

H.P. TENANT

Assignor to Self,
J. SPENCE & H.M. SOWERS.

Rotary-Pump.

PATENTED MAY 23 1877

Fig. 1. 115254

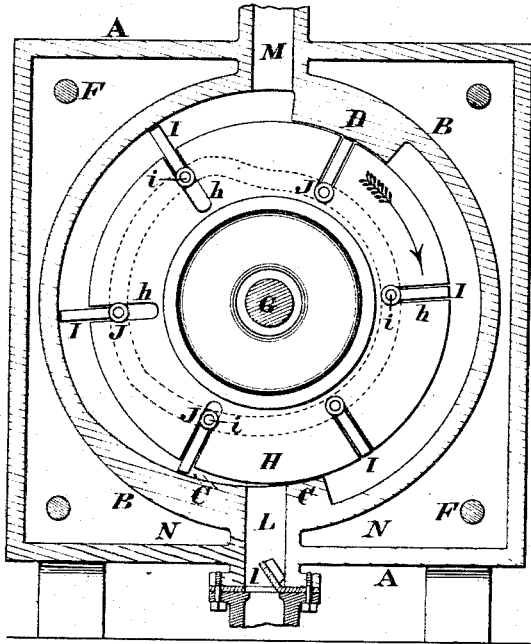


Fig. 2.

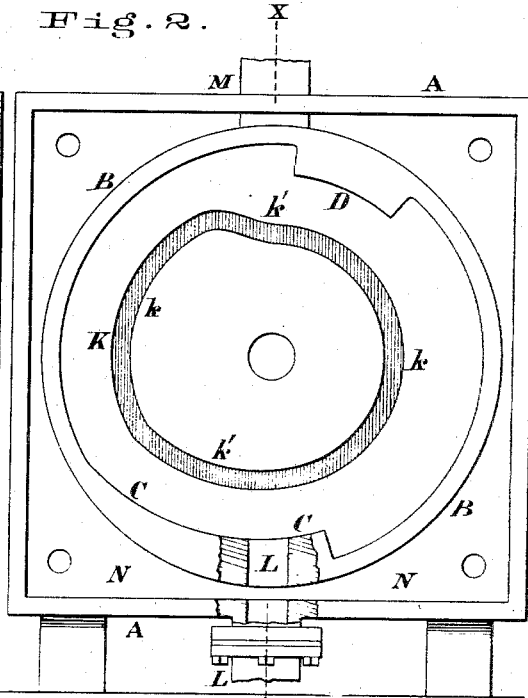


Fig. 3.

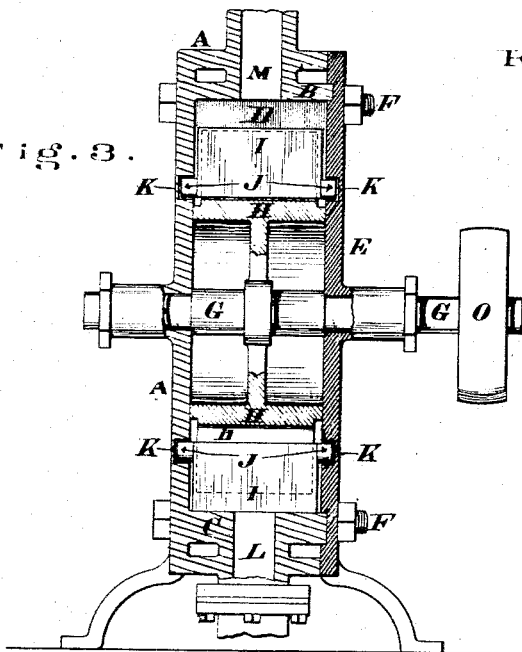
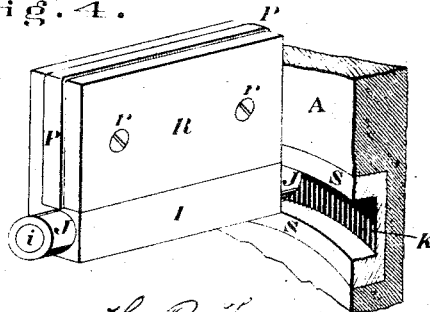


Fig. 4.



