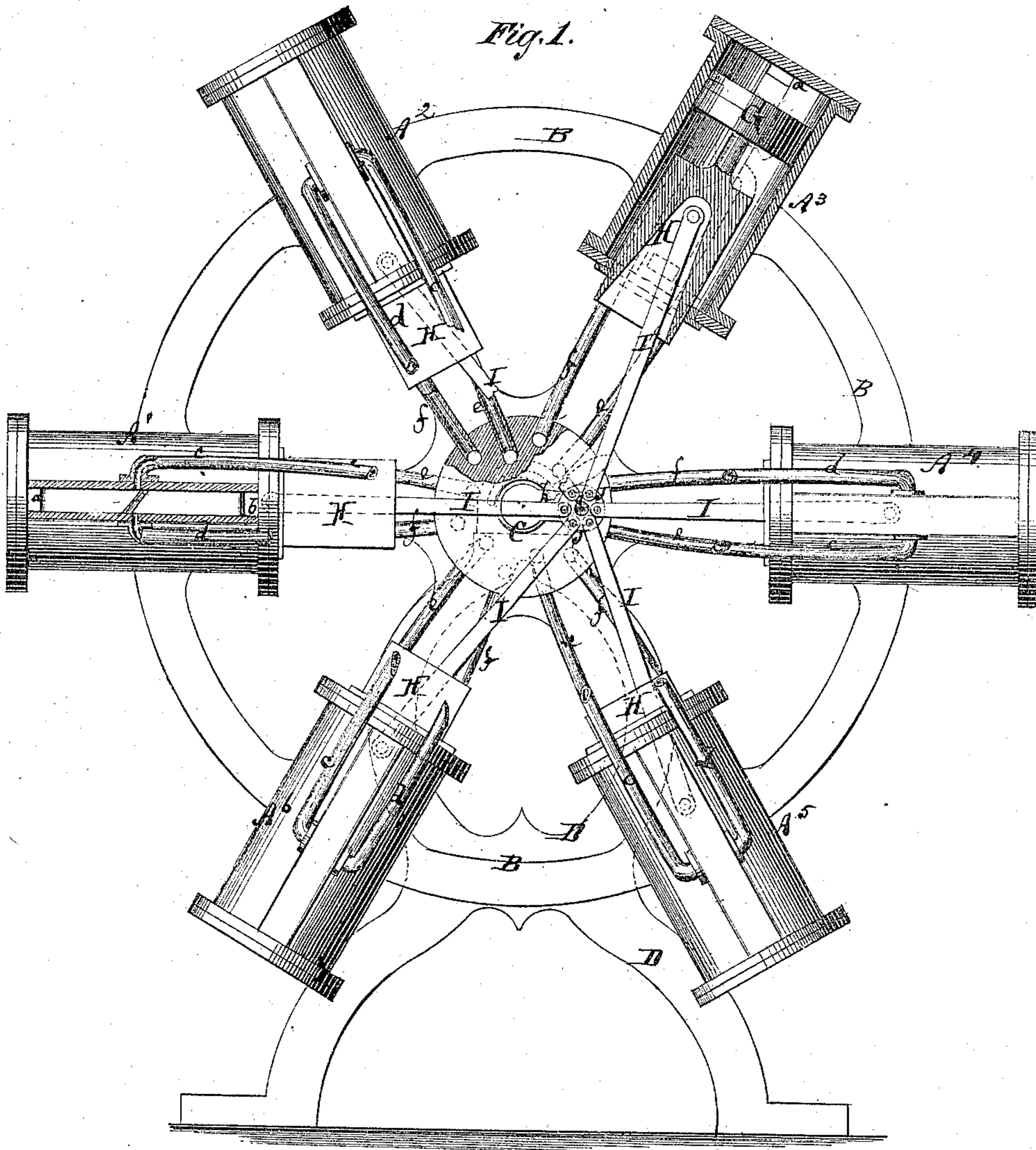


H. OLNEY.
ROTARY STEAM ENGINE.

No. 97,546.

Patented Dec. 7, 1869.



Witnesses:

John Becker.

