

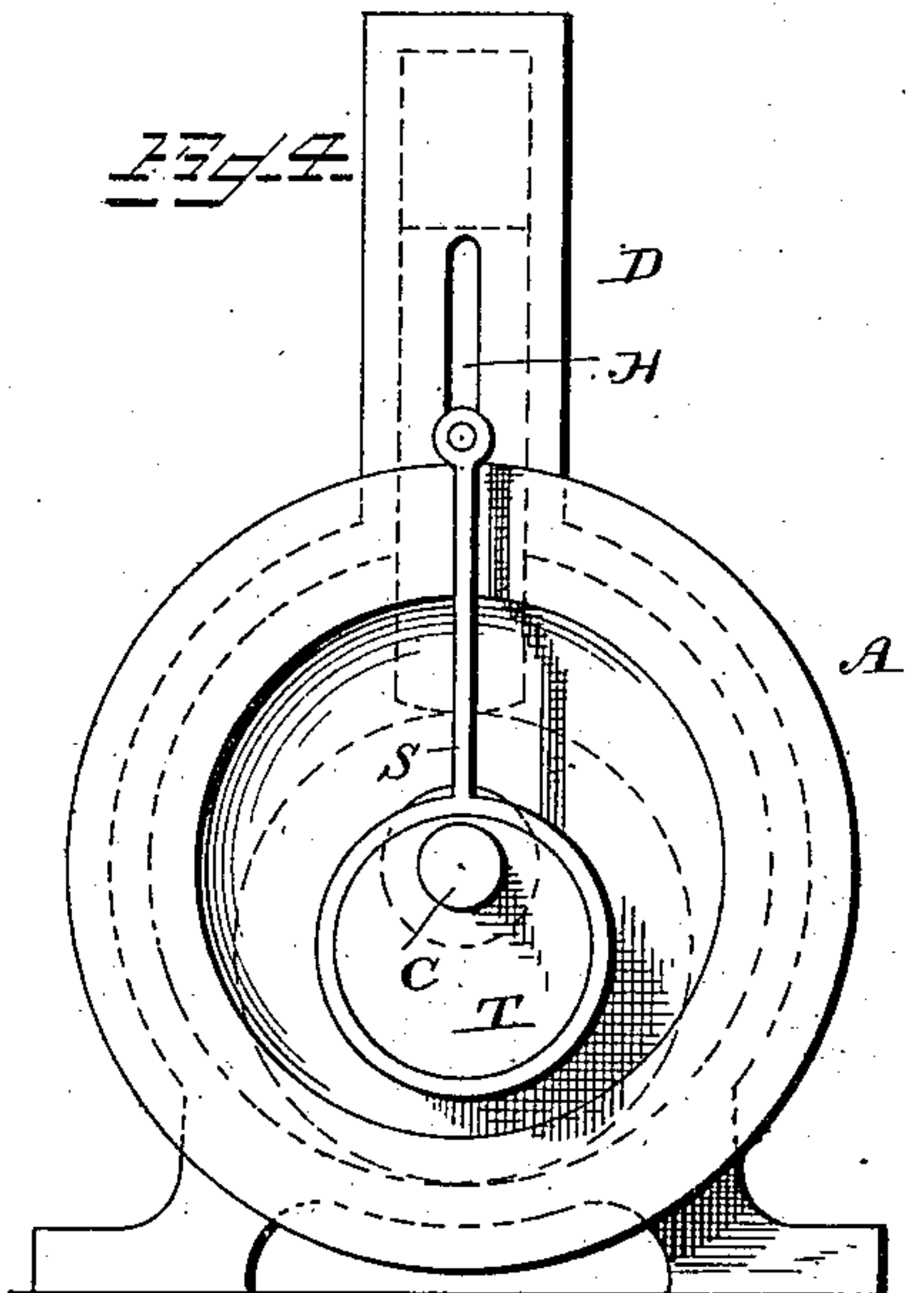
