

(No Model.)

J. FORSYTHE.
ROTARY STEAM ENGINE.

No. 335,122.

Patented Feb. 2, 1886.

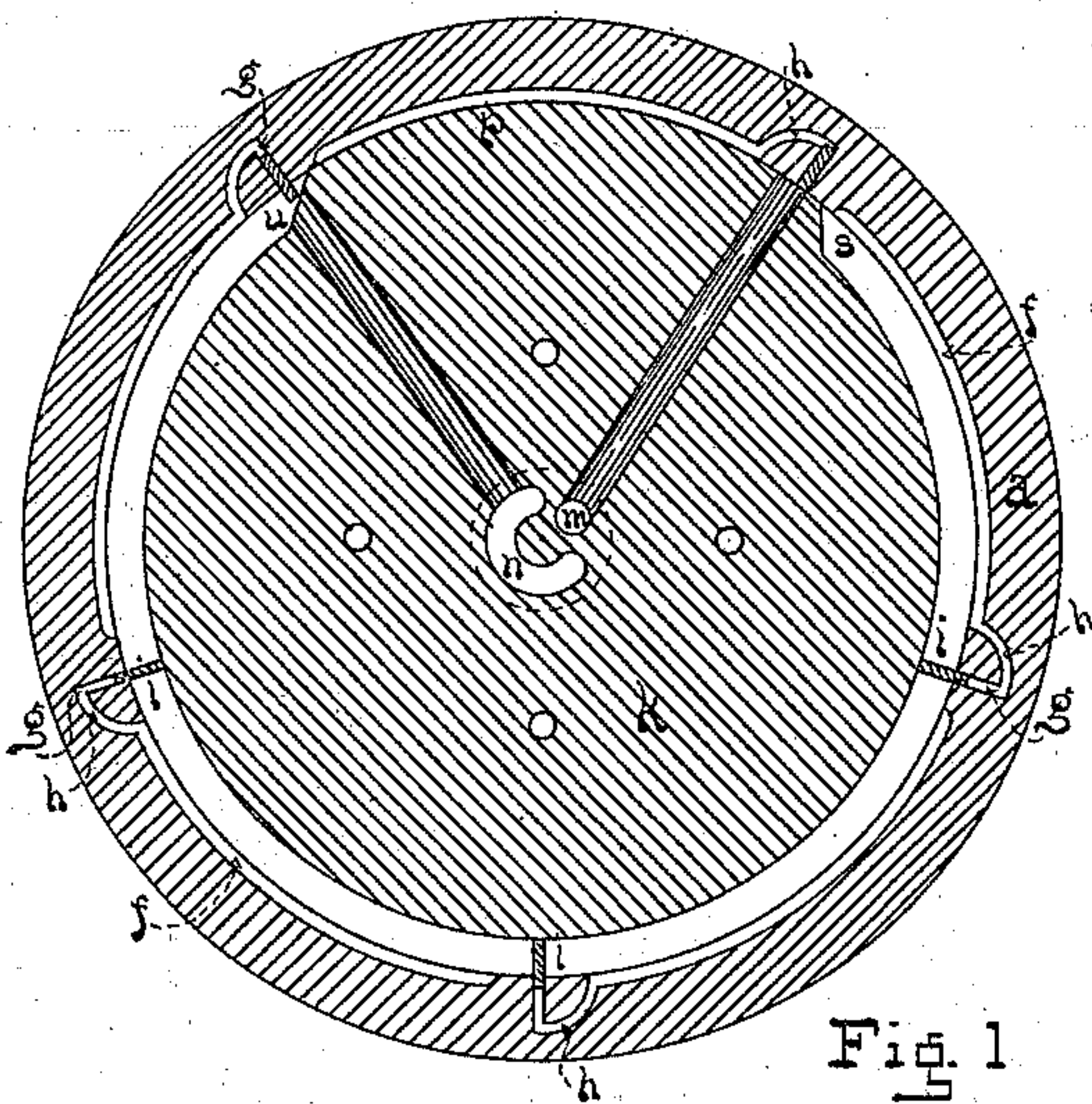


Fig. 1

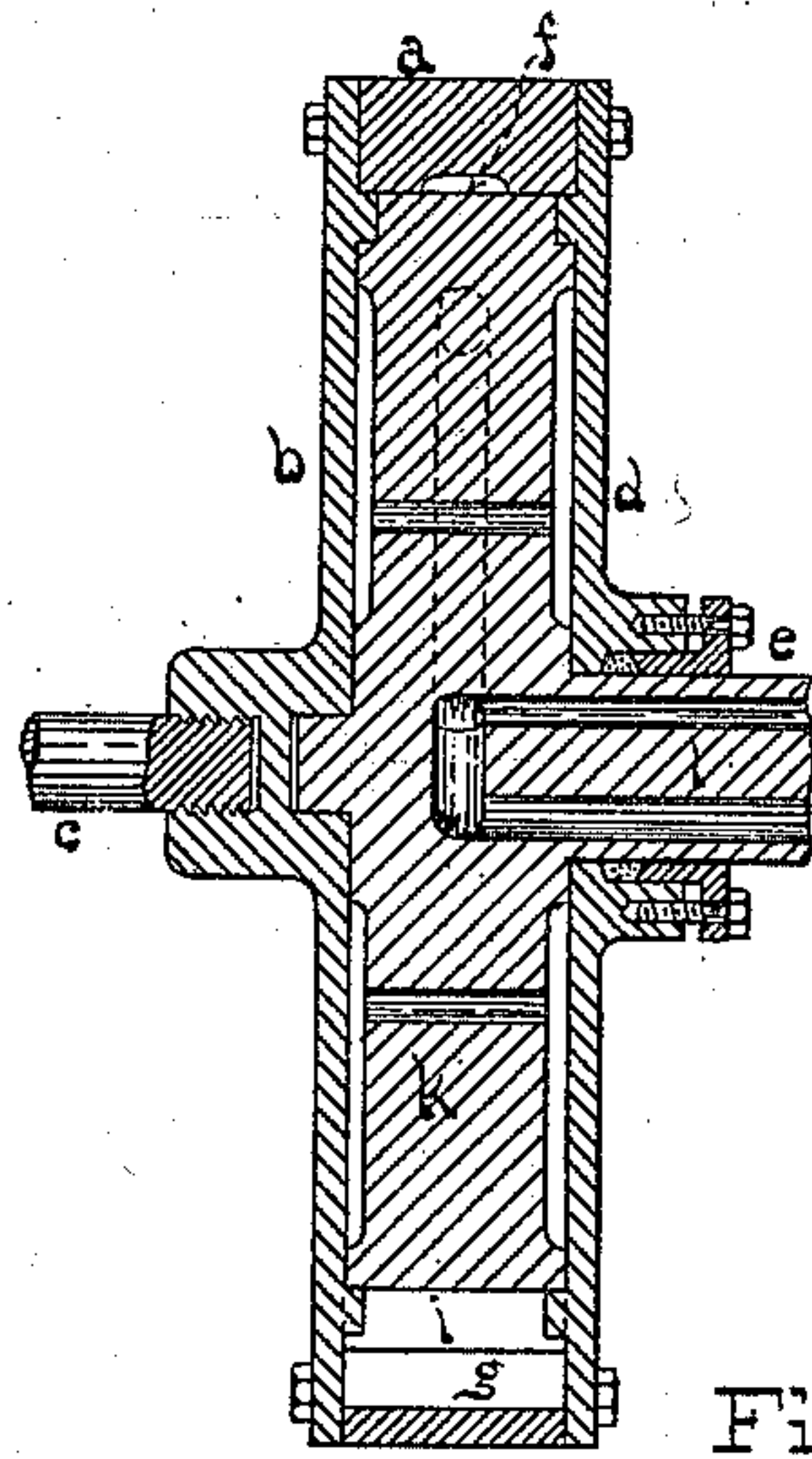


Fig. 2

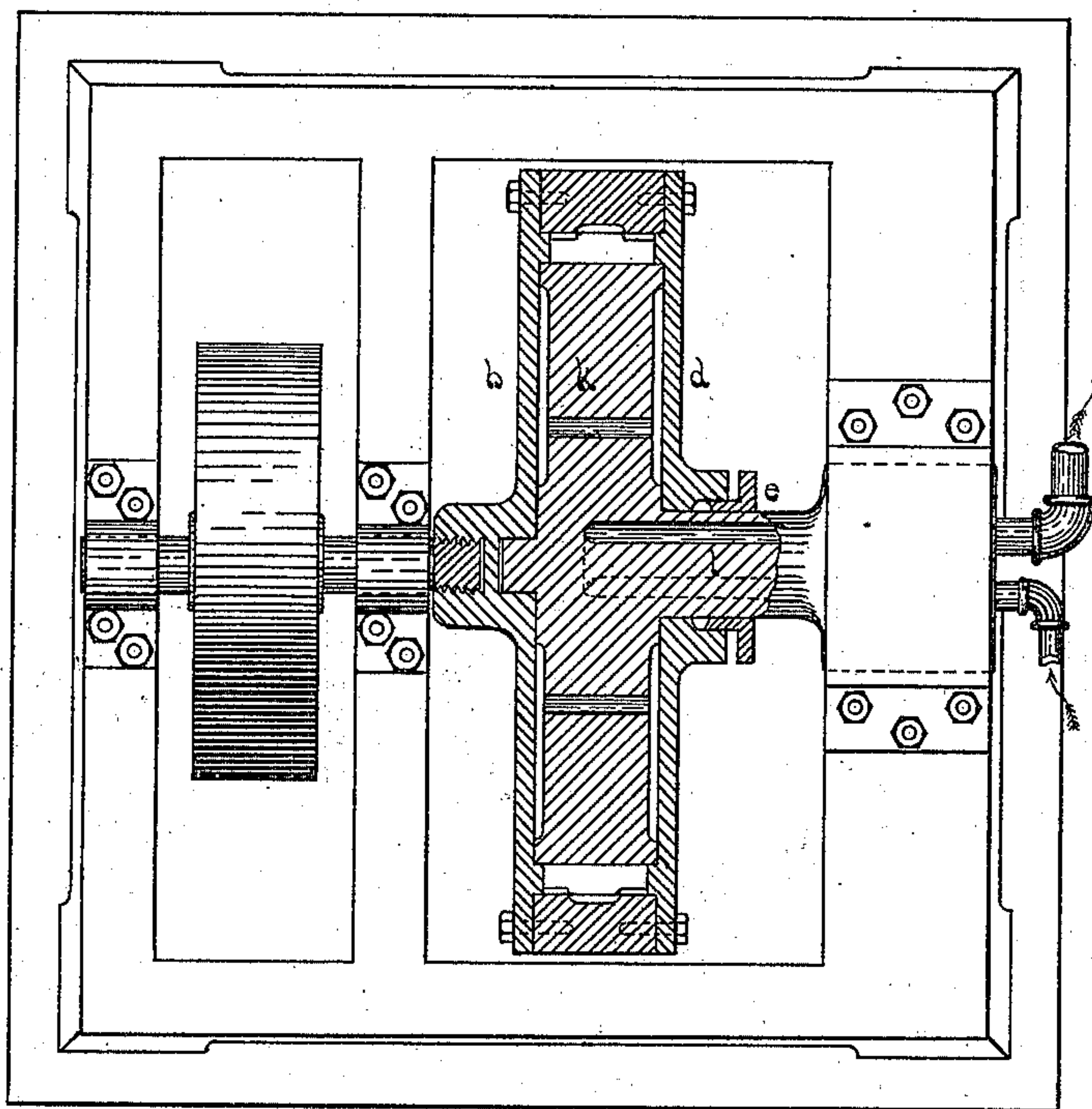


Fig. 3

Witnesses

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JOSEPH FORSYTHE, OF PITTSBURG, PENNSYLVANIA.

ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 335,122, dated February 2, 1886.

Application filed November 9, 1885. Serial No. 182,302. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FORSYTHE, a citizen of the United States, residing in the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Engines, the following being a description thereof, reference being had to the accompanying drawings, which form a part of this specification, wherein—

Figure 1 is a view of a vertical section through median line transverse to axis. Fig. 2 is a view of a vertical section by median line parallel with axis. Fig. 3 is a view of horizontal section by median line.

My engine consists of a cylindrical shell, *a*, with a head, *b*, having a shaft, *c*, made fast in its center. The cap or other head, *d*, is provided at center with a proper stuffing-box, *e*, for shaft of piston. This cylinder *a* has in its concave surface midway between its heads five concentric segmental grooves, *f*, and five intervening transverse radial valve-recesses, *g*, each with small grooves in the adjacent cylinder-heads, to guide and hold a rectangular