

No. 719,513.

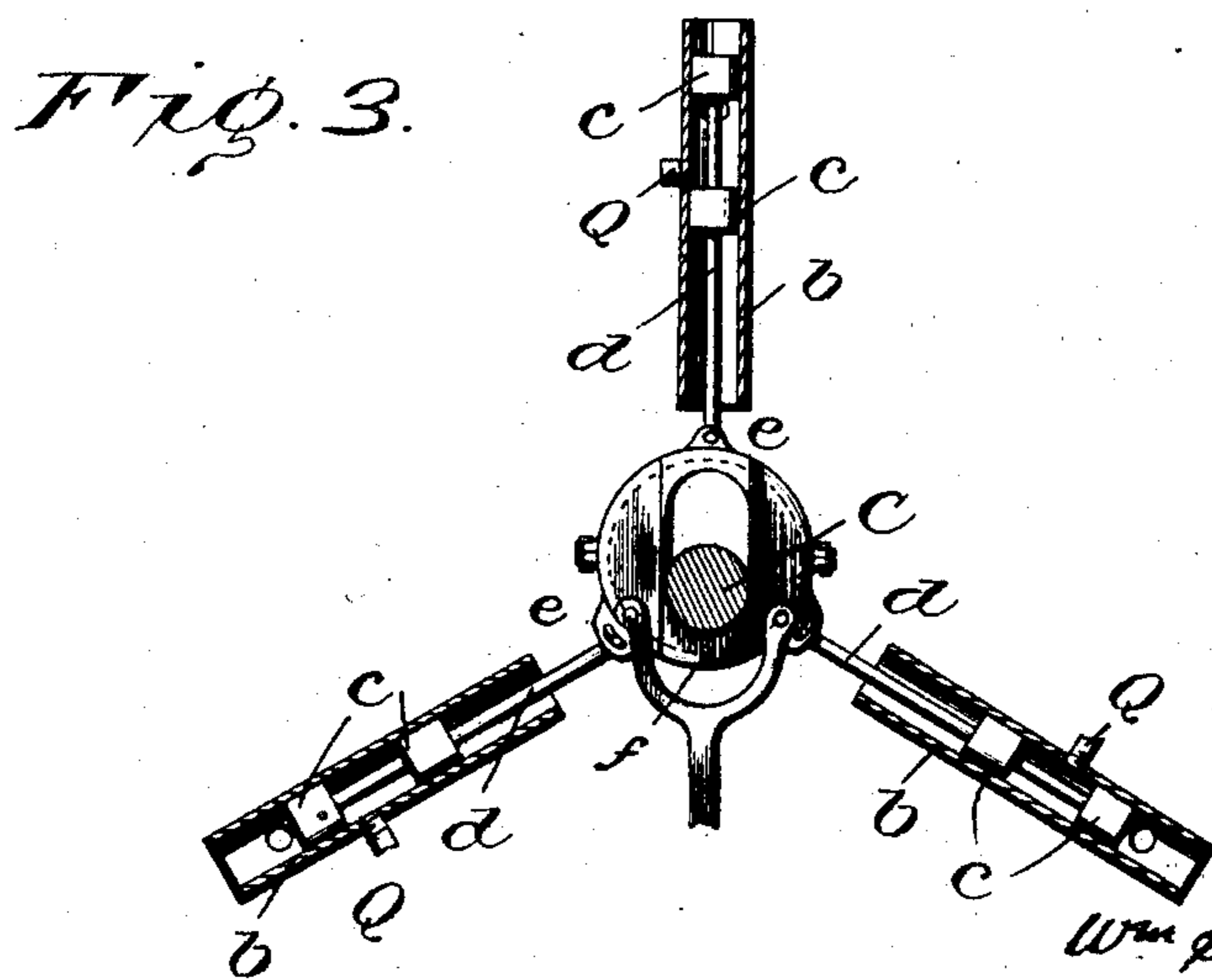