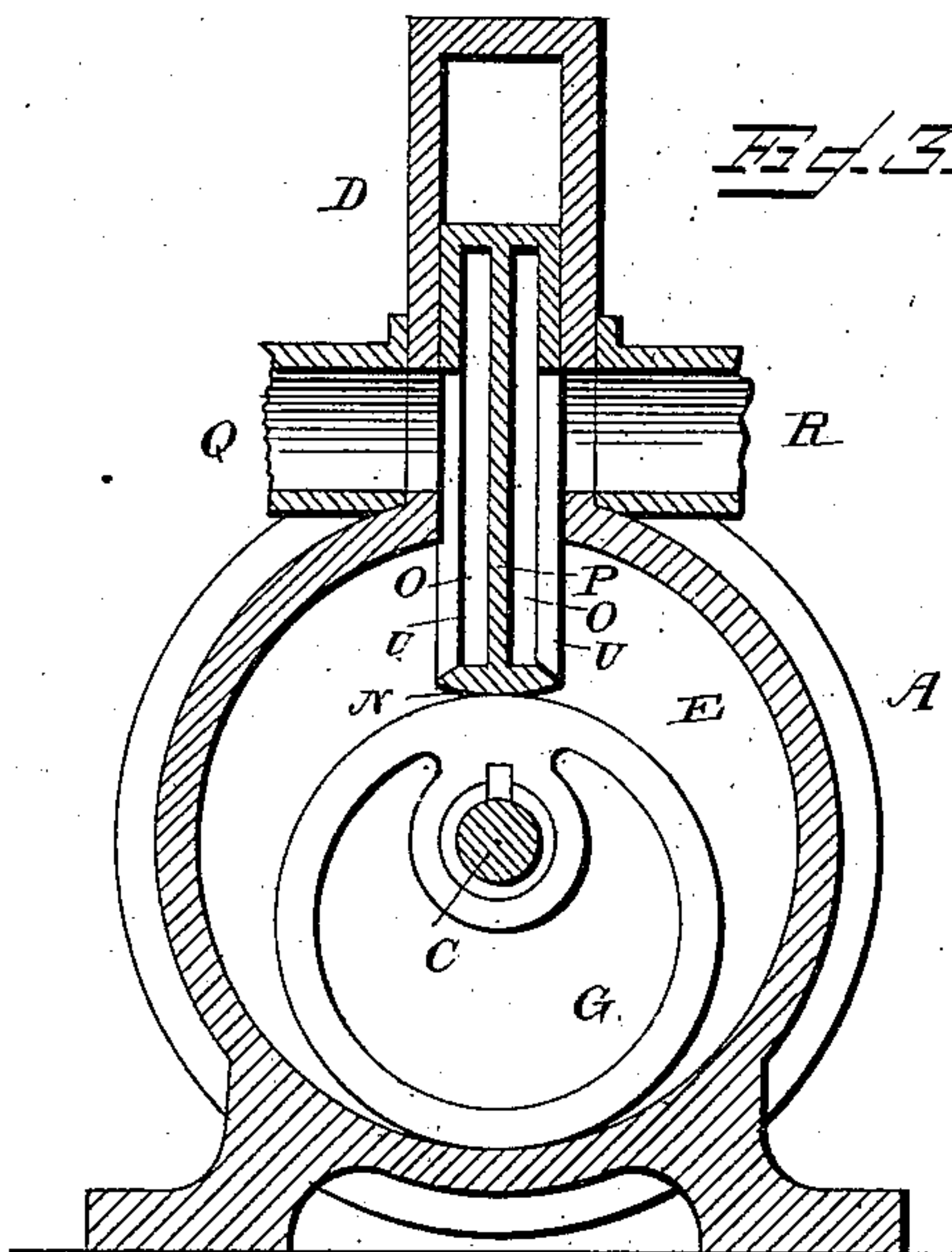
