2 Sheets—Sheet 1.

# B. J. C. HOWE.

## Submerged Pump.

**No. 204,896.** **Patented June 18, 1878.**

*Fig. 1.*

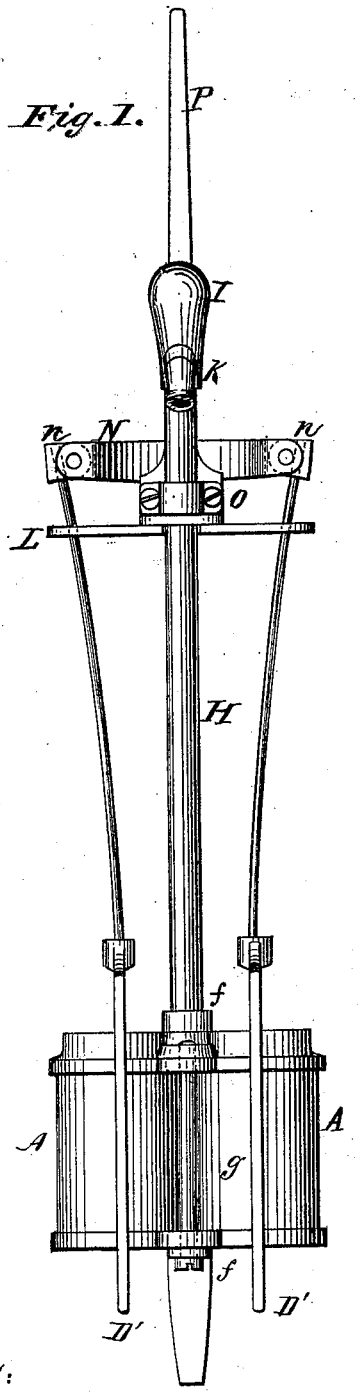


*Fig. 8.*

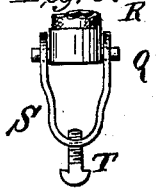


*Fig. 2.*




Witnesses:

J. C. Brecht.

O. B. Cowles

Inventor:

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# B. J. C. HOWE.
## Submerged Pump.

**No. 204,896.** **Patented June 18, 1878.**

*Fig. 3.*

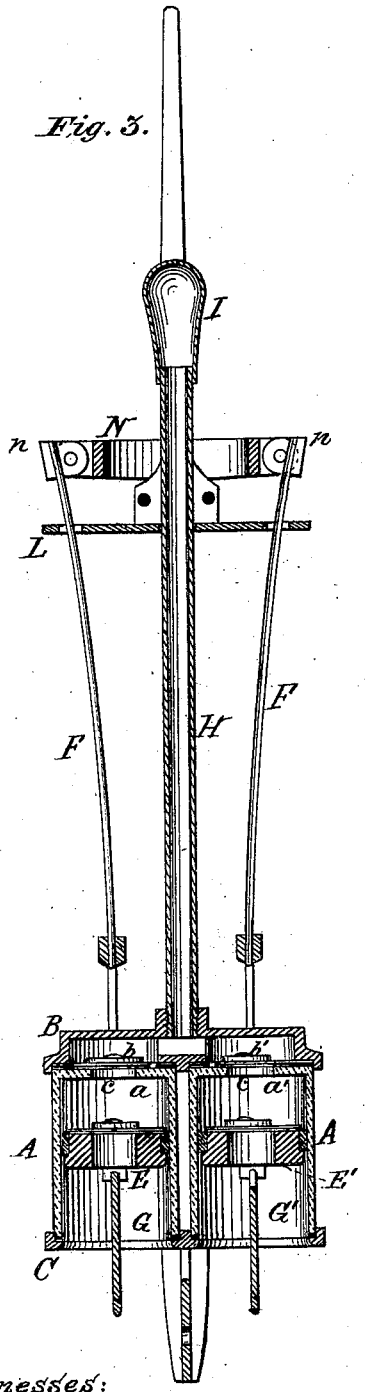



*Fig. 5.*

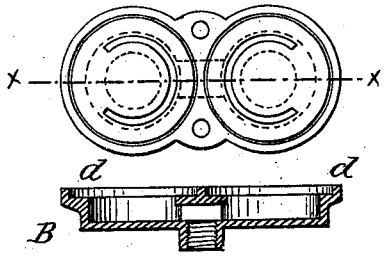



*Fig. 6.*

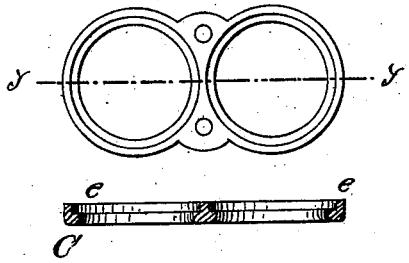
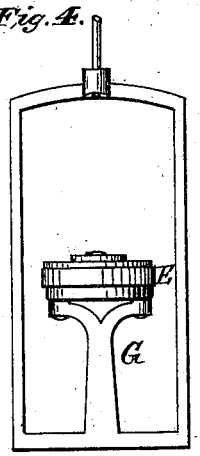



*Fig. 4.*



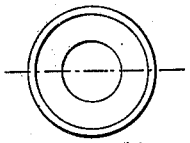
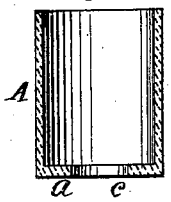



*Fig. 7.*




*Witnesses:*

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*Inventor:*

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# UNITED STATES PATENT OFFICE.

