Cook & Nash,

Force Pump.

No. 34,624. Patented Mar 11, 1862.

Fig. 4

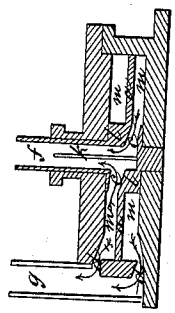


Fig. 5

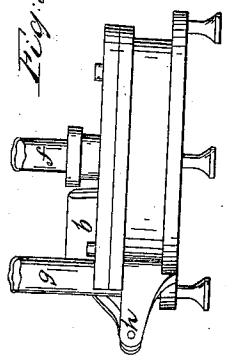


Fig. 2

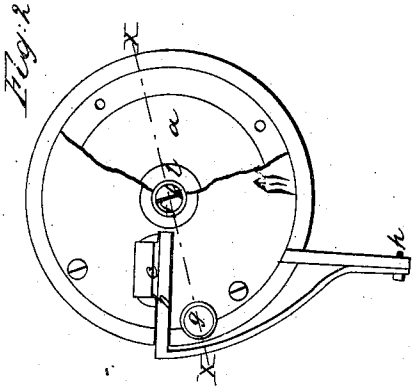


Fig. 5

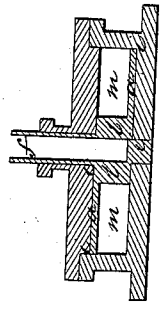
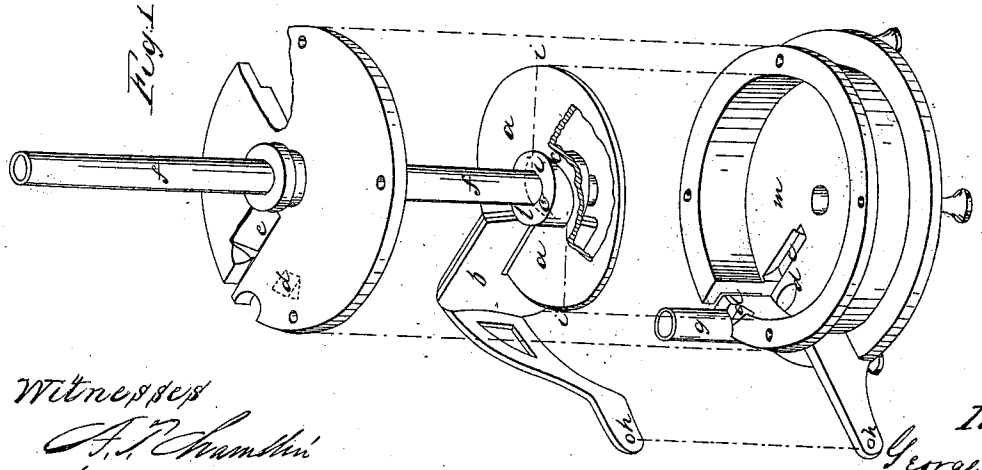


Fig. 1



Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

GEORGE W. COOK AND ZEBIRON E. B. NASH, OF ST. PAUL, MINNESOTA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **34,624**, dated March 11, 1862.

To all whom it may concern:

Be it known that we, GEORGE W. COOK and ZEBIRON E. B. NASH, of the city of St. Paul, county of Ramsey, and State of Minnesota, have invented a new and Improved Force-Pump; and we 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.

The object of this invention is to produce a submerged pump, simple in its construction, convenient and easy to operate, and one which has a continual and even pressure, there being no break or check in the stream, at the same time having powerful forcing qualities.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation. The accompanying drawings represent a pump without the necessary gearings attached for the operation.

Figure 1 is an isometrical view of parts detached vertically. Fig. 2 is a plan. Fig. 3 is an elevation. Fig. 4 is a section through X X, showing discharge-ports. Fig. 5 is a section showing warped flange in connection with water-chamber.

It will be understood that the cylinder or water-chamber is permanently fastened by means of bolts or otherwise, while the shaft *f* and flange *a* revolve.

The propelling-pipe *f* represents both a hollow and solid shaft, which, when in operation, is turned toward the concave side of the valve *b*. The warped flange *a* is permanently attached to the hub *l*, in the center of which the pipe or shaft *f* is secured by screwing the pipe into the hub or otherwise. When ready for operation, the hub and flange are confined within the water-chamber *m*, as represented at the base of Fig. 1. The points of bearing of shaft or pipe are through the center of the top and at the center and bottom of water-chamber *m*, as represented in Fig. 1. The points of bearing of flange and hub, when confined within the water-chamber, are at the top and bottom of the water-chamber on the lines with *i i*, as represented in Fig. 5, the outer edge of the flange filling the circle of cylinder or water chamber. The valve *b* is inserted in the corresponding slit through the water-chamber, as represented in Figs. 1, 2, and 3, there also being a slit in the valve the width and thickness of the flange. It will readily be seen that the valve sits astride of the flange, as represented in Fig. 1, when in operation, its office being to hold the water in check both above and below the flange (thereby being double-acting) until forced through the discharging-ports *c c* and *d d*. The points of bearing of the valve are on each side of the flange at the hub *l* and at the hinge or bolt *h*.

The partition *k* in the center of pipe *f*, as shown in Figs. 2 and 4, is for the purpose of preventing the two currents of water from coming in contact until they have received their upward tendency.

The water is received in the water-chamber *m*, both through the top and bottom, at the ports *e e*, as shown in Fig. 1, and is forced into the center pipe *f* through the two discharge-ports *c c*, one being on top and the other beneath the flange *a*, and into the side pipe through the discharge-ports *d d*, as shown in Figs. 1 and 4.

The side pipe *g* is used either in connection with the center pipe *f*, discharging from both, or when a solid shaft (as it represents) is preferred, the shaft taking the place of the center pipe *f*, the discharge is at the side pipe *g*.

It will readily be seen that the points of bearing *i i* at the top and bottom of flange are directly opposite each other, so that when either point is passing the receiving-port the other is in full force, thereby rendering the pressure continual and of an even purchase.

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

1. The warped flange *a*, in combination with the pipe *f* and cylinder or water-chamber *m*.

2. The double-acting slide or swing valve *b*, in combination with the flange *a* and chamber *m*.

3. The extra pipe *g*, in combination with the flange *a* and chamber *m*, the whole being constructed and operated in the manner and for the purpose described.

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Witnesses:
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