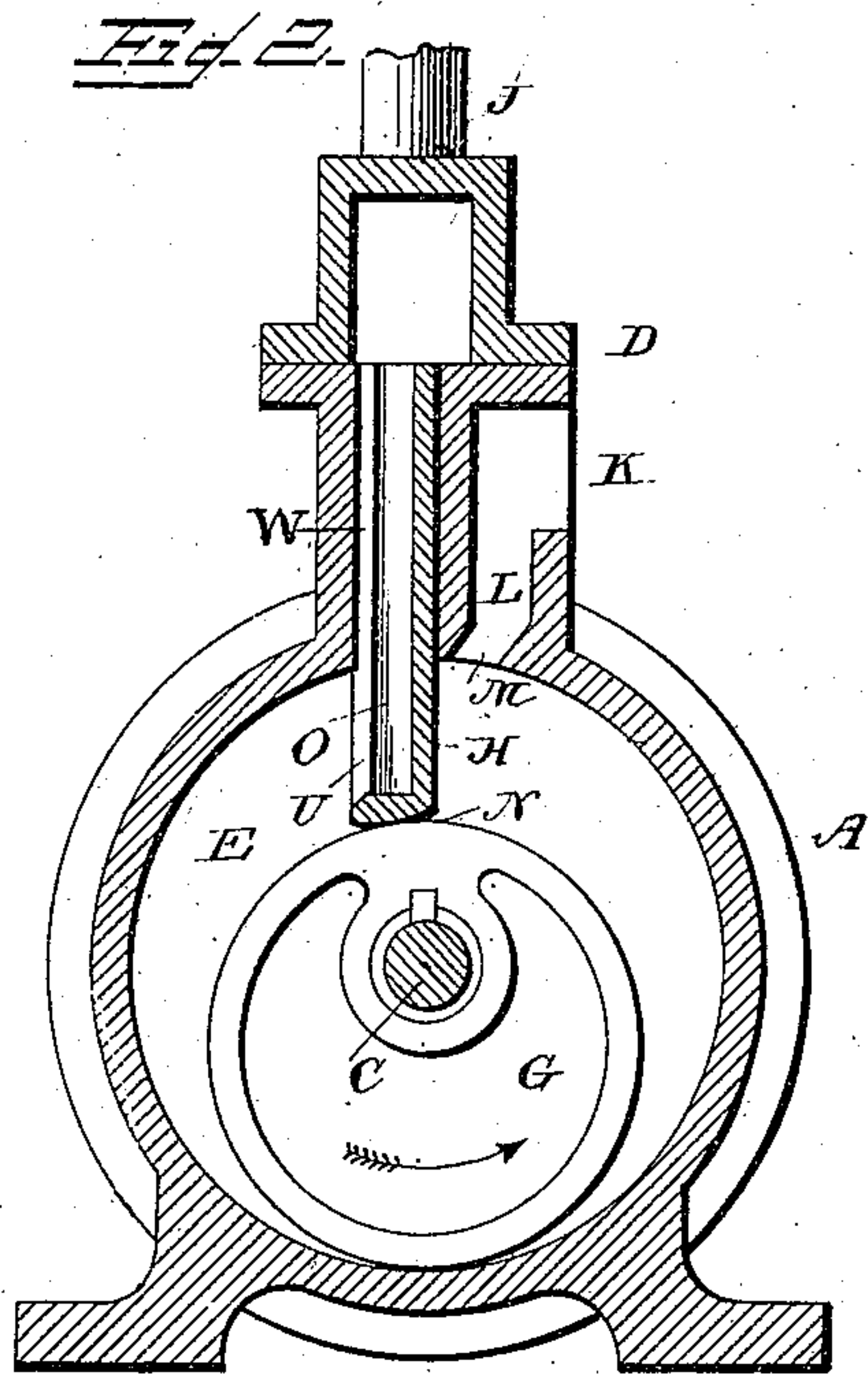
