H. M. Stoker,

Submerged Pump.

No. 48,219. Patented June 13, 1865.

Fig. 1

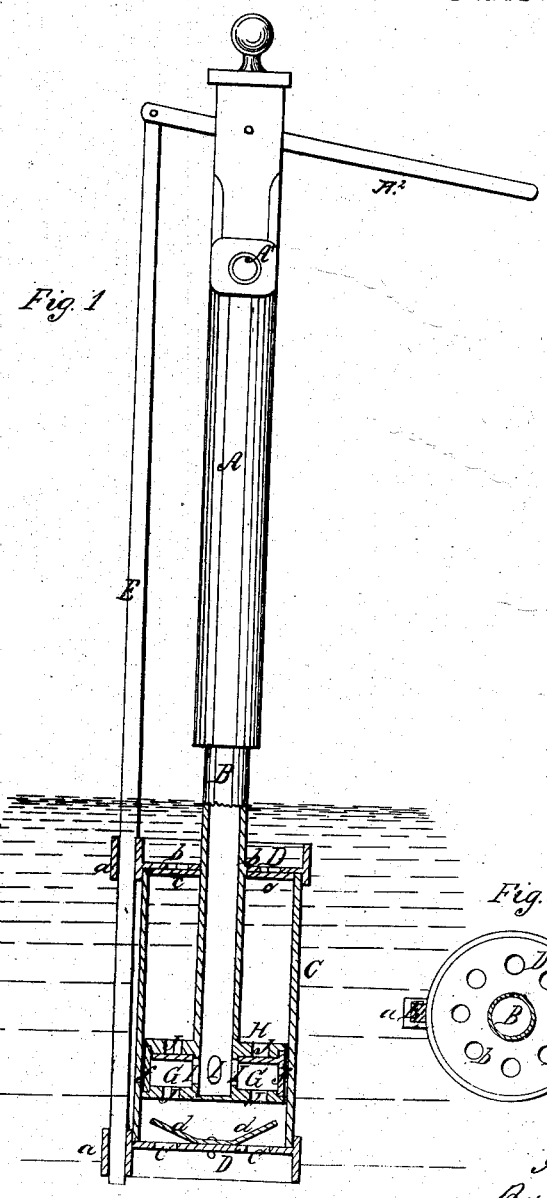


Fig. 2.

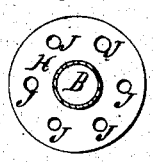
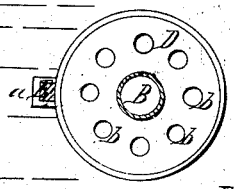


Fig. 3



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UNITED STATES PATENT OFFICE.

H. M. STOKER, OF WATSON, ILLINOIS.

IMPROVEMENT IN SUBMERGED PUMPS.

Specification forming part of Letters Patent No. 48,219, dated June 13, 1865.

To all whom it may concern:

Be it known that I, H. M. STOKER, of Watson, Sangamon county, and State of Illinois, have invented a new and useful Improvement in Double-Acting Submerged Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a pump made according to my invention, part thereof being shown in section. Fig. 2 is a plan view of the upper part of the piston. Fig. 3 is a plan view of the upper part of the cylinder.

Similar letters of reference indicate like parts.

This invention relates to that class of pumps the cylinders and valves of which are to be submerged, so as to be protected from the action of the frost.

A is the pump-tube, having the usual delivery-spout, A′. The tube is to be securely fixed in proper position, so as not to be capable of motion during the operation of pumping.

B is an extension of the tube, which passes centrally through the top D of the cylinder C, and has a hollow piston, H, fixed at its end within the piston. The cylinder C may be made of metal, pottery, or other suitable material, having a perforated top, D, and bottom D′, each of which is provided with valves opening inwardly, and which cover the perforations. The perforations *b* in the top D are inlet-passages, and are arranged in regular order about the tube B, and are provided with valves *c* opening inward. The bottom D′ is also provided with perforations and valves *d*, through which the water is introduced into the cylinder below the piston H.

The piston H is formed of solid heads and with elastic sides. It is hollow, its heads being perforated, as seen at J, and said perforations being alternately closed and opened by an annular valve, G, which slides to and from one head to another of the piston around the tube or piston-rod B. The valve G is of vulcanized rubber. The sides of the piston H are packed, as seen at *f*, with the vulcanized rubber, which forms its periphery, and its edges are joined to the piston-heads by water-tight joints, so that the pressure of the water in the tube B and stock or tube A keeps the packing pressed close against the sides of the cylinder, making an efficient packing, the elasticity of the rubber enabling it to yield and accommodate itself to any inequalities in the sides of the cylinder. The cylinder is provided on one side with sockets, which receive the connecting-rod E, by which the pump is operated. This rod is pivoted above to the inner ends of the pump-handle A^2, and its lower end is firmly fixed in the sockets *a a*, so as to secure it to the cylinder. The sides of the piston B within the hollow piston are partly cut away, so as to form openings I, through which a communication is established between the interior of the piston-rod or tube B and the hollow piston.

The operation of the pump is as follows: The pump-stock A having been secured in the upper part of any well or reservoir in such a manner as that the cylinder shall not reach the bottom of the well or reservoir during the operation of the pump, the operator depresses the handle A^2, and thereby causes the rod E and cylinder C to be moved upward away from the piston H, thereby creating a partial vacuum in the upper part of the cylinder, which will be immediately filled with water by means of the pressure from above. When the rod E is moved downward the descent of the cylinder forces the water into the hollow piston, driving the annular valve downward upon its lower head, whose perforations J become thereby closed. The water will also be forced through the perforated sides of the piston-rod at J into the said rod. Moreover, the descent of the cylinder C will cause the valves *d* to open, when the water of the well will pour into the cylinder beneath the piston, and when the cylinder is again carried upward the lower valves will become shut and the water will be forced through the holes J in the lower head of the piston, and so through the piston into the hollow piston-rod, as before explained. The repetition of these operations causes the water to be delivered from the spout A′ of the pump-stock.

I claim as new and desire to secure by Letters Patent—

1. In double-acting submerged pumps, the

combination of the movable cylinder C, having inlet-valves in both its heads, D D′, with the hollow piston-rod and hollow piston, the inlet-passages of said cylinder being governed by the same annular valve, substantially as described.

2. Making the hollow piston H with solid heads, perforated as shown, and with elastic sides, substantially as above described.

H. M. STOKER.

Witnesses:
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