plate-valve, *i*, with which it is provided, when the same is in motion or under pressure. Each of the concentric grooves has a passage-way, *h*, to valve-recess, the ports being in the back of the concentric groove at one end and in the back of the valve-recess behind valve.

The piston-body *k* is a solid cylinder of smaller diameter than the inside of the hollow cylinder, and is fixed on a stationary shaft, through which inlet and outlet passages reach and traverse the body and head of piston. The piston-head *p* is a segmental-shaped projection from the body of the piston long enough to cover any one of the concentric grooves, and reaching to the concave surface of the hollow cylinder, with inlet-port through its convex surface near one end, and opposite the concentric grooves in the concave surface of the cylinder, and outlet-port at the other end, an incline, *s*, on end near inlet-port, to ease down the valves *i* to the body of the piston without shock, and at the other end, near

the outlet-port, an incline, *u*, to retire the valves.

As to its mode of operation, this engine works as follows: The steam introduced by the inlet-way through the shaft of the piston traverses the body *k* and head of the piston *p*, venting from the port in the convex surface of the piston-head into any of the concentric grooves in the concave surface of the cylinder that may be opposite. A portion penetrating by the passage *h* to the valve-recess *g* behind the valve *i* drives it out into the valve-circle in front of the piston-head *p*, the incline *s* easing it down to the body of the piston *k* without shock; the residue of the steam, pouring into the valve-circle between the head *p* of the stationary piston and the valve *i*, held in the radial grooves in the heads of the rotary cylinder, forces the cylinder into revolution, which brings another of the concentric grooves *f* in front of inlet-port of piston-head, to receive the steam in the like manner and with the like effect as described, and so on *ad infinitum*. The revolution carrying the intervalve spaces successively over the outlet-way allows the steam to escape as well from the valve-recesses as from the valve-circle, relieving the valves *i*, which are then borne against the incline *u* on the back of the head *p*, and by its resistance pressed back into their recesses.

I claim as my invention—

In a rotary steam-engine, a stationary piston having one or more fixed heads, each head having inclines and influent and effluent ways, in combination with a rotating cylinder provided with three or more concentric segmental slots or grooves in its concave surface, so arranged as to admit steam first into valve-recesses to drive out valves, and then into valve-circle between fixed head and valves, also to transmit steam exhausting back from valve-recess, substantially as described and shown.

In witness whereof I hereto sign my name.

JOSEPH FORSYTHE.

Witnesses:

O. P. ROBERTSON,
SELWYN TAYLOR.