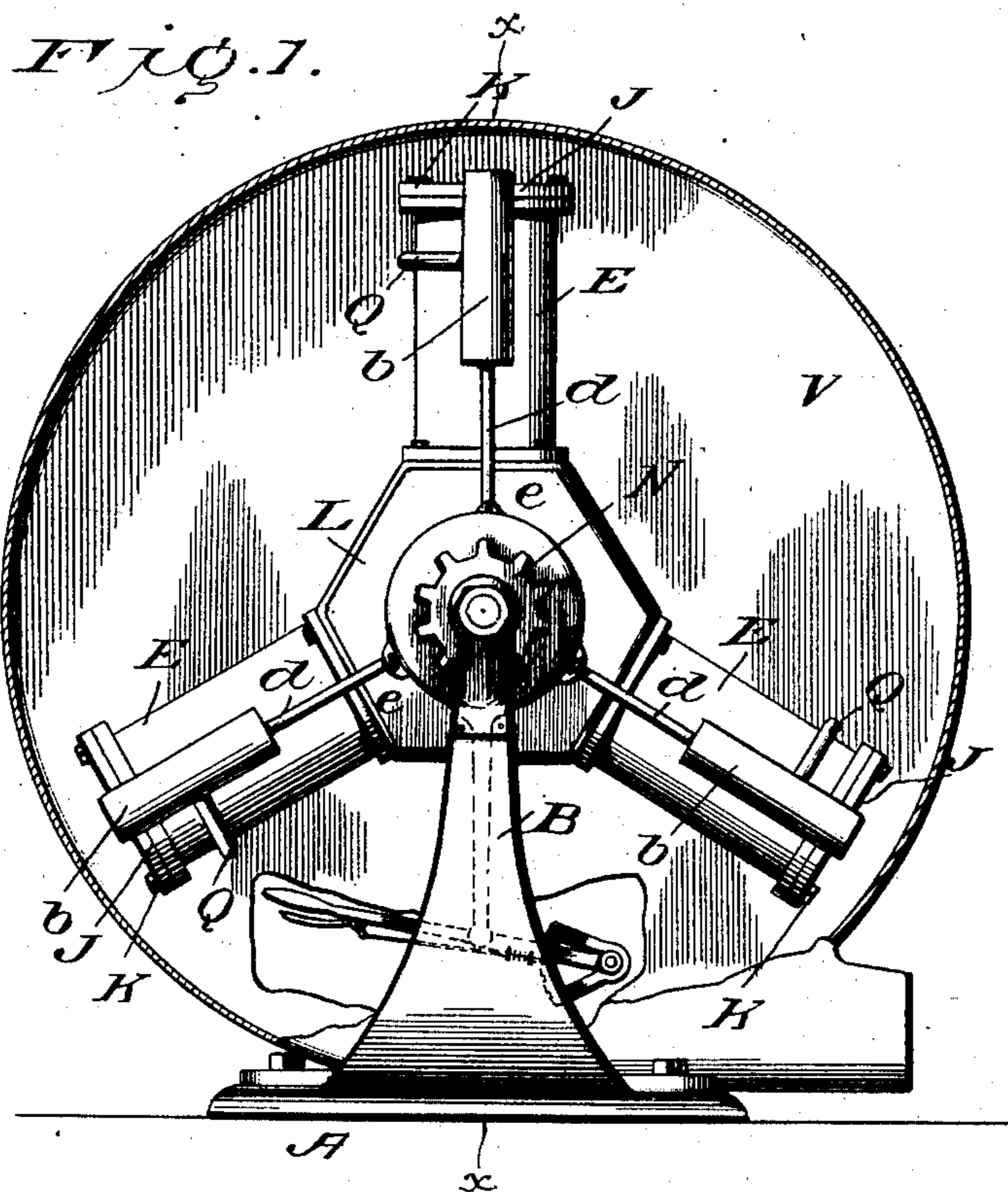
PATENTED FEB. 3, 1903.

