

A. CARLIN.
 ROTARY FORCE-PUMP.

No. 170,343.

Patented Nov. 23, 1875.

Fig. 1.

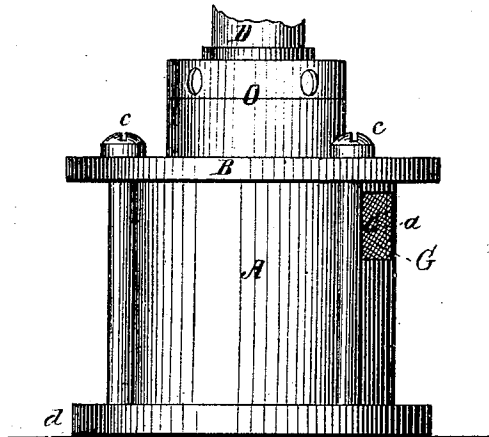


Fig. 2.

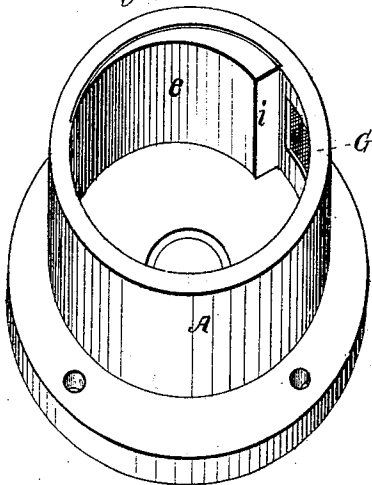


Fig. 3.

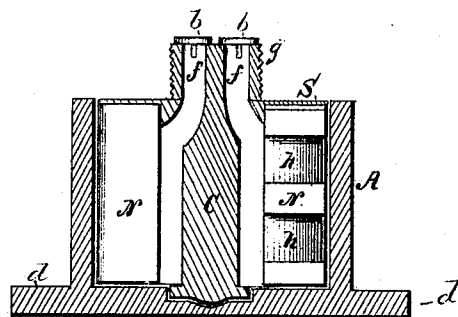
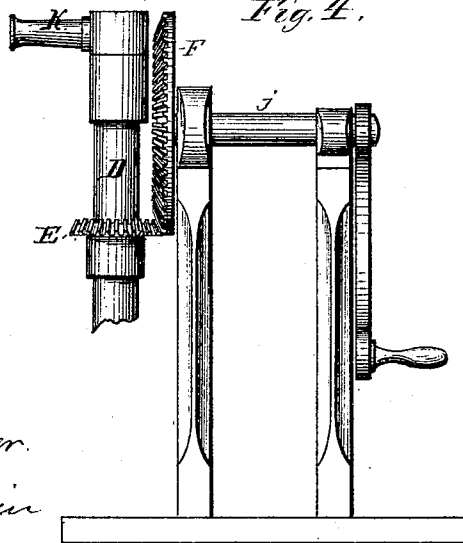


Fig. 4.



Witnesses.

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IMPROVEMENT IN ROTARY FORCE-PUMPS.

Specification forming part of Letters Patent No. **170,343**, dated November 23, 1875; application filed June 10, 1875.

To all whom it may concern:

Be it known that I, ASA CARLIN, of Stone's Prairie, county of Barry and State of Missouri, have invented a new and useful Improvement in Submerged Rotary Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings forming a part of this specification, in which—

Figure 1 represents a side elevation of the pump-cylinder; Fig. 2, a perspective view of the interior of the same; Fig. 3, a longitudinal vertical section of the pump-cylinder and driving-wheel; and Fig. 4, a side view of the tube, discharge-nozzle, and driving-gear.

Pumps of the class to which my invention relates, so far as I am aware, have been open to many objections, owing to the complicity of the operating parts, rendering the same liable to get out of repair by continued use. It is also well-known that rotary pumps in which the water is raised by suction frequently require "priming." By submerging the pump the necessity for such operation is entirely removed, as the pump is always in order for action.

The object of my invention, therefore, is to specially construct a pump that will admit of its being submerged in the water, and entirely dispensing with the additional construction or change requisite to make the said pump lift by suction, making a much simpler and more perfect operating pump.

To accomplish the object sought, my invention consists in the construction and arrangement of the several parts whereby the water is admitted directly to the pump, through an aperture in the side of the cylinder, as will be hereinafter described, and subsequently pointed out in the claim.

In the drawings, A represents the outer cylinder of the pump, formed with an opening, G, at its side, through which the water passes into the cylinder, and which is protected by a metal wire-gauze covering or plate, *a*. Upon the interior of the cylinder A is a cam-projection, *e*, which approaches nearer the center as it extends to the offset *i*. The drive-wheel C, as represented in Fig. 3, is formed with

two vertical chambers, arranged opposite each other, and communicating with water-passages *f*, the same being controlled by check-valves *b*. These chambers receive loosely-fitting valves N, formed with inclined recesses *h*, two in each valve, and arranged one above the other. These valves are extended from the bottom of the wheel C to the rim S, and enter about half-way through the same. The drive-wheel C is held in place within the cylinder A by a lid, B, secured thereto by suitable bolts *c*, which pass down and screw to the annular flange *d* of the cylinder. The lid B, at its center, is formed with a screw-flange, upon which is secured a suitable stuffing-box, O. The tube D, through which the water passes after leaving passages *f*, is secured to the drive-wheel C by connecting the same with the screw-nipple *g*, forming a communication with the opening in the tube and the passages *f*. At the upper end of the tube D is loosely connected, by a bush-coupling, a discharge-nozzle, K, so that the position of the nozzle will not be affected by the rotation of the tube D, motion being imparted to the latter by aid of a bevel-gear wheel, E, rigidly connected to the tube, and meshing with the teeth in a bevel-gear wheel, F, secured to the end of a driving-shaft, *j*, operated by any suitable power.

To understand the operation of my invention will require but a brief explanation. Motion being given to the shaft *j*, carrying the gear-wheel F, communicates a rotary motion to the tube D, through the medium of the gear-wheel E, the driving-wheel C also being rotated, which, with the aid of springs, throws out the valves N from the center of the wheel, trapping the water that enters the opening G, into the space between the wheel and the cylinder A. The drive-wheel C fits close to the abutment *i*, thereby causing the water before the valves N to enter the recesses *h* in the same, from whence it passes into the passages *f*, and through the opening in the tube D, out through the nozzle K, the check-valves *b* preventing the return of the water into the cylinder A, but allowing its escape into the tube D. The valves N are forced to the cen-

ter of wheel C while passing the continuation of the cam *e* or offset *i*. The rim S of the drive-wheel C is perfectly cylindrical, and sufficiently large in diameter to snugly fit the interior of the cylinder A above the cam *e*.

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

1. The submerged rotary pump, as described, consisting of the cylinder A, provided with cam *e* and water-inlet G in the side thereof, and the wheel C formed with water-passages *f*, and carrying valves N, with recesses *h*, and

check-valves *b*, substantially as and for the purpose set forth.

2. In combination with cylinder A the drive-wheel C, provided with recessed valves N, passages *f*, check-valves *b*, discharge-tube D, and nozzle K, connected thereto in a manner that will admit of the rotation of the tube without affecting the position of the nozzle, substantially as and for the purpose specified.

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Witnesses:

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