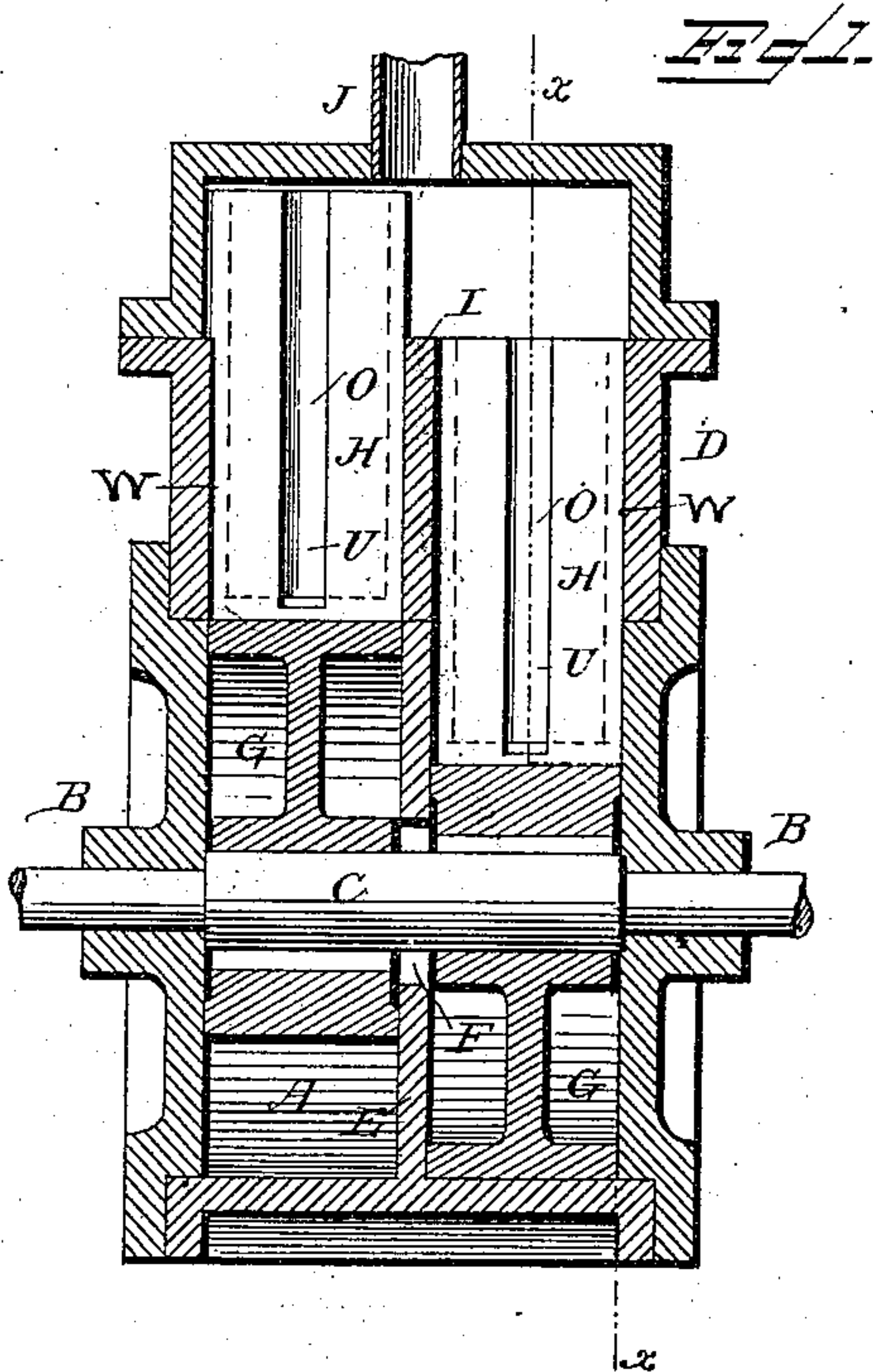
(No Model.)

