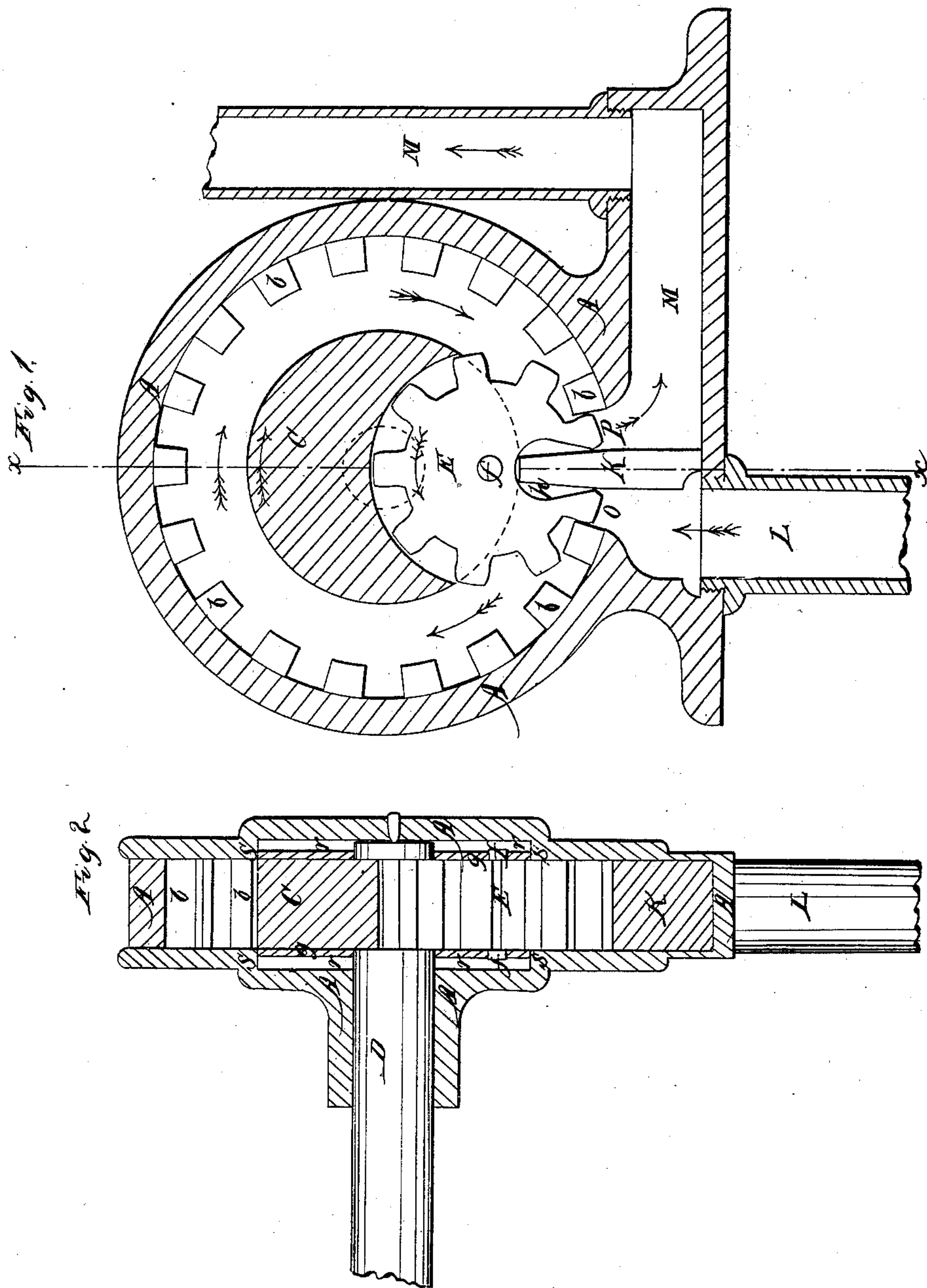


M. R. Clayn,
Rotary Pump,
N^o 21,550. *Patented Sep. 21, 1858.*



UNITED STATES PATENT OFFICE.

M. R. CLAPP, OF SENECA FALLS, NEW YORK.

ROTARY PUMP.

Specification of Letters Patent No. 21,550, dated September 21, 1858.

To all whom it may concern:

Be it known that I, M. R. CLAPP, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and Improved Mode of Constructing Rotary Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

Figure 1, is a vertical section, Fig. 2, is a transverse section on the line $x x$ of Fig. 1.

Similar letters refer to corresponding parts in both.

My invention consists of a cylindrical case A, provided with internal teeth or cogs $b b$. A cylinder C, of less diameter than the case revolves within the same on a shaft, D, having bearings on each side. A circular portion is taken out of one side of C, to receive the pinion E, which revolves on the journals f in bearings in the side plates g, g , of said cylinder. The teeth of the pinion correspond with and mesh into the internal gearing b , and the cylinder, C, being rotated in the direction indicated by the arrow the pinion traverses the periphery of the case revolving in a counter direction to that of the cylinder.

A deep circular recess, h , is formed in one side of the pinion to allow it to pass the butment K. This butment divides the suction pipe L, and discharge M, and also the induction and eduction ports, o, p , in the side of the case. It reaches to the cylinder C, and packs against its periphery which is turned true to form a tight joint, and prevent the passage of the water.

Recesses are formed in the sides of the case $r r$, and the sides of the cylinder pack the case at the angles $s s$ thereby obviating the friction of a large amount of surface. The sides of the pinion, E, fit against the sides of the case, and the sides of its teeth are accurately fitted to match with those of the case so that no water passes them; the packing being insured by the back pressure of the water in advance of the pinion, as well as the suction draft, which tend to keep the parts in contact. The ends of the teeth should also fit quite closely to the recess in cylinder C, in order that the water shall not pass them, though close packing

is not so essential at this point since the direction in which the teeth move is opposed to the direction which the water must pursue, and therefore it is constantly bringing back what would otherwise escape.

The operation is as follows;—power being applied to rotate the cylinder c , the pinion E becomes a revolving piston, forcing the water in advance of its course, and creating a vacuum behind as is usual in this class of pumps. The water in advance of the piston cannot pass the butment, and is therefore driven through opening p and out of the discharge pipe M. The piston does not pack with the periphery of the case, in the usual manner by the close contact of their surfaces, but by the cogs of one lapping by those of the other, whereby the force of the body of water moved is employed to press one plane surface upon another, insuring their contact at all times. The effect of wear does not render their packing imperfect, but on the contrary improves the joints, as the teeth become ground or worn to each other, forming a better fit, and the friction being on the sides of the teeth entirely, the principle involved does not become inoperative in the least. Its construction is very simple and cheap, and from the limited amount of friction of its parts it works with little power, and will prove durable. It is designed to work as a steam engine as well as pump, for which office it is particularly well adapted, and possesses the same advantages in the mode of packing as when used as a pump. Its capacity may be increased as desired by increasing the depth of the case.

I am aware that corrugated or cogged pistons have been used and such alone I do not claim, but

What I claim as my invention, and desire to secure by Letters Patent, is,

The combination and arrangement of the revolving toothed pinion E and cylinder C, with the butment K, or its equivalent, cylindrical case A, and internal gearing b , substantially as and for the purposes herein set forth.

M. R. CLAPP.

Witnesses:

A. FAILING,
W. S. DASEE.