Wm. T. Brooks

Inventor:

Inventor:
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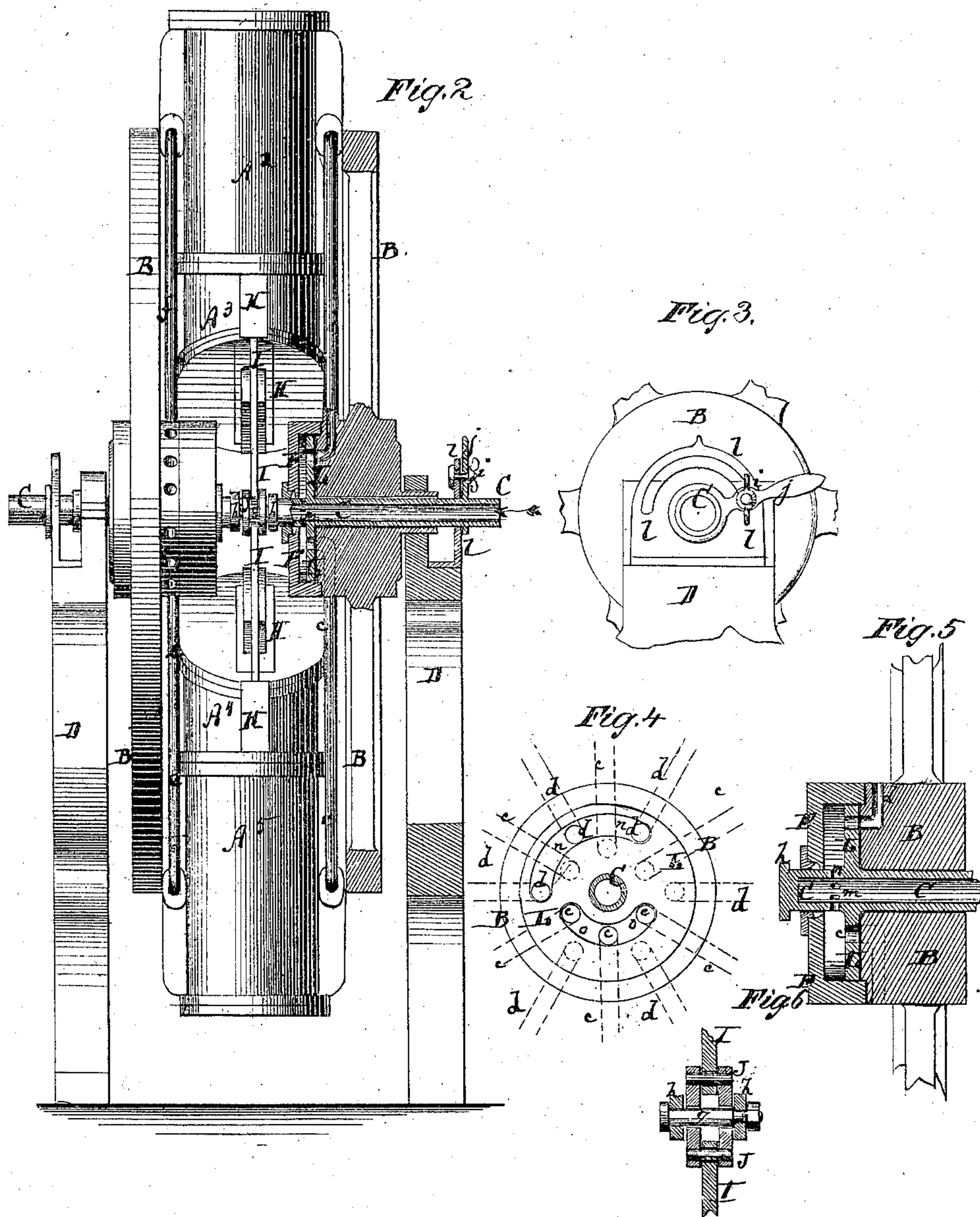
PER

Attorneys.

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Witnesses:
 Joh. Beecher.
 Geo. F. Brooks

Inventor:
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United States Patent Office.

H. OLNEY, OF MALONE, NEW YORK, ASSIGNOR TO HIMSELF, ROBERT A. DELONG, AND LUCIUS R. TOWNSEND, OF SAME PLACE.

Letters Patent No. 97,546, dated December 7, 1869.

ROTARY STEAM-ENGINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, H. OLNEY, of Malone, in the county of Franklin, and State of New York, have invented a new and improved Rotary Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of my improved rotary engine.

Figure 2 is a vertical transverse section of the same.

Figure 3 is a detail face view, showing the reversing-handle.

Figure 4 is a detail face view of the circular valve.

Figure 5 is a central section of the same.

Figure 6 is a detail sectional view of the ring fitted around the eccentric pin, and connected with the piston-rod.

Similar letters of reference indicate corresponding parts.

This invention relates to a new rotary engine, which is composed of a series of cylinders, arranged radially within a rotating frame, their piston-rods being connected with a ring, which is fitted around a pin eccentric to the axis of said frame. The pistons in the said cylinders are moved by the steam, in such manner, that acting on the eccentric fulcrum, they will force the frame around its axis, thereby producing the desired motion.

The invention consists—

First, in the general combination and arrangement of the parts constituting my improved engine.

Secondly, in the introduction of a peculiar circular valve, by which the steam is conducted into all the cylinders at once.

Finally the invention consists in the arrangement of devices for reversing the aforesaid circular valve, and, at the same time, the position of the eccentric, thereby also reversing the motion of the frame.

