

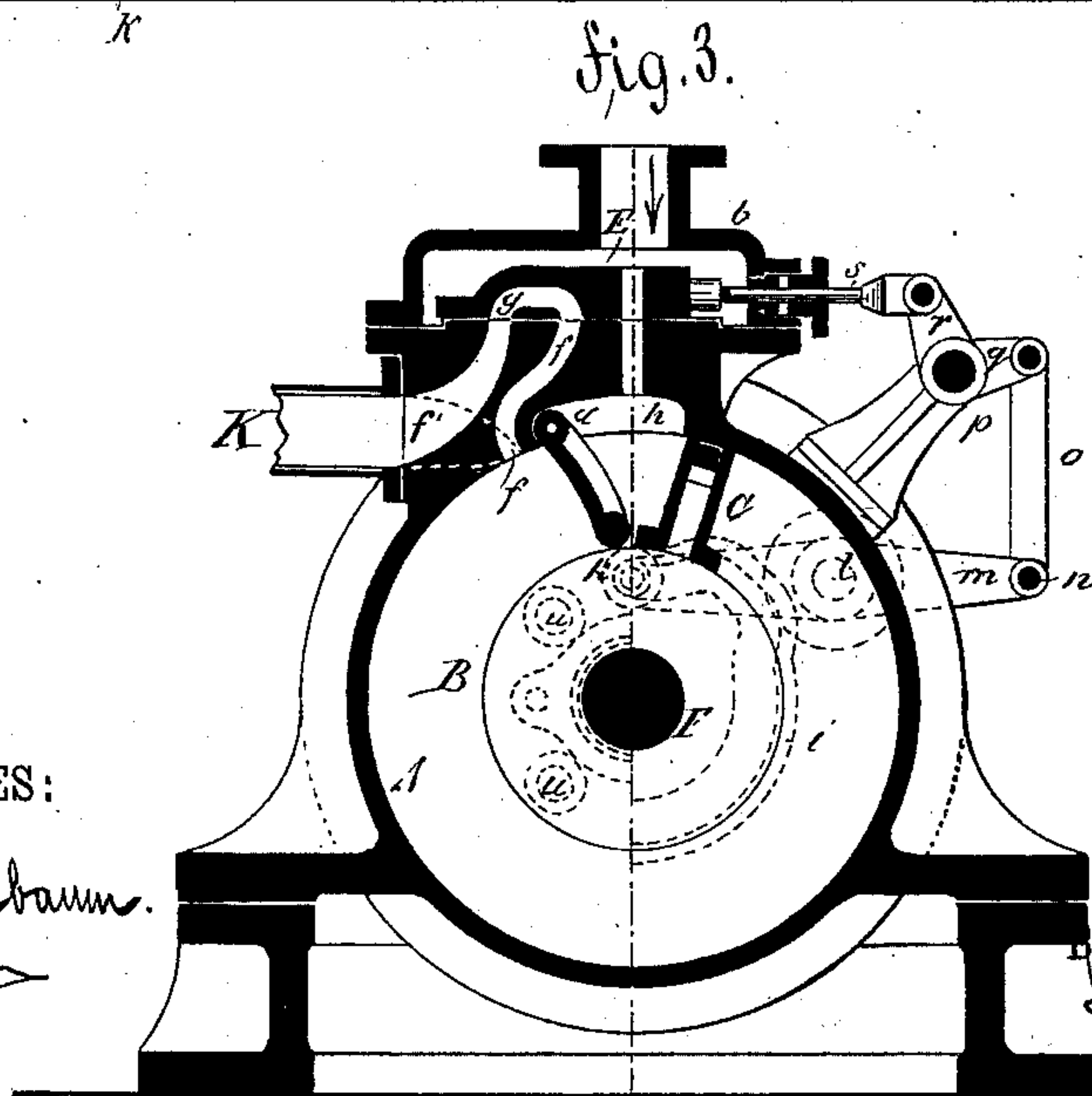
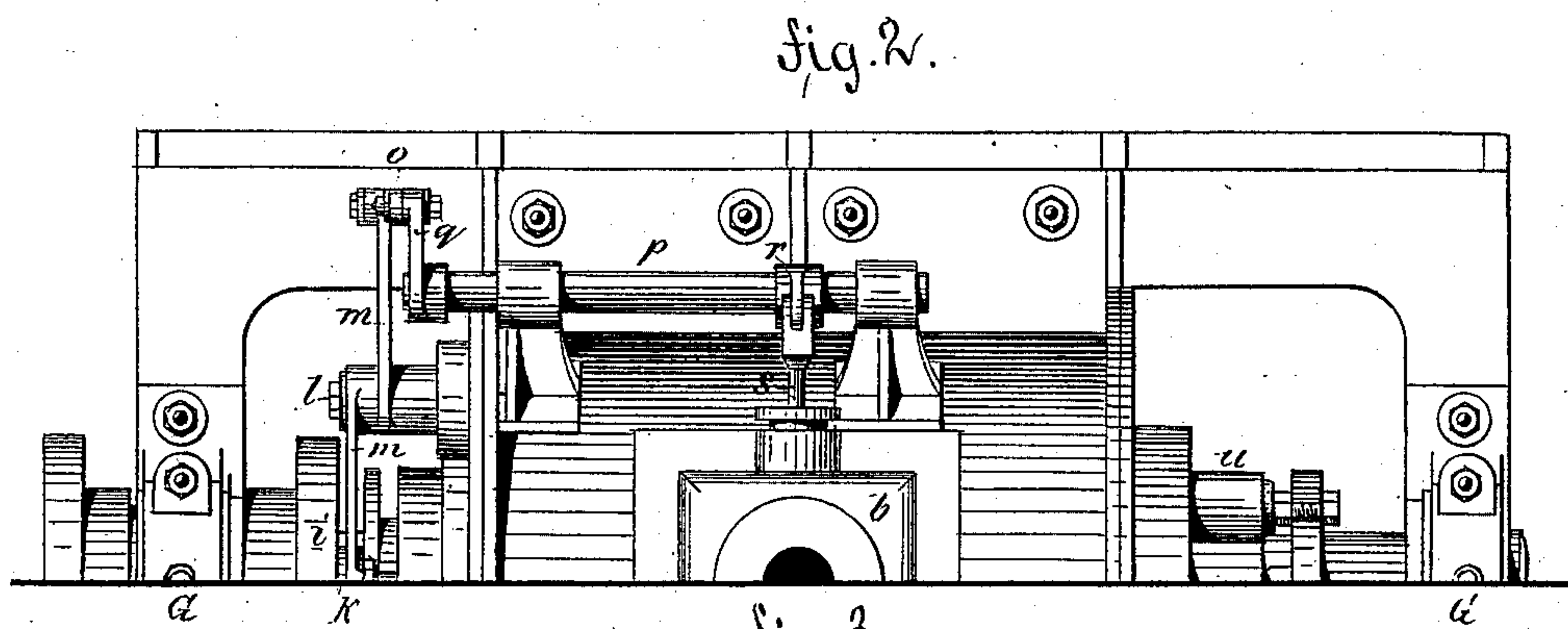
