

(No Model.)

J. S. BARDEN.
ROTARY CYLINDER ENGINE.

No. 385,226.

Patented June 26, 1888.

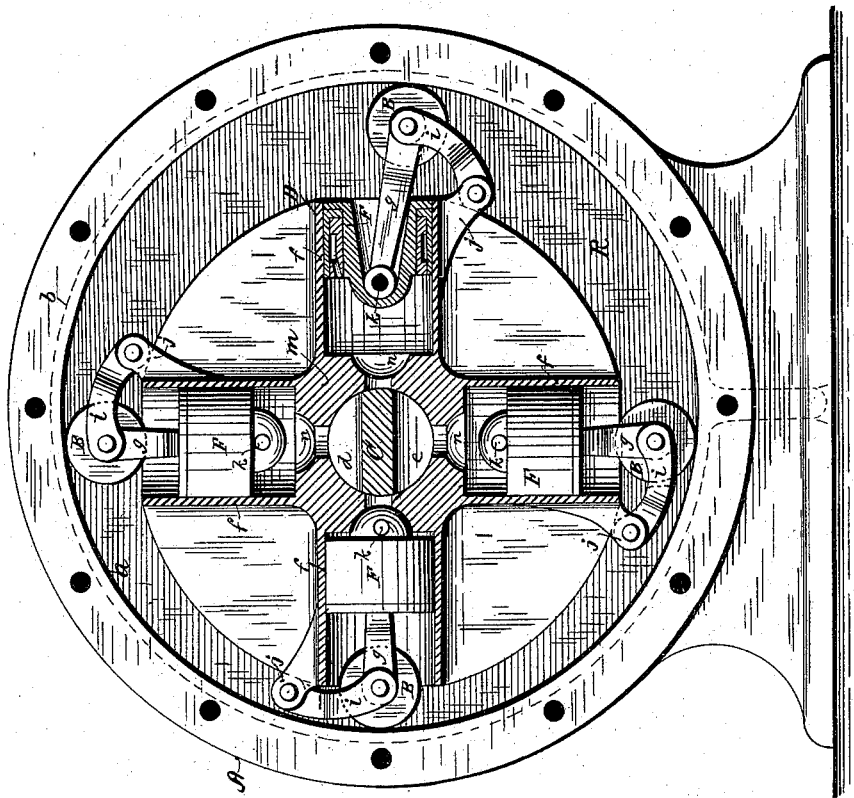


FIG. 2.

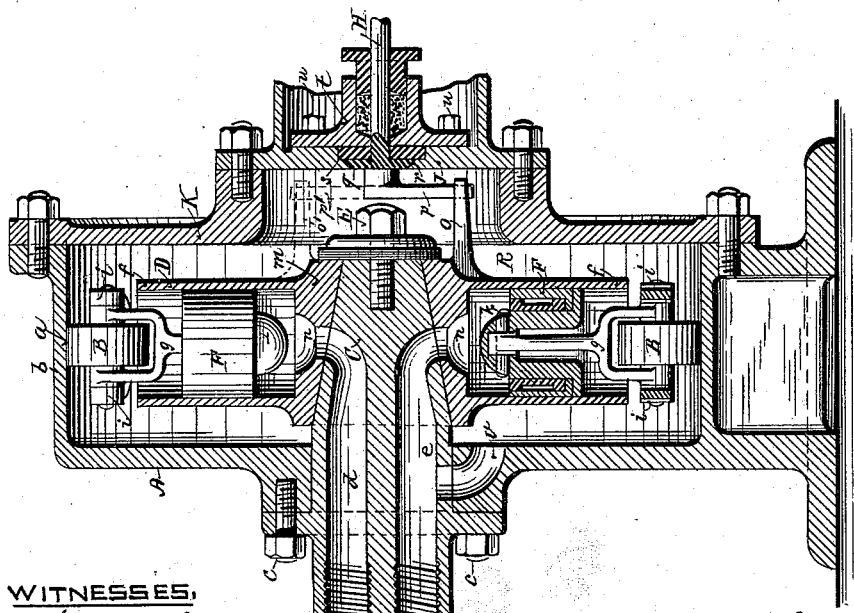


FIG. 1.

WITNESSES,

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JOHN S. BARDEN, OF WARREN, RHODE ISLAND.

ROTARY CYLINDER-ENGINE.

SPECIFICATION forming part of Letters Patent No. 385,226, dated June 26, 1888.

Application filed February 21, 1888. Serial No. 264,858. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. BARDEN, a citizen of the United States, residing at Warren, in the county of Bristol and State of Rhode Island, have invented a new and useful Improvement in Rotary Cylinder-Engines, of which the following is a specification.

My invention relates to that class of rotary engines in which radially-directed piston-cylinders are made to revolve upon a stationary valve; and it consists in the improved construction and arrangement of parts, as hereinafter fully set forth.

Figure 1 is an axial vertical section of my improved rotary cylinder-engine. Fig. 2 is a transverse section of the same.

