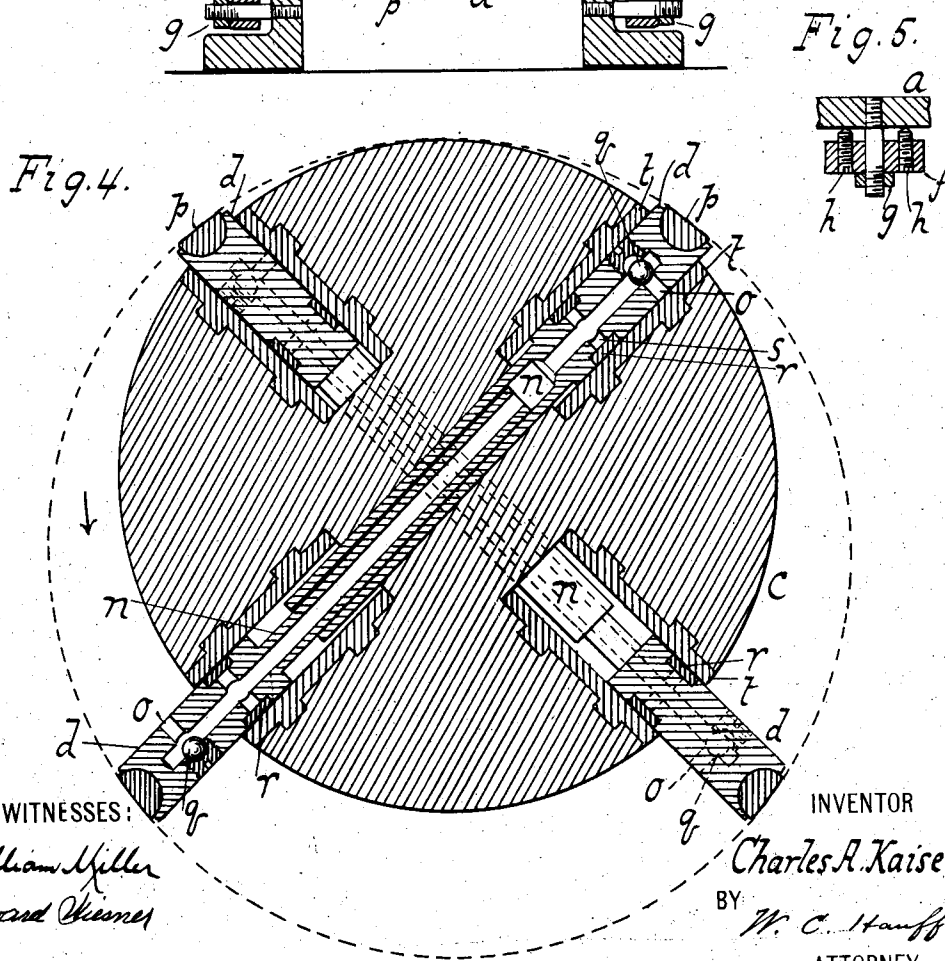
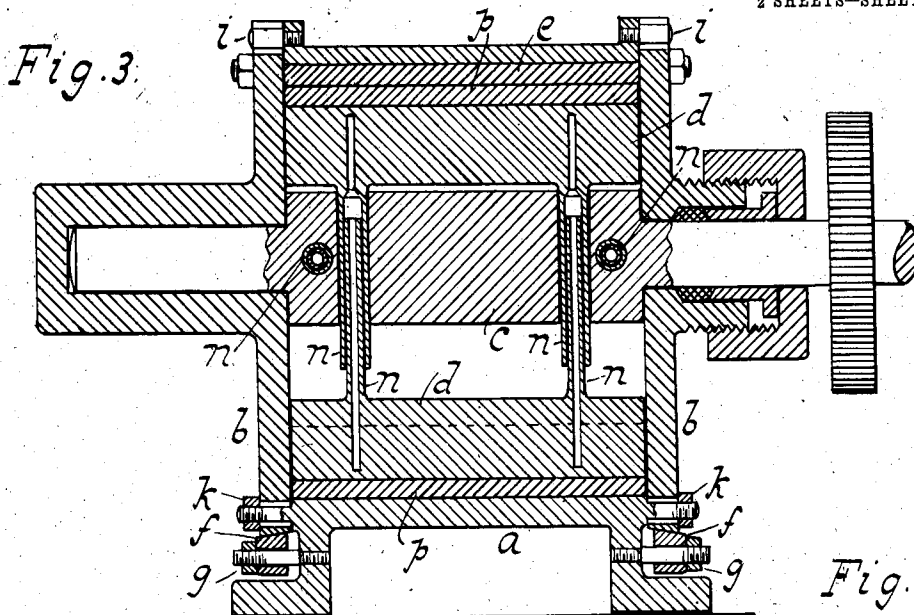


No. 834,737.

PATENTED OCT. 30, 1906.

C. A. KAISER.
 ROTARY STEAM ENGINE.
 APPLICATION FILED MAR. 22, 1906.

2 SHEETS—SHEET 2.



WITNESSES:
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CHARLES A. KAISER, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-
THIRD TO LEO FLATOW, OF NEW YORK, N. Y.

ROTARY STEAM-ENGINE.

No. 834,737.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed March 22, 1906. Serial No. 307,480.

To all whom it may concern:

Be it known that I, CHARLES A. KAISER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Rotary Steam-Engines, of which the following is a specification.