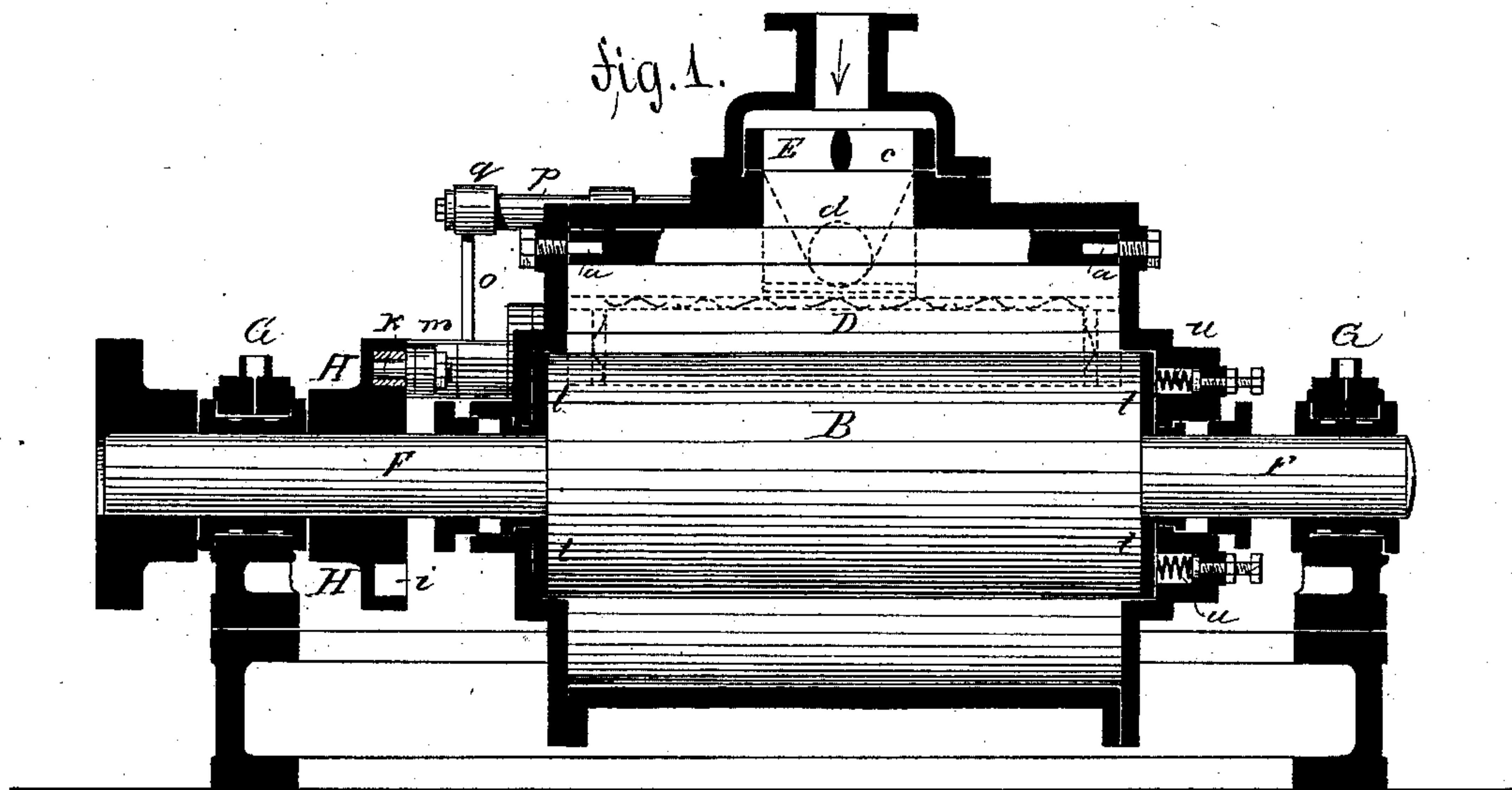
(No Model.)