In the accompanying drawings, A represents the case, having a cylindrical portion, *b*, the inner surface, *a*, of which forms a circular track for the rollers B B. The valve C is made stationary, being secured to the cylindrical portion *b* by means of the bolts *c*, and is provided with the inlet-passage *d* and the exhaust-passage *e*, and also made tapering to fit the conically-tapering perforation in the hub *m* of the cylinder-wheel D; and in order to tighten the valve I provide an adjusting-screw, E, at the inner end of the said valve, and by means of the said screw proper adjustment may be made for keeping the valve tight. Within the radially-directed piston-cylinders *f* of the cylinder-wheel D are placed the pistons F, to the lower end of which are pivoted the links *g* by means of the transverse pin *h*; and to the forked outer end of the link *g* is pivoted the forked link *i*, the outer end of which is pivoted to the ear *j*, which is located exteriorly of the piston-chamber; and between the fork arms of the link *g*, upon the pivot-pin *k*, is placed the loose roller B, the link *i*, which is pivoted to the external ear *j*, serving to guide the link *g* and roller B in their reciprocating movements with the piston F upon the revolution of the cylinder-wheel D upon the valve C. The valve C is set eccentric with the circular track *a*, so that as the cylinders revolve the pistons F will be allowed to reciprocate in their respective cylinders, and thus serve to impart motion to the shaft H.

The lower end of the piston F may be made hemispherical or semi-cylindrical in form, to fit within a corresponding recess, *n*, in the hub

m of the cylinder-wheel D, and the links *g*, instead of being pivoted to the pistons F, may be simply socketed therein, the centrifugal force developed by the rapid revolution of the cylinder-wheel serving to hold the said pistons in close contact with the socketed end of the said link. The hub *m* of the cylinder-wheel is provided with the projecting arm *o*, which engages with the crank-arm *p* upon the inner end of the shaft H; or, instead of a single projecting arm and crank, opposite projecting arms *o o'* and a cross-bar, *p p'*, may be employed, as shown by the broken lines, thus providing a balanced strain upon the shaft and relieving the wearing strain upon the valve.

The shaft H is provided with a fixed collar, *q*, which is beveled at its periphery *r* and fits tightly within a correspondingly-beveled recess in the removable supplementary head J, which is secured to the removable head K; and at the outer side of the collar *q* is placed the elastic washer *s*, the said washer being held in position against the outer side of the collar *q* by means of the removable stuffing-box *t*, which is secured to the supplementary head J by means of the screws *u*, thus forming a tight joint around the shaft H.

When the engine is being operated, the leakage from the valve and pistons will pass into the chamber R of the case, and from thence through the passage *v* into the exhaust-passage *e* of the valve, thus relieving the chamber R from pressure.

The machine may be employed as a meter by connecting the required indicating-dials and gearing with the shaft H.

I claim as my invention—

1. In combination, a circular track, a stationary valve eccentric with the said track, the radial piston-cylinders adapted to revolve upon the stationary valve, the pistons provided with a pivoted link and roller which are adapted to reciprocate with the piston, and the link pivoted exteriorly of the piston-chamber for guiding the movement of the piston-link and roller, substantially as described.

2. In combination, a closed case the inner periphery of which forms a circular track, a stationary valve eccentric with the said track, the radial piston-cylinders adapted to revolve upon the stationary valve, the pistons provided with a pivoted link and roller which are adapted

to reciprocate with the piston, and the link pivoted exteriorly of the piston-chamber for guiding the movement of the piston-link and roller, and a supplementary passage leading from the chamber of the case to the exhaust-passage of the valve, substantially as and for the purpose specified.

3. In combination, a closed case the inner periphery of which forms a circular track, a stationary valve eccentric with the said track, the radial piston-cylinders adapted to revolve upon the stationary valve, the pistons provided with a pivoted link and roller adapted to reciprocate with the piston, the link pivoted exteriorly of the piston-chamber for guiding the movement of the piston-link and roller, the shaft in line with the axis of the stationary valve, a valve-tightening screw between the inner end of the shaft and the inner end of the stationary valve, and means for imparting movement from the rotary piston-cylinders to the shaft, substantially as described.

4. In combination, a closed case the inner

periphery of which forms a circular track, a stationary valve eccentric with the said track, the radial piston-cylinders adapted to revolve upon the stationary valve, the pistons provided with a pivoted link and roller adapted to reciprocate with the piston, the link pivoted exteriorly of the piston-chamber for guiding the movement of the piston-link and roller, the shaft in line with the axis of the stationary valve and having a fixed collar provided with a beveled edge, means for imparting rotary motion to the shaft from the rotary piston-cylinders, the beveled bearing for holding the beveled collar of the shaft, the elastic packing, means for tightening the same against the outer face of the collar of the shaft, and the stuffing-box around the shaft, substantially as described.

JOHN S. BARDEN.

Witnesses:

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SOCRATES SCHOLFIELD.