No. 689,209. Patented Dec. 17, 1901.

F. MEYER.

ROTARY ENGINE.

(Application filed Apr. 26, 1901.)

(No Model.) 2 Sheets—Sheet 1.

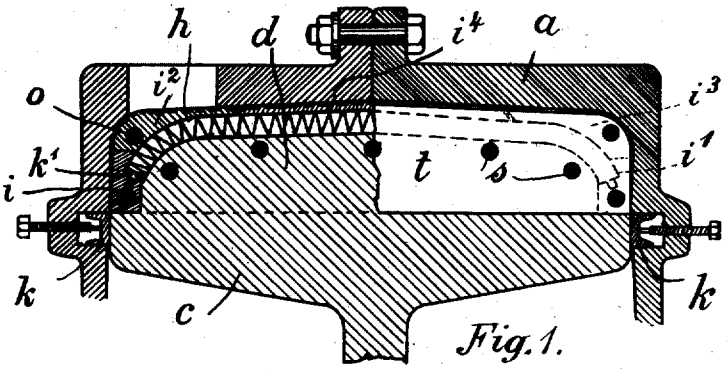


Fig. 1.

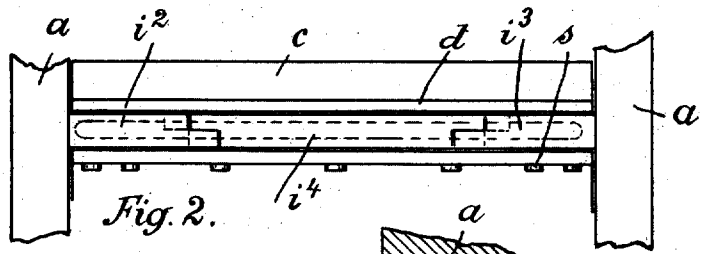


Fig. 2.

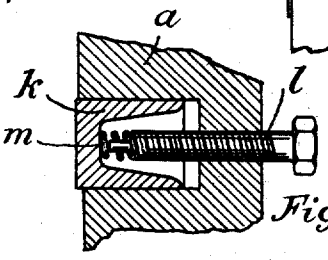


Fig. 3.

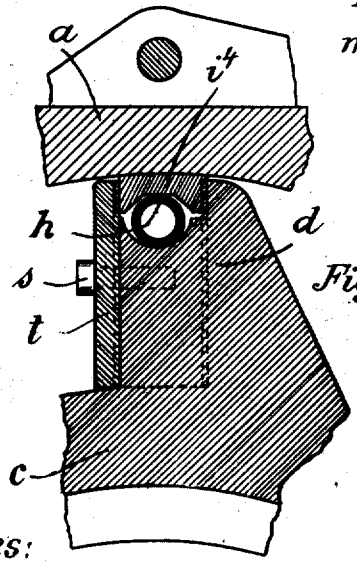


Fig. 4.

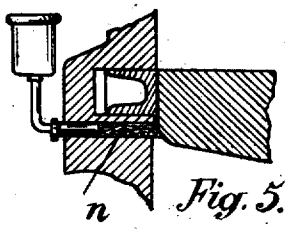


Fig. 5.

Witnesses:
Max Wagner
C. H. Schilling.

Inventor:
Franz Meyer
by Paul E. Schilling,
his attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 689,209. Patented Dec. 17, 1901.

F. MEYER.

ROTARY ENGINE.

(Application filed Apr. 26, 1901.)

(No Model.) 2 Sheets—Sheet 2.

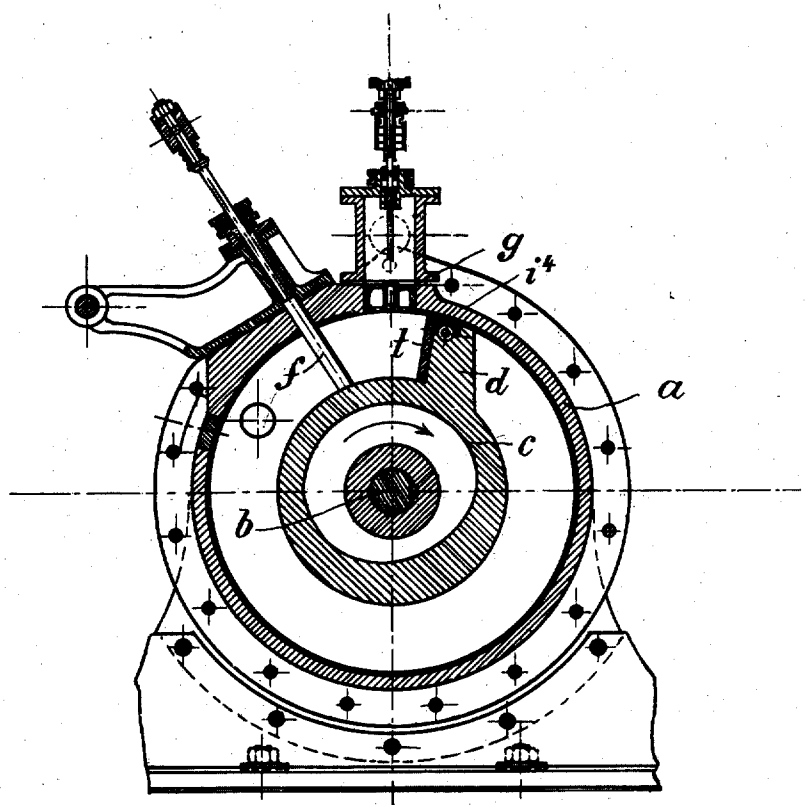


Fig. 6.

Witnesses:
Max Wagner.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANZ MEYER, OF GOERLITZ, GERMANY.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 689,209, dated December 17, 1901.