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HANSON P. TENANT, OF EAST GERMANTOWN, INDIANA, ASSIGNOR TO HIMSELF,
JACOB SPENCE, AND HENRY M. SOWERS, OF SAME PLACE.

Letters Patent No. 115,254, dated May 23, 1871.

IMPROVEMENT IN ROTARY PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

I, HANSON P. TENANT, of East Germantown, Wayne county, Indiana, have invented an Improved Rotary Pump, of which the following is a specification.

Nature and Objects of the Invention.

This invention relates to a rotary pump, which consists essentially of an inclosing-case or shell, an inner cylinder which contains the rotating disk and reciprocating piston, two abutments, and a receiving and discharging-pipe, the details of the apparatus being hereinafter fully described.

Description of the Accompanying Drawing.

Figure 1 is a view of a rotary pump embodying my improvements, the shell, cylinder, induction and eduction-pipes being shown in vertical section, and the rotating disk, with its sliding pistons, being shown in elevation;

Figure 2 is an elevation of the case and cylinder, with the cap detached and the operative parts removed so as to expose one of the grooves which actuates the sliding pistons;

Figure 3 is a vertical section of the pump at the line X X; and

Figure 4 is an enlarged perspective view of one of the pistons and a portion of one of the actuating eccentric grooves.

General Description.

The inclosing-case or shell consists of a rectangular vessel, A, with which there is cast the circular flange B that constitutes the cylinder of the pump.

Projecting inwardly from the flange B are two abutments, C and D, whose functions will be hereafter described.

The operative parts of the pump are secured in position by a cap, E, which is attached to the shell by bolts F.

Journalled within the shell A and cap E, so as to occupy an axial position with reference to the cylinder B, is the driving-shaft G, to which is secured a disk or wheel, H, which is furnished with a number of radial slots, *h*, that are traversed by the reciprocating pistons I.

These pistons may, if preferred, be furnished with a packing, P, of leather, India rubber, or other suitable material, which may be retained in position by plate R and screws *r*, as seen in fig. 4.

By simply tightening up the screws *r* the packing may be compressed so as to project a slight distance beyond the three working faces of the pistons, and thus afford an elastic and at the same time a water-tight joint between said pistons and the interior of the shell and cylinder.

The inner ends of these pistons are furnished with stud-shafts *i*, which afford journal-bearings for rollers J.

These rollers J play within grooves K that are formed on the inner sides of the shell A and cap E, as shown in fig. 3.

The grooves K are provided with portions *k* that are concentric with the shaft G, and portions *k'* that are eccentric therewith.

The eccentric portions are arranged so as to cause the pistons J to clear the abutments C and D at the proper moment.

In order to reduce the friction to a minimum, and to render the wear of the operative parts as slight as possible, the actuating grooves, instead of being formed in the shell and cap, are turned in steel plates S, which can be fitted in said shell and cap. This arrangement of the groove is clearly seen in fig. 4.

L is the inlet-pipe, which is provided with a check-valve, *l*.

M is the discharge-pipe.

In figs. 1 and 3 the inlet-pipe is shown as continuing from the shell or case into the cylinder; but, if preferred, the communication between the two may be broken, as shown in fig. 2, in which case the space N between the interior of the case and the exterior of the cylinder would serve as a priming and vacuum-chamber.

O is the driving-pulley.

Operation.

The operation of the pump will be understood by referring to fig. 1, and it will be seen that, when the wheel H is rotated in the direction shown by the arrow, the water flows into the cylinder of the apparatus through pipe L, and, after being carried around a sufficient distance by the pistons, is expelled through the pipe M.

I do not claim, broadly, constructing a rotary pump with a revolving disk having radial slots in which the pistons or valves are reciprocated by studs or projections at their inner ends, moving in an eccentric groove or between eccentric projections within the pump-case; nor do I claim the employment of rollers journalled on such projections, all these having been known and used before; but

I do claim—

A rotary pump consisting of the grooved plates S fitting into the cam-groove K, shell A, cylinder B, abutments C D, radially-slotted disk H, and pistons I I provided with packing compressible by means of plate R, and adjusting-screws *r r*, all constructed, arranged, and operated in the manner and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

HANSON P. TENANT.

Witnesses:

GEORGE S. NEFF,
MARTIN SNARCHY.