C. SCHWARTZ.

ROTARY ENGINE.

No. 301,836.

Patented July 8, 1884.



WITNESSES:

F. N. Rosenbaum.
Carl Kaye

INVENTOR

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ATTORNEYS

UNITED STATES PATENT OFFICE.

CASPAR SCHWARTZ, OF WERL, PRUSSIA, GERMANY, ASSIGNOR TO HIMSELF
AND JOHANN HOFFMANN, OF SAME PLACE.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 301,836, dated July 8, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, CASPAR SCHWARTZ, a subject of the King of Prussia, Germany, residing at the city of Werl, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

This invention relates to rotary engines comprising a steam-cylinder having an interior swinging abutment and rotary cylinder having a rotary piston which turns up the abutment into a recess of the cylinder as the rotary cylinder completes its revolution.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my improved rotary engine. Fig. 2 is a plan of one-half of the same, and Fig. 3 is a vertical transverse section of the same.

Similar letters of reference indicate corresponding parts.

In the drawings, A is the steam-cylinder, F the shaft which passes through the cylinder and is supported in bearings G. A cylinder, B, is mounted upon the shaft F inside of the cylinder A, and tightly packed by disks *t*, which are pressed against the ends of the cylinder B by adjustable spring *u*.

C is a radial piston, which is firmly connected to the interior cylinder, B, and is provided with metallic packing where it touches the inner surface of the steam-cylinder.

D is a swinging abutment, which is hinged at *a* to the steam-cylinder, at the inside of the same, and adapted to be swung into a recess, *h*, of the same. The lower rounded-off end of the abutment rests upon the surface of the drum B when not swung up in the recess *h*, as shown in Fig. 3.

d is the steam-supply port; *f*, the exhaust-port; *b*, the valve-chest; E, the slide-valve, with the steam-inlet *c* and exhaust-passage *g*.

H is a disk mounted upon the shaft F, which disk has a cam-groove, *i*, which engages a roller-pin, *k*, at the end of a lever, *m*, fulcrumed at *l*. A link, *o*, connects the opposite end, *n*, of the lever *m* with an arm, *q*, on a rock-shaft, *p*.

s is the valve-rod, operated by an arm, *r*, on the rock-shaft *p*, which receives its motion from the grooved disk H, through the intermediate parts just described, or by any other suitable means. Steam being admitted

through the port *d*, when the piston has the position shown in Fig. 2, the piston is forced to the right, causing the shaft to rotate with it in the same direction, while the swinging abutment is held in position by gravity, and by the action of steam, as shown in Fig. 2. As the piston reaches the exhaust-port *f* the slide-valve closes communication with the exhaust-pipe K. The steam-port *d* is also closed, and the swinging abutment D is turned up into the recess *h* by the piston. As soon as the piston has passed the abutment D the latter drops down again to the position, Fig. 3, steam is again admitted, and the exhaust-port opened, and so on, whereby a continuous rotary motion is imparted to the shaft F.

When desired, the exhaust-valve may be dispensed with, and the exhaust-port *f* placed in direct communication with the exhaust-pipe K, as indicated in dotted lines in Fig. 3.

The engine may work with or without expansion, and may be provided with any suitable valve-motion.

In place of steam, any other suitable gas or fluid may be used as the motive power, or the machine may be driven by power and used as a pump for elevating fluids or compressing gases.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In a rotary engine, the combination of a steam-cylinder, A, having an interior recess, *h*, a swinging abutment, D, hinged to one end of said recess, an interior cylinder, B, having a radial piston, C, a transmitting-shaft, F, to which said interior cylinder is fixed, steam supply and exhaust ports, a slide-valve, and intermediate mechanism for actuating said valve, consisting of a cam-grooved disk, H, on the shaft F, a fulcrumed lever, *m*, provided at its inner end with a roller-pin, *k*, which takes into the groove of the cam-disk, a rock-shaft, *p*, a valved rod connected to an arm thereof, and a link, *o*, connecting the outer end of the lever *m* with an arm of said rock-shaft *p*, substantially as described.

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

Witnesses: CASPAR SCHWARTZ.

B. ROE,

A. MÜHLE.