This invention allows accurate adjustment of bearing to be made from the outside of the device, so that effective packing can be maintained.

The device is shown with a valve and actuator therefor, the valve being arranged to be kept in accurate alinement and being of simple construction.

This invention is set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a device embodying this invention. Fig. 2 shows parts of Fig. 1 in section. Fig. 3 is a section along *x x*, Fig. 1. Fig. 4 shows a drum and pistons. Fig. 5 is a section along *y y*, Fig. 1.

In the drawings is shown a cylinder *a* with cover or head *b*. A suitable ground joint between the cylinder and its head or cover-plate enables tight fit or closure to be made. In the cylinder is a rotary drum *c*, having bearings in the heads *b*. As this head is adjustable, the drum can be thereby set or adjusted for its pistons *d* to close or suitably contact at packing *e*. A certain wear can thus be compensated for. This head *b* is shown supported at one part by an adjusting-piece *f*, having an inclined face. As the nut *g* at said piece is loosened and the screws *h* turned in the proper direction, the adjuster *f* is moved to raise or set the head.

The cylinder has dowel or guide pins *i*, and the cover by suitable slotted parts straddles pins *i*, so that the cover is guided vertically or adjusts along a determined line or to and from the packing. The holes in the cover for the passage of the bolts *k* being slotted or elongated adjustment will be possible.

The drum *c* is shown with pistons *d*, having rods *n*. These rods are hollow and are practically cast or forged with the pistons. The rods coming from opposite pistons slide or telescope into one another. Entrances or holes *o* allow pressure to enter to spread the rods or pistons and hold the latter or the packing *p* to the cylinder. The entrance-ports *o* have valves or balls *q*, which at suit-

able intervals close the holes *o* to prevent escape of pressure, but allow entry of pressure into the sliding stems or pistons.

The pistons have packings consisting of suitable plates *r*, held by pressure through branches *s* from the hollow piston-stems to the seats in the drum. At these seats are plates *t* of suitable material and having offsets or shoulders resting in corresponding offsets or depressions in the piston-seats in the drum or in the walls of the recesses in which the pistons play. On dismounting the piston the lining-pieces *f* can be removed or exchanged.

The steam or working pressure is allowed to enter at suitable intervals through valve 2. This valve is actuated by a cam 3 at suitable intervals. The valve has a stem with anti-friction-roller 5 touching the cam.

A spring 6 is braced against cap 7 of valve-case 8, and this spring tends to hold the valve closed. The stem 9 of the valve has a clamp 10 held thereto by tightening-screw 11. This clamp carries pins 12, which are guided in recesses or ways in the valve case or cap 7. The guide-pins prevent the valve being turned or the anti-friction-roller coming into wrong position. In other words, the axis of the roller and that of the cam are to be parallel.

The steam or pressure-supply pipe 13 can have a governor 14 of suitable construction.

The transmission of motion between drum *c* and cam 3 by only two gears would make cam 3 rotate in the opposite direction to that of the drum, which in the particular construction shown would not interfere with the operation; but a different number of transmission-gears or different cam-actuation can be provided to change the direction of rotation of the cam or arrange the movements as desired or called for.

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

1. An engine-cylinder and head adjustably connected to the cylinder, guides on the cylinder for the head, an adjusting block or piece connected to the cylinder and adjusting-screws for setting the block to adjust the head.

2. An engine having a cylinder with drum, and pistons for the drum, said pistons having stems which are hollow to admit pressure from the interior of the drum for holding the pistons in position.

3. An engine having a cylinder with drum and pistons, and hollow piston-stems having vents for allowing the entry of pressure to spread the pistons.
- 5 4. An engine having a cylinder with drum and pistons, hollow piston-stems made to telescope in one another, and means for supplying pressure into the stems to spread the pistons.
- 10 5. An engine having pistons with stems suitably chambered for the entry of pressure, said stems having vents and valves for closing the vents at suitable periods.
- 15 6. A cylinder with drum and pistons; and a packing between the drum and pistons, said pistons having a pressure-vent at the packing to cause the packing to make tight closure.
- 20 7. A cylinder with drum, pistons cast with hollow stems in the drum, and means for admitting pressure into the stems for spreading the pistons to contact with the cylinder.
8. A cylinder comprising a rotary drum with recesses having offsets, interchangeable
25 bearing-plates with corresponding offsets placed in the recesses, and pistons made to move along the bearing.
9. An engine comprising a cylinder with drum, pressure-receiving pistons in the drum,
30 an inlet-valve in the interior of cylinder and periphery of the drum for admitting pressure

to the piston, and a valve-actuating cam having acting faces corresponding to the pistons.

10. An engine having a valve with actuating-cam therefor, said valve having a stem with a clamp carrying guide-pins.

11. An engine having a valve with actuating-cam therefor, said valve having a stem with a clamp carrying guide-pins, and a friction-roller held in line with the cam by said pins.

12. An engine having a valve-actuating cam, a valve with a stem, a housing for the valve, pins guided by the housing, and a clamp for securing the pins to the stem.

13. An engine-cylinder and head, a guide for the head, a setting-block having one of its faces beveled, and means for adjusting the block.

14. An engine-cylinder with a movable head having an inclined portion, a setting-block with a correspondingly-inclined face to engage the head, and means for adjusting the block.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES A. KAISER.

Witnesses:

EDWARD WIESNER;
GEORGE HULSBURG.