B. J. C. HOWE.

PUMP.

No. 187,531. Patented Feb. 20, 1877.

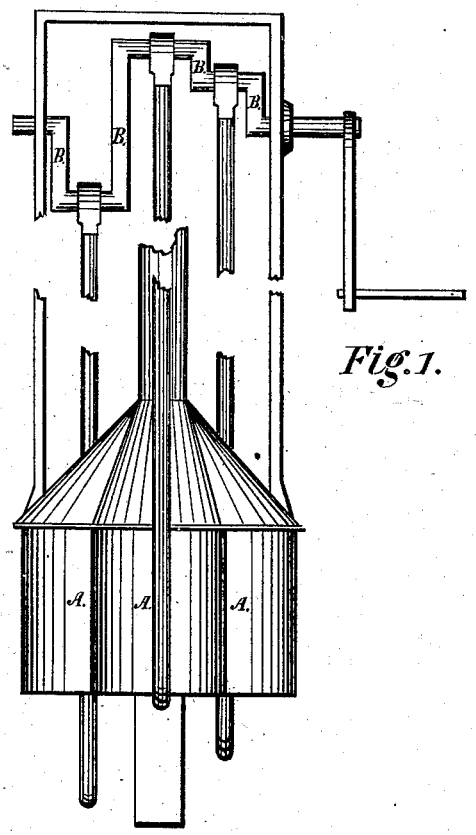

Fig. 1.

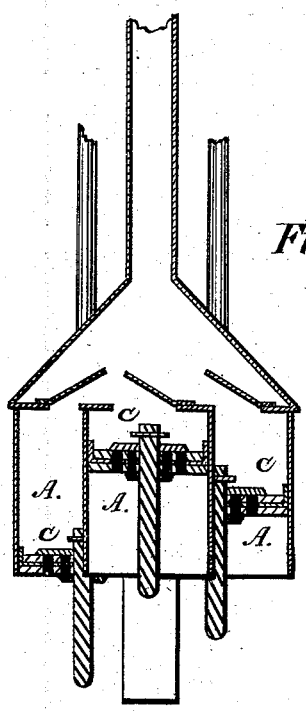

Fig. 2.

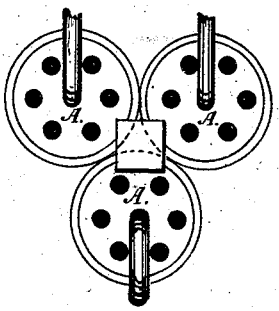

Fig. 3.

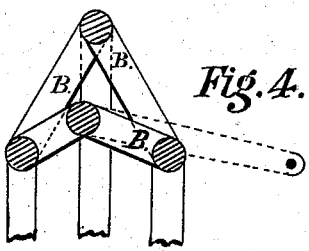

Fig. 4.

WITNESSES

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IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **187,531**, dated February 20, 1877; application filed August 8, 1876.

To all whom it may concern:

Be it known that I, B. J. C. HOWE, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Pumps, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to construct a pump that will cause a steady and continuous stream of water or other liquid to flow without the use of an air-chamber or other device to regulate the flow of water.

In the accompanying drawings, Figure 1 is an outside view of the pump. Fig. 2 is a longitudinal section of the working chambers, pistons, and valves of the pump. Fig. 3 is a transverse section of the working-chambers. Fig. 4 is an end view of the triple crank and driving-shaft.

A A A are three pump-pistons. B B B are three cranks, so arranged as to be equidistant from each other, and of equal length of stroke. C C C are three connecting-rods, which communicate motion from the cranks to the pistons. The arrangement of the working parts is such that the advantages of a force-pump are obtained without the use of a stuffing-box. Consequently, a large amount of friction is avoided.

The three cylinders are arranged, as shown in Fig. 3, in the most compact manner, so that they can be inserted in a bored or drilled well.

It will be seen, by witnessing the operation of this pump, that the working of one piston is followed so closely by the working of the next that there is never any cessation in the flow of the water; and also that no two of them are ever working at full power at the same time. Consequently, while it requires more power to operate this pump than it would to operate a single-piston pump of the same size and length of stroke, yet this pump will throw three times the amount of water. The reason that but little more power is required is that in this pump the power is applied steadily and continuously, while in a single-piston pump the same amount of power is unsteadily applied, and only one-third of the amount of water thrown.

It is evident that the working-chambers may be reversed, so that their open end shall be uppermost, and the water forced downward by the action of the pistons, instead of lifted, as shown in Fig. 1, with substantially the same results, which I regard as but a modification of my invention.

I am aware that pumps of three cylinders, operated by three cranks, are not new; but such pumps have had their cylinders in line, so that if used as submerged pumps, as mine is, they could not be used in wells of small diameter, as deep wells frequently are.

I claim—

In a submerged pump, the combination of three cylinders, arranged in triangular form, with a single discharge-pipe and a three-throw crank, as and for the purpose described.

BENJAMIN J. C. HOWE.

Witnesses:

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