BENJAMIN J. C. HOWE, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN SUBMERGED PUMPS.

Specification forming part of Letters Patent No. **204,896**, dated June 18, 1878; application filed April 19, 1878.

*To all whom it may concern:*

Be it known that I, BENJAMIN J. C. HOWE, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Pumps of the class known as "Submerged Pumps;" and I do hereby declare that the following is a full, clear, and exact description of my invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention consists, first, in constructing the yokes that attach the plungers to their operating-rods each of one piece of metal.

My invention further consists in constructing the non-corrodible pump-cylinder with valve-seats formed in one piece, and so arranging the valve thereon that it is held between the upper end of the cylinder and the cap-piece, all of which will be made more fully hereinafter to appear.

In the accompanying drawing, forming a part of this specification, in which like letters of reference designate corresponding parts, Figure 1 is a front elevation of my improved pump. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of the pump, showing the construction and arrangement of the cylinders, plungers, valves, &c. Fig. 4 is a view, in elevation, of the yoke by which the plungers are connected to their operating-rods. Figs. 5 and 6 show, by plan and sectional views, the construction of the top and bottom cap-pieces, respectively, the sections being taken, respectively, on lines *x x* and *y y*. Fig. 7 illustrates, by sectional views, my improved cylinder.

A are the pumping-cylinders, made of glass or other non-corrodible material. The lower or receiving ends of the cylinders are entirely open. Each cylinder has at its upper or discharge end an interior annular flange, *a a'*, forming a seat for the check-valve *b* or *b'*, which covers the discharge-opening *c*.

B is the upper cap-piece, having rabbets *d*, in which the upper ends of the cylinders are seated, the wings of the check-valves being clamped between the upper ends of the cylinder and the cap-piece. C is the lower cap piece, provided with rabbets *e*, in which the lower ends of the cylinders are seated. Both cap-pieces are provided with lugs, through which pass ordinary tie-rods to firmly hold the cylinder and cap-pieces together.

If desired, suitable packing may be interposed between the ends of the cylinder and the cap-pieces.

D are the yokes, by which the plungers E E' are attached to the operating-rods F F. These yokes are made of nearly rectangular form, and have at the top sockets, by which the rods are attached to them either by riveting or screw-threads, or by any of the other well-known means of fastening. From the center of the bottom bar of each yoke rises a standard, G or G', the top of which may be forked, as shown, and supports the plunger E or E'.

The yoke, with its socket or standard, is made in one piece, combining simplicity of construction with freedom from joints and connections liable to loosen and otherwise get out of order.

The plungers E E' are provided with upwardly-opening valves, as shown. In the center of the upper cap-piece is a discharge-opening, common to both cylinders, and connected to the discharge-pipe H, which has at its upper end the air-chamber I and discharge-spout K, secured to the discharge-pipe below the discharge-spout in the guide-plate L, through slots in which the plunger-rods pass.

From the rear side of the guide-plate rises the standard M, to which is pivoted, at or near the lever, yoke N. The forward end of the pivot has its bearing in a socket-piece attached to the discharge-pipe by a clamping-piece, O, and screws or bolts. The ends of the lever-yoke are brought forward so as to bring the lugs *n*, to which the plunger-rods are attached, in a line with the discharge-pipe. Thus the lever P and lever-yoke are operated from the rear of the discharge-pipe, while the plunger-rods are caused to reciprocate in a plane parallel to the discharge-pipe.

To the discharge-spout is connected the flexible hose X, by means of the coupling device Q, which has the socket-piece R, in one end of which is inserted the end of the hose,

The other end is drawn over the discharge-spout. Pivoted to the socket-piece is the shackle S, having on top the set-screw T. When the socket is properly adjusted to the hose and to the discharge-spout, the shackle is drawn over the latter, and by means of the set-screws the parts are firmly secured together.

The operation of the pump is similar to others of its class, the water being alternately drawn into and forced from the cylinders through the common discharge-pipe.

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

1. The yoke having at its upper end the socket to which the plunger-rod is attached, and at its lower end the plunger-carrying standard, all made in one piece, substantially as set forth.

2. The non-corrodible cylinder A, having the interior flange *a*, forming the valve-seat, in combination with the cap B and the valve *b*, clamped between the two, as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

BENJAMIN J. C. HOWE.

Witnesses:

H. T. FOX,

O. B. COWLES.