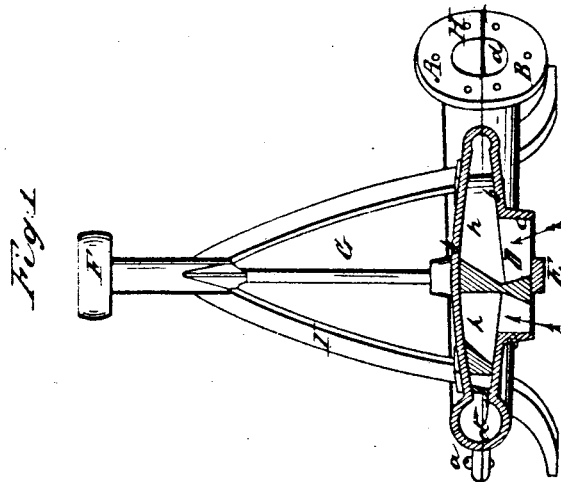


J. BOLEY.  
PUMP.

No. 48,647.

Patented July 11, 1865.



# UNITED STATES PATENT OFFICE.

JOHN BOLEY, OF BALDWINVILLE, NEW YORK.

## IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 48,647, dated July 11, 1865.

*To all whom it may concern:*

Be it known that I, JOHN BOLEY, of Baldwinville, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Centrifugal Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification—

Figure 1 being a vertical section of the case inclosing the piston, in the plane indicated by the dotted line, Fig. 2, and showing the actuating parts in elevation; Fig. 2, a plan of the case.

Like letters designate corresponding parts in all the figures.

My invention consists in the combination, with a case provided with an increasing spiral discharge passage, of a piston having the usual form of wings, with the addition thereto of concave extension-wings D, the whole arranged and operating substantially as herein-after described.

The case in which the piston plays is of the ordinary form and construction, being composed of an upper and lower half, A and B, which are counterparts, fitting together and secured by means of bolts passing through the ears *a a*, with packing between in the usual manner.

The shape of the case is eccentric, and it is provided at the proper position with a circular spiral water-discharge passage, *d d*, commencing at a point at the abutment *e* where the piston touches and gradually increasing in diameter around the central circle, till at the eduction-outlet H the eccentricity is equal to the diameter of the passage at that point. The central portion of the case, or that portion in which the piston turns, is made dish-shaped, as represented at *b b*, and the lower part of said case has a flange, *c*, situate in the center of the case, extending downward far enough to receive the concave extension-wings D, and a step-bar, E, extends across the bottom of the case that holds the wings.

The piston is composed of a center having radiating wings *h h h h*, curved longitudinally in the direction opposite their motion, so as to present a convex outline on the acting side,

and concave extension-wings D attached to the lower side of the above-mentioned wings *h h h h*, and of sufficient length to fill and play easily in the flange *c*, extending downward from the center of the case. Any desired number of wings may be used, four only being represented in the drawings; also, any number of concave extension-wings D may be used, but equal in number to the large wings above them. Their length is such as to just reach to the flange *c* and *c*, respectively, and to fill the radius of each central circular, so that but little escape is permitted around them. Underneath the piston in the case, extending downward, is a flange, *c*, of suitable size and depth for the purpose, designed to receive the wings D, which are to fill the radius of the flange *c*, and across the bottom of the flange is a step-bar, E, and fastened to the case with slots in the flange, in which is a step for the purpose of holding firmly in its place the shaft G, in which it centers. The purpose of the wings D is to increase in a very great degree the power, so that a larger volume of water will necessarily be ejected through the spiral discharge-passage H with less motive power.

The piston is actuated by a shaft, G, which rests upon and is fastened into the step-bar E, and which extends upward to the top of the well, or any desired height. The shaft is at its top incased in a metal tube, in which it freely plays. Extending from said tube downward to the case are any number of braces *i*, (but three are shown in the drawings,) which are fastened firmly to the case.

On the top of the shaft G is a pulley, F, of any desired dimensions or size, around which a belt is intended to run, and the belt attached to any motive power parties may desire, to cause the shaft to revolve.

The small wings D that play in the flange will give the water the initiatory motion necessary to its easy and continued motion by the large wings above, and therefore will increase the volume of water discharged with less motive power, and will give more force to the water and lessen the reaction of the water.

I do not claim any part of the above patented by Eli Perry in 1862 and 1864, nor any

part of S. H. Wilson's blower, patented by him in 1862; but

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

The concave extension-wings D, the flange c, and the bar E, securing the step to the flange, the whole arranged and operating substantially as and for the purposes herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN BOLEY.

Witnesses:

L. F. SMITH,  
Z. C. FOOT.