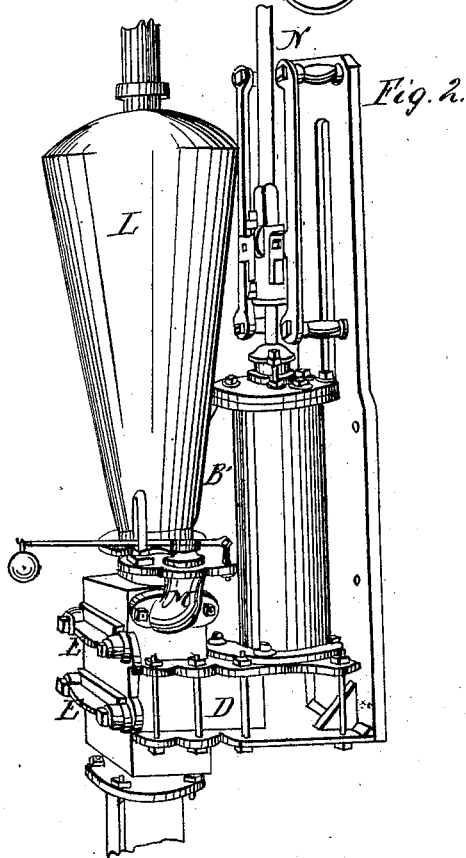
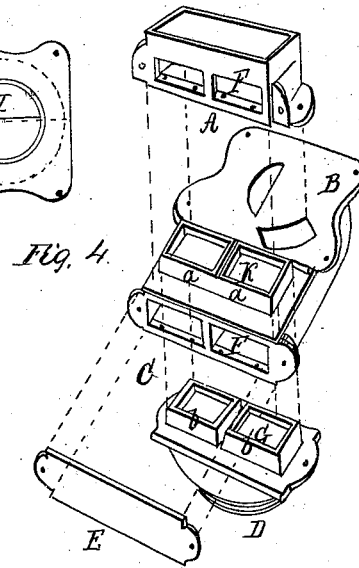
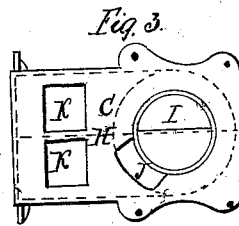
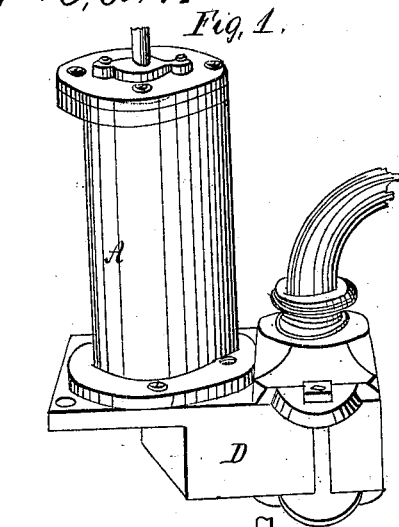


*D. L. Farnam,*

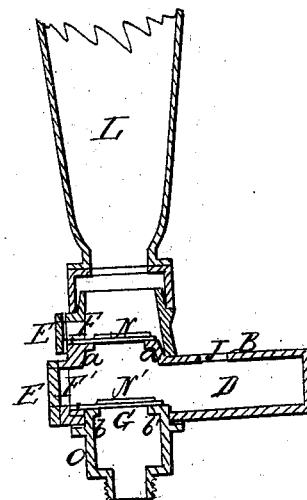
*Double-Acting Pump,*

*Patented Apr. 3, 1847.*

*N<sup>o</sup> 5,047.*



*Fig. 5.*



# UNITED STATES PATENT OFFICE.

DUDLEY L. FARNAM, OF NEW YORK, N. Y.

## VALVE AND VALVE-BOX FOR PUMPS.

Specification of Letters Patent No. 5,047, dated April 3, 1847.