$A^1 A^2 A^3 A^4 A^5 A^6$, in the drawing, represent six steam-cylinders, equal in size and form, and secured firmly in a circular frame, B, which is hung on a tubular horizontal axle, C. The axle has its bearings in a stationary frame, D. The cylinders are set equidistant from and radial to the axis of the frame B, as is clearly shown in fig. 1, and are all equidistant from each other. Six or more or less, such cylinders may be arranged on one engine.

Each cylinder is provided with two inlet-ports, a b , one at the inner, the other at the outer end, and each port communicates, by a separate pipe, with a steam-chest, F, provided on the rotating frame B.

The pipes c lead to the outer ports a , and the pipes d to the inner ports b . A similar set of pipes, e f , is arranged on each cylinder for the exhaust.

Within each cylinder is arranged a piston, G, which

has its rods H connected, by pivoted bars I, with a ring, J, the said ring being fitted loose around a pin, g , which is eccentric to the axis of the frame B, but connected with the tubular axle C of the same, by means of cranks h h .

Every single piston is connected with the ring J.

The axle C is held stationary in the frame D, by a screw and nut, i , which serve to lock a handle, j , projecting from the axle to a plate, l , attached to the frame D. The nut i , or its equivalent, serves, therefore, also to lock the pin g in a certain position; that is to say, either to the right or to the left of the axle.

Steam is admitted to the machine through the fixed axle C, and is, through apertures m m in the side of the same, discharged into a cylindrical steam-tight chamber or steam-chest, F, which is formed on the frame B. The pipes d and c enter the chest F, in such manner that their ends are brought to the face of said chest, the ends of the pipes c c being in an outer circle, and those of d in an inner circle, as shown in fig. 4. Against this face of the chest is fitted a disk, L, which is firmly mounted upon the axle C, and which has two curved slots, n and o .

The slot n is so large and so placed, that it will leave open three pipes d belonging to three adjoining cylinders, the disk closing the other pipes d . The slot o leaves open three pipes c , which belong to the remaining cylinders, the other pipes c being closed by the disk.

The numbers here specified, refer all to a machine having six cylinders, and will be varied as the number of such cylinders is increased or reduced.

The foregoing description will make it clear that steam is conducted to the inner ends of three adjoining cylinders, $A^1 A^2 A^3$, forcing their pistons outward, and, at the same time, to the outer ends of the other cylinders $A^4 A^5 A^6$, moving their pistons inward. That cylinder, A^1 , which, when in line with the axis and eccentric, is furthest from the latter, commences to move its piston out, while the opposite cylinder A^4 , which is nearest to the said eccentric, commences to move its piston inward. The further cylinder thus attempts to be drawn toward, and the nearest to be moved away from the eccentric. Those between the said extremes aid in such motion, but all tend to act on the eccentric fulcrum, so as to rotate the frame B.

As the steam-chest revolves with the frame D, while the valve disk L remains stationary, it is evident that the supply of steam to the cylinders is regulated by the said valve.

When a cylinder arrives in line with the eccentric and axle, its steam-supply is reversed, as it then either commences to receive steam through n or through o . At every half revolution of the frame B, such supply is then again reversed, and so forth, continuously to rotate the frame B in the desired direction.

The motion of the frame B is reversed by turning

the tube *O* one-half revolution; thereby the eccentric is brought to the opposite side, and the disk *L* is turned to reverse the positions of the slots *n o*. The steam will then enter the pipes *c* of the first three cylinders, *A¹ A² A³*, through *o*, and the pipes *d* of the other cylinders *A⁴ A⁵ A⁶*, through *n*.

By throwing the handle *j* to the opposite side, and locking it, the machine is reversed.

The ring *J*, on the eccentric pin, rotates with the frame *B*, and prevents the rods *I* from being strained.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. A rotary engine, containing a series of radial cylinders in a revolving frame, the pistons of the said cylinders being all connected with a ring on a fixed eccentric, substantially as herein shown and described.

2. The circular valve *L*, having the apertures *n* and *o*, to automatically conduct the steam into the outer

and inner parts of the cylinders as they arrive at certain positions, substantially as herein shown and described.

3. The tubular axle *C*, carrying the eccentric or crank-pin *g* and the valve disk *L*, and made reversible; with its appendages to reverse the whole machine, as set forth.

4. The handle *j* and screw *i*, or its equivalent, combined with the tubular axle *C*, to lock the same, substantially as described, and to serve to reverse the same, as specified.

5. The pipes *c d*, conducting the steam from a revolving steam-chest to the outer and inner ends, respectively, of the cylinders, substantially as and for the purpose herein shown and described.

H. OLNEY.

Witnesses:

GEO. W. MABEE,

ALEX. F. ROBERTS.