Heald & Sisco.

Rotary Pump.

No. 48,938 Patented July 25. 1865.

Fig. 2.

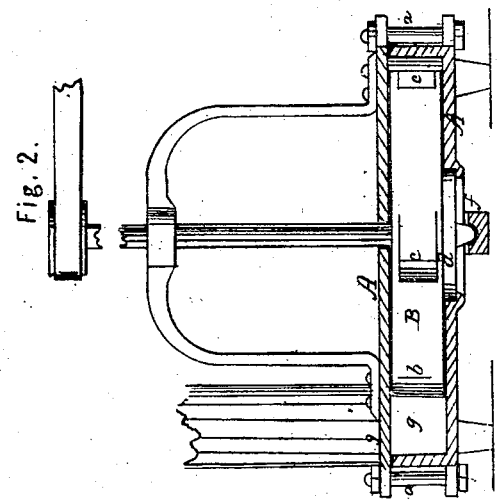


Fig. 3

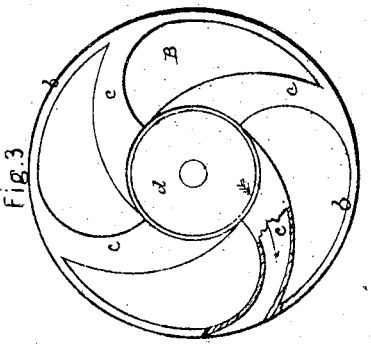
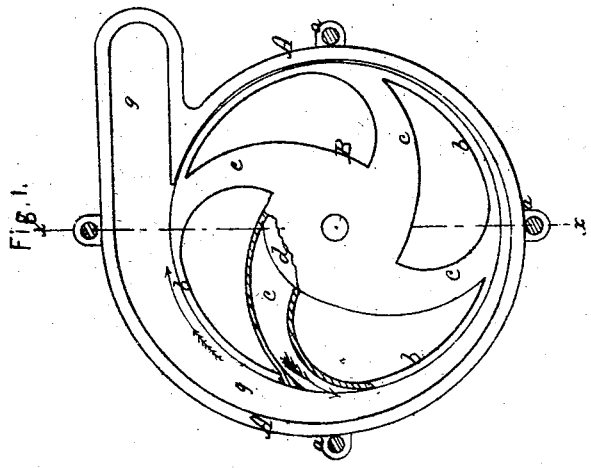


Fig. 1.



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GEO. W. HEALD AND L. D. SISCO, OF BALDWINSVILLE, NEW YORK.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. **48,938**, dated July 25. 1865.

To all whom it may concern:

Be it known that we, GEORGE W. HEALD and L. D. SISCO, of Baldwinsville, in the county of Onondaga and State of New York, have invented a new and useful improvement in Pumps; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a plan of our improved pump, the upper portion of the casing being removed for the purpose of showing the interior arrangement; Fig. 2, a vertical section in the plane of line *x x*, Fig. 1; Fig. 3, a plan of the bottom of the piston inverted or turned bottom upward.

Like letters of reference indicate corresponding parts in all the figures.

Our improved pump belongs to that class known as "centrifugal" pumps, the water being drawn in and forced from the center to the periphery and raised by centrifugal action.

As represented in the drawings, A is the casing or scroll, made in two parts, which are secured together by bolts *a a*. This casing does not differ essentially from that ordinarily used, except that we prefer to make the top and bottom plane instead of dishing or convex, as is usually the case.

The novelty of our device consists, essentially, in the particular construction and arrangement of the piston B. This is made a hollow shell in the form of a wheel, having an outer rim, *b*, which fills the vertical distance within the casing A, as shown in Fig. 2, and having any desired number of arms, *c c*, which are inclosed or hollow, except at the ends, said arms being curved backward opposite the motion of the piston. The piston is provided centrally with an inductive cylinder or chamber, *d*, open at the bottom, but closed at the top, and, if desired, the lower edge of the rim of this cylinder may be covered by a flange formed on the corresponding opening *f* in the case. The result we desire to attain by this arrangement is twofold: first, to carry the body of water that enters the piston around without its coming in contact with the central portion of the casing A, and thereby producing undue friction under pressure; and, second, to retain the water that is thrown out into the discharge-passage *g* from returning back again toward the center.

It will be seen that this effect is accomplished, since the body of water that enters the hollow arms of the piston will be carried around therein, escaping only through the outlets of the arms, and since the water thus thrown out into the discharge-passage will be cut off from return by the vertical rim *b*, which revolves rapidly and fills the whole vertical distance between the top and bottom of the case.

We are aware that a device has been employed in which the water is drawn into a hollow piston to prevent friction on the casing; but in this case the rim *b* is not used to retain the water in the discharge-passage of the scroll when once there. We are also aware that simple arms or wings to the piston have been employed, having projections at the periphery corresponding to a certain degree with the rim *b;* b in this case the arms were not hollow, and therefore the water was not inclosed in the piston, but came in contact with the outer casing at all points. Our invention consists in neither of these devices separately, but in the combination of the essential features of both, whereby a new and improved result is attained—viz., the receiving of the water in a hollow piston to prevent undue friction on the casing, and the employment of an outer rim to the piston to retain the water that is thrown out into the discharge-passage *g*.

What we claim as our invention, and desire to secure by Letters Patent, is—

The construction of the piston B, consisting of the rim *b*, and hollow arms *c c*, arranged and operating substantially as and for the purpose herein set forth.

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