Application filed April 26, 1901. Serial No. 57,582. (No model.)

To all whom it may concern:

Be it known that I, FRANZ MEYER, a subject of the Emperor of Germany, residing at Goerlitz, Kingdom of Prussia, German Empire, have invented new and useful Improvements in Rotary Engines, of which the following is a specification.

The present invention has reference to certain new and useful improvements in rotary engines, and relates more especially to improved means for packing the rotating piston against the interior surface of the engine casing or cylinder.

In order to make the invention more readily understood, I have illustrated it on the accompanying sheets of drawings, in which—

Figure 1 represents a section through part of the engine casing or cylinder with details of the rotating piston and packing means. Fig. 2 is a top view of the piston-wing. Figs. 3, 4, and 5 represent detailed parts on an enlarged scale, and Fig. 6 is a section through a rotary engine provided with my improvements.

Referring to the drawings, *a* is the engine casing or cylinder, within which rotates concentrically the piston *c*, the axle *b* of which is suitably journaled within the sides of the casing. The engine casing or cylinder is provided in the ordinary manner with inlet-port, exhaust-port, the necessary valves for these ports, means for controlling the various valves, and other necessary accessories. These parts, however, being no part of my invention I shall not specifically refer to them hereinafter.

The steam-cylinder *a* is steam-tightly closed by means of the wing or vane *d*, projecting from the rotating piston *c*, by the slide *f*, the steam-inlet valve *g*, and by metal packing-rings *k*, inserted in the sides of the steam-cylinder. In order to pack the wing or vane *d* steam-tightly against the interior circumference of the cylinder, there is provided a groove within the outer end of the wing or vane *d*, into which is placed a helical spring *h*. Upon this helical spring are arranged packing pieces or blocks $i\ i'\ i^2\ i^3\ i^4$, preferably of cast-iron, which are pressed by the spring *h* against the wall of the steam-cylinder *a*, and thereby prevent steam from passing from one side of the wing *d* to the other side. The packing-blocks are beveled and overlap each other at the meeting edges, as is shown in Figs. 1 and 2. Of these packing-pieces two are situated at the foot end of the wing *d*, two at the corners, and one at the middle part of the wing. The packing-blocks are given slight radial movability by being fastened to the wing by means of bolts *o*, passing through corresponding holes in the blocks of larger diameter, as shown in the left-hand part of Fig. 1. These bolts also prevent the packing-blocks from falling off in case the engine-casing is removed for repairing or other purposes. The packing-blocks *i* and *i'* carry a bolt *k'* for securing the respective ends of the helical spring *h*, as is shown in Fig. 1. A cover-plate *t* (shown only in fragment in Fig. 1) is secured to the wing *d* by means of bolts *s* and serves to retain the packing-blocks and the helical spring in proper position.

The piston *c* is packed against the sides of the cylinder by means of approximately U-sectioned packing-rings *k*, one in either side of the cylinder, which by their own tension and friction are retained within their grooves. By means of regulating-screws *l* these rings are pressed against the rotary piston and retain this position by means of their tension after the screws have been loosened again. In a modification, Fig. 3, a helical spring *m* is interposed between the regulating-screw *l* and the packing-ring. Just below the packing-ring is arranged the oiling device, which preferably consists of a brush *n*, receiving the lubricating medium from the feed-cup and feeding it to the piston, which by means of its centrifugal force throws it against the friction-surfaces.

What I claim, and desire to secure by Letters Patent, is—

1. In rotary engines, the combination of a rotating piston, arranged concentrically within the steam-cylinder, a wing or vane secured to the said piston, packing-blocks partly overlapping each other and being secured upon the said wing with slight radial movability, a helical spring embedded in the said wing and adapted to press the said packing-blocks outwardly, and a cover-plate secured to the said wing, substantially as and for the purpose set forth.

2. In rotary engines, the combination of a rotating piston arranged concentrically within the steam-cylinder, a wing secured to the said piston, packing-blocks partly overlapping each other and secured to the said wing with slight radial movability, a helical spring embedded in a groove provided in the outer end of the said wing, and adapted to press the said packing-blocks outwardly, a screw-bolt in either one of the foot packing-blocks for securing the respective ends of the said helical spring, and a cover-plate secured to the said wing, substantially as and for the purpose set forth.

3. In rotary engines, the combination of a rotating piston arranged concentrically within the steam-cylinder, a wing secured to the said piston, packing-blocks partly overlapping each other and secured to the said wing with slight radial movability, a helical spring embedded in a groove provided in the outer end of the said wing, and adapted to press the said packing-blocks outwardly, a screw-bolt in either one of the foot packing-blocks for securing the respective ends of the said helical spring, a cover-plate secured to the said wing, a U-sectioned packing-ring embedded in either side of the steam-cylinder, and set-screws regulating the position of the said packing-rings, substantially as and for the purpose set forth.

4. In rotary engines, the combination of a rotating piston arranged concentrically within the steam-cylinder, a wing secured to the said piston, packing-blocks partly overlapping each other and secured to the said wing with slight radial movability, a helical spring embedded in a groove provided in the outer end of the said wing, and adapted to press the said packing-blocks outwardly, a screw-bolt in either one of the foot packing-blocks for securing the respective ends of the said helical spring, a cover-plate secured to the said wing, a U-sectioned packing-ring embedded in either side of the steam-cylinder, set-screws regulating the position of the said packing-rings, and helical springs, interposed between the said set-screws and the said packing-rings, substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand, in the presence of two witnesses, this 2d day of April, 1901.

FRANZ MEYER. [L. S.]

Witnesses:
CHEMNITZ H. SCHILLING,
WILLIAM K. HERZOG.