C. P. JÜRGENSEN.

ROTARY ENGINE.

No. 334,235.

Patented Jan. 12, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHRISTOPHER PETER JÜRGENSEN, OF COPENHAGEN, DENMARK.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 334,235, dated January 12, 1886.

Application filed November 23, 1885. Serial No. 183,762. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER PETER JÜRGENSEN, a subject of the King of Denmark, residing at Copenhagen, in the Kingdom of Denmark, have invented certain new and useful Improvements in Rotary Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification, and in which—

15 Figure 1 is an axial vertical sectional view of my improved rotary engine. Fig. 2 is a vertical cross-section on line *xx*, Fig. 1. Fig. 3 is a similar view of a modification of the engine, capable of being reversed, and Fig. 4 is a
20 side view showing the engine provided with an eccentric for operating the slides.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to rotary engines
25 to be moved by any suitable fluid motor—water, steam, or compressed air, or any other fluid medium; and it consists in the improved construction and combination of parts of such a motor, which consists of a small number of parts of a very simple construction, pro-
30 ducing an engine which shall not be liable to get out of order, and which shall be efficient in operation and easily run, as hereinafter more fully described and claimed.

35 In the accompanying drawings, the letter A indicates the main cylinder, which is provided at the centers of its heads with suitable stuffing-boxes, B, for the passage of the main shaft C, and which is provided at one side with a
40 casing, D, projecting radially from the cylinder and extending the entire length of the cylinder. At its middle the cylinder is provided with a transverse partition, E, which divides the cylinder in two halves, and which is provided with
45 a central aperture or bearing, F, for the main shaft, which is provided with two diametrically-opposite eccentric cylinders or pistons, G G, which are secured upon the shaft and bear with the points farthest from the shaft against
50 the inner side of the cylinder at diametrically-opposite points of the same. These cylindri-

cal pistons bear with their sides against the heads of the cylinder and against the partition dividing each compartment into two chambers, the bearing-points of the pistons being perfectly steam, air, or water tight, and
55 two slides, H H, bear with their lower rounded ends against the surfaces of the pistons, fitting tightly against the heads of the cylinder and the partition with their side edges, and fitting
60 perfectly tight within the casing D, which is likewise divided by a partition, I, forming a continuation of the partition in the cylinder.

The inlet-pipe J opens into the upper part of the cylinder through the apertures W W, in
65 which slide the two valves H H, and the escape-pipe K opens into the casing at M through the channel, which is curved at L.

The slides have their lower ends convex, as shown at N, and are formed with a recess, O,
70 extending their entire length and width, the slides thus forming casings open at their upper ends, and the sides of the slides facing from the exhaust-port are provided with longitudinal slots U, extending from the open top
75 to the closed bottom, through which slots the medium supplying the power may escape. It will thus be seen that when the power-supplying medium is let in through the inlet the slides will become filled with the same, and be
80 forced down against the surfaces of the cylindrical pistons, when the said medium will escape through the slots in the slides and bear against the sides of the pistons, forcing them
85 to revolve, the medium contained in the spaces back of the slides escaping through the exhaust-ports, and the pistons being secured upon the shaft projecting in diametrically-opposite directions, the power upon the piston at
90 the lowermost part of its revolution will assist in carrying the piston in its uppermost position over its dead-center, when the medium is closed off from the said piston and exerts no power upon it.

When it is desired to have an engine in
95 which the motion may be reversed, the slides are formed as shown in Fig. 3, where the hollow slides are shown divided longitudinally by means of a partition, P, and in which both the sides of the slides are provided with the
100 vertical slots. The casing is in this case provided with two apertures, Q and R, which reg-

ister with the slots in the slides, and through which the power-supplying medium may be let in or escape, suitable valves or cocks governing the admitting and exhausting of the
5 medium, so that the medium may be let in at one side of the partition in the slide, and be exhausted through the slot and aperture at the other side of the partition.

The pressure of the medium against the
10 lower closed end of the slide is usually sufficient to keep the same bearing against the face of the cylindrical piston, and the slide will be raised by the revolving cylinder bearing against the convex end of the slide; but it may
15 be desirable to have a more positive action of the slides, and in this case the slides may be connected by means of eccentric-rods S to eccentrics T upon the shaft. The lower ends of the slides being rounded, the friction between
20 the surfaces of the cylindrical pistons and the said rounded ends will be comparatively small, inasmuch as point of contact between two cylindrical surfaces will be a line; but at the same time the power-supplying medium will bear
25 the slides sufficiently tight against the pistons to prevent the escape of any of the medium from one side of a piston to the other.

It will be seen that any fluid medium may be used for supplying power to the engine, water, steam, or compressed air or gas being 30 equally applicable, and with some changes in the construction of the engine it may be converted into a pump reversing its operation.

Having thus described my invention, I claim and desire to secure by Letters Patent of the 35 United States—

The combination, with the main cylinder of a reversible rotary engine, of a casing secured thereto, said casing having a pipe secured at each side on a line with and registering with 40 each other, and means, substantially as described, for connecting each of said pipes with the supply and exhaust pipes, and a valve sliding within said casing having similar grooves upon each of its opposite sides, said 45 grooves connecting said pipes with the interior of said cylinder, as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER PETER JÜRGENSEN.

Witnesses:

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