*To all whom it may concern:*

Be it known that I, DUDLEY L. FARNAM, of the city, county, and State of New York, have invented a new and useful improvement in the pump patented by me on the 24th day of January, 1834, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the pump patented as above named; Fig. 2, a perspective view of the same as improved; and Fig. 3, a plan of the water ways between the cylinder and pipes and the valve seats; Fig. 4, the various parts forming the connection between the pipes and the water ways and the parts to which the valves are attached represented as disconnected, the better to represent the construction and arrangement; and Fig. 5, a vertical section taken through the valve boxes.

The same letters indicate like parts in all the figures.

In the pump patented by me as referred to above the valves are attached to the top and bottom plates of the case in which are formed the water ways, and over the valves are then screwed or bolted two caps to which are connected the induction and eduction pipes. The only inconvenience of this arrangement, which long use and experience has shown, is the difficulty of access to the valves for repairs, so frequently required in pumps even of the best construction, for the valves cannot be reached without removing the caps which are bolted to the plates of the water way box and connected with the pipes, often made of iron. This serious inconvenience I avoid by my improvement which consists in surrounding the induction and eduction apertures at top and bottom with rims or projecting flanches that form the valve seats, when this is combined with apertures made through the sides of the upper cap and the end of the water way box, the lower edges of which are on a level with the valve seats so that the valves can be introduced through these apertures and bolted or otherwise secured to the lower edges of these apertures which are then covered with cap plates to prevent the escape of water. By this arrangement all that is necessary to

remove the valves is to remove the cap plates and unbolt the valves which being secured to the lower edge of the apertures in the sides of the caps can be reached for this purpose with facility—the parts being so constructed as to admit of being made of cast metal.

In the accompanying drawings (A) represents the cylinder of the pump which is vertical and (B) the plate to which it is secured by screw bolts, and constituting the top plate of the water way box (D) which is divided by a vertical longitudinal partition (H) into two water ways leading to the induction and eduction apertures (K K) and (G G), and one communicating with the lower end of the cylinder through an aperture (I) in the top plate, and the other with the upper end through an aperture (J) that opens into the side pipe (B'). The eduction apertures (K K) are surrounded with rims or flanches (*a, a*) the upper edges of which constitute the valve seats. The cap of the eduction pipe (M) and air vassel (L) fits around these rims or flanches and is bolted to the plate (B) and in the side of this cap there are two apertures (F, F') that lead to the valve seats, with the lower edge of these apertures on a level therewith, so that the valves (N, N) can be bolted to this lower edge and rest on the edges of the rims or valve seats. The rims or valve seats (*b, b*) of the induction valves (N', N') instead of being attached to the lower plate of the water box, project from the plate of the lower cap (*o*) and fit in appropriate holes made in the lower plate of the water box so as to be on a level with the lower rim of the holes (F', F') made in the end plate of the water box for the reception of the induction valves, which are introduced and secured in like manner as the eduction valves. When all the parts are appropriately connected together the apertures (F, F) and (F', F') are closed by means of cap plates (E, E).

From the foregoing it will be obvious that this arrangement is applicable to pumps made with two cylinders as well as to those made with but one.

What I claim as my invention and desire to secure by Letters Patent is—

Attaching the valves to the lower edge of the apertures in the side of the upper cap and the end plate of the water way box in combination with the flanches that constitute the valve seats (surrounding the induc-

tion and eduction apertures and fitted with-  
in the cap or bonnet and the water way box)  
and with the cap plates, which give access to  
the valves, substantially as described, where-  
5 by the apertures in the side of the upper cap  
and the end plate of the water way box  
answer the double purpose of giving access  
to the valves to take them out to repair, &c.,

and to adjust them to the flanches which  
constitute their seats and which are separate 10  
from the parts to which the valves are at-  
tached, as described.

DUDLEY L. FARNAM.

Witnesses:

DAVID T. SNELLEAKER,

J. W. PLATT.