W. SCANTLEBURY.
MULTICYLINDER ROTARY ENGINE.

APPLICATION FILED AUG. 22, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



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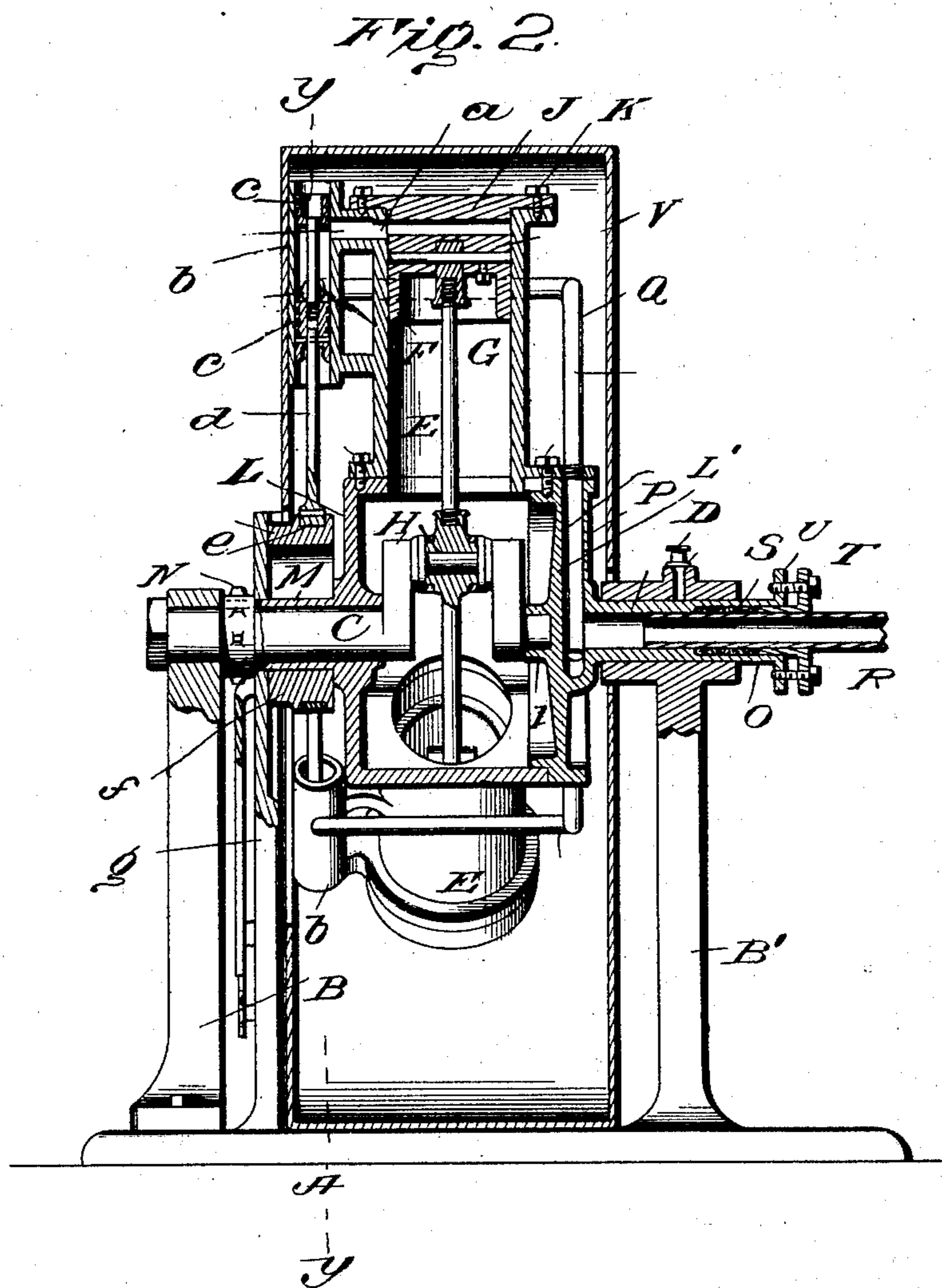
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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM SCANTLEBURY, OF WASHINGTON, DISTRICT OF COLUMBIA.

MULTICYLINDER ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 719,513, dated February 3, 1903.

Application filed August 22, 1901. Serial No. 72,923. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCANTLEBURY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Multicylinder Rotary Engines; and I do hereby 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 appertains to make and use the same.

My invention relates to certain new and useful improvements in engines, and particularly to that class known as "multicylinder rotary engines," such as shown and described in a pending application filed by me on the 8th day of September, 1900, Serial No. 29,458.

My present invention has for its object to produce a modified form of construction whereby I am enabled to dispense entirely with the face-valves shown in said application above referred to and to supply the steam through the hub of the engine to the multicylinders to drive the pistons thereof (and to exhaust the dead steam) through the medium of reciprocating valves movable within a steam-conduit connected with each of the multicylinders.

With these ends in view my invention consists in the novel construction and arrangement hereinafter and in detail described and specifically claimed.

In order that those skilled in the art to which my invention appertains may know how to make and use my improved engine, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved engine with the muffle-casing in section. Fig. 2 is a vertical section on the line *x x* of Fig. 1; and Fig. 3 is a detail section taken on the line *y y* of Fig. 2 to show the conduit adjacent to the steam-cylinders and the eccentric mechanism for operating the double piston, valves, &c.

Similar letters of reference denote like parts in the several figures of the drawings.

A represents the bed of the engine, upon which are erected two pillars or posts B B'. The upper end of the pillar B is adapted to seat one end of a stationary crank-shaft C,

and the upper end of the pillar B' is adapted to seat a tubular extension of the hub of the engine, which is properly lubricated by any ordinary oil-cup attachment D.

E represents the cylinders of the engine, provided with a piston F, the rod G of which is pivotally connected with the piston, as shown, and to the crank portion of the stationary shaft C rotatively by a segmental head H and rings I, as fully described in my pending application referred to. Each cylinder is formed at its outer end with a steam supply and exhaust port *a*, communicating with a steam conduit or chest *b*, connected with the side of the cylinder, as shown, and open at both ends. The outer ends of the cylinders are closed above the ports *a* by a head J, secured in place by bolts K in an obvious manner, and the inner ends of the cylinders are bolted, as shown, to a central hub, which for convenience of manufacture is made in two parts L L'. (Shown in section at Fig. 2.) The portion L is formed with a tubular extension M, surrounding and revolving upon one end of the shaft C and has secured upon the outer end thereof at any suitable locality a sprocket wheel or pulley N for transmitting power. The other portion L' of the hub is formed with a tubular extension O, which rotates within a suitable box in the pillar B'. This tubular extension communicates with radial steam-passages P, which connect with steam-pipes Q, leading to the conduits or steam-chests *b* at a locality between the extreme movements of double-headed reciprocating valves *c c*, which are connected by a piston-rod *d* with a strap *e*, surrounding and rotative upon an eