J. SLAVIK.
Rotary-Engine.

No. 196,996. Patented Nov. 13, 1877.

Fig. 1.

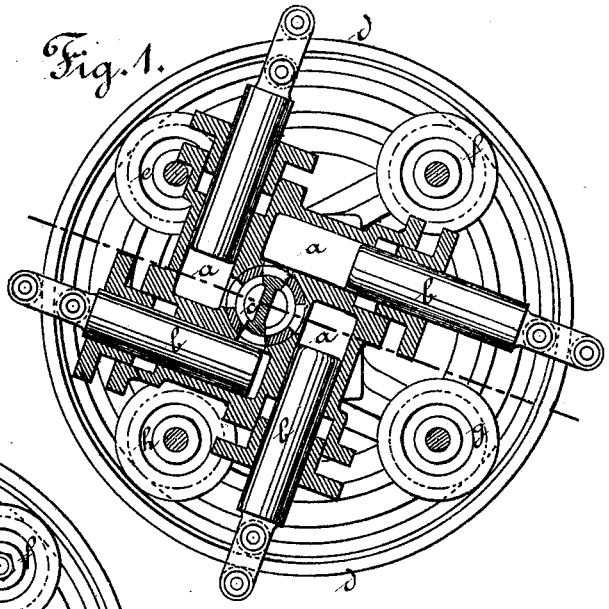


Fig. 2.

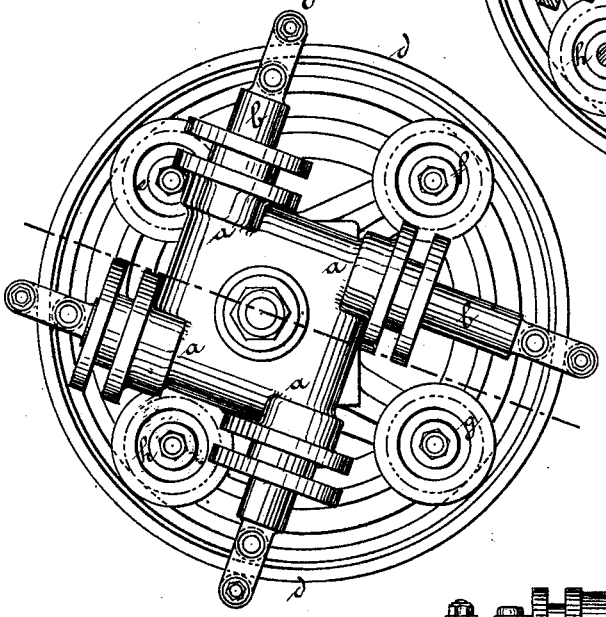
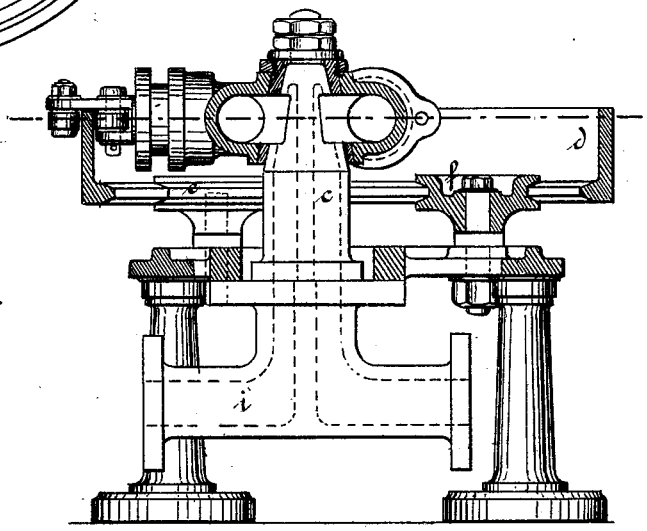


Fig. 3.



Witnesses:

Gustave A. Dittmar.
Erasmus Paul.

Inventor: Johann Slavik.

UNITED STATES PATENT OFFICE.

JOHANN SLAVIK, OF RHEYDT, PRUSSIA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **196,996**, dated November 13, 1877; application filed February 14, 1877.

To all whom it may concern:

Be it known that, I JOHANN SLAVIK, of the city of Rheydt, Prussia, have invented certain improvements in rotary pumps with straight-lined motion of piston, of which the following is a specification:

In consideration of the fact that the rotary pumps now in use have many disadvantages with respect to their durability, and that they cannot compete with other pumps provided with pistons, I have constructed a pump that, combining the advantages of both kinds of pumps, can be used as a water-meter or a steam-engine.

Such an improved pump is constructed in the following way, as represented by the accompanying drawing.

The pump consists mainly of the body *a a a a*, with four cylinders, which turn easily on the cone *c*, which forms a two-way cock. *b b b b* are the pistons, and *d* a ring. The body of the pump is provided with four passages, the cone with but two. By the rotary motion of the system of pumps *a a a a*, transferred to it by the ring *d* carrying the four pistons *b b b b* of the pumps, (one in a fixed position, the other three sliding freely on the ring,) the passages will be alternately shut and opened, whereby the water will be sucked in and expelled alternately through the passages.

By this arrangement all valves are dispensed with, and the annoying refusal of the pump to work can no more turn up on behalf of a disorder in these parts.

The ring *d* turns on four sheaves, *e f g h*, and is eccentrically placed to the axis of the system of pumps *a a a a*, whereby a backward and forward motion is imparted to the pistons *b b b b*, as such revolve within the ring, the degree of eccentricity being equal to half the stroke of the pump.

If water enters the pipe *i* under pressure, the system of pumps will derive motion from it, thereby constituting a water motor or meter. The system of pump need only be fixed between the pipes of the boiler-feeding apparatus, or any other watering-conduit, and by connecting it with a revolving counting apparatus, the quantity of the water passing through the conduit may easily and correctly be stated by the number of revolutions.

The water motor or meter constructed in this way can be produced in a simple, durable, and exact manner; and the liquid passing through the meter may even be determined at will, with respect to quantity, by simply shifting the cone *c* more or less out of the center.

With the meters now in existence this process was not possible, and the amount had to be calculated, before its construction, according to the desired quantity of discharged liquid, then admitting no alteration of the once fixed measure, and, besides, rarely showing the exact quantity of the discharged liquid.

If steam in place of water enters the pipe *i*, the apparatus forms a very simple steam-engine, having several advantages compared to the ordinary steam-motors—*i. e.*, it can be started from any position, no dead-centers being present; further, the loss of steam by leakage through the piston-packings will be overcome; and, finally, no accidents can arise from the breaking of keys in the connecting-rods or of the crank-pin, as in the ordinary machines.

I claim as my invention—

The combination of an eccentric rim, *d*, running on sheaves *e f g h*, with the piston-rods, (one in a fixed position, the other three sliding freely on the ring,) in such a manner that the rotary motion derived from the pressure in the cylinders is transferred on the said rim, which can be used as a belt-pulley, both to use the power when steam or water pressure is employed in the apparatus, and to transfer power to the machine when it shall act as a pump.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHANN SLAVIK.

Witnesses:

HENRY HÖLSCHER,

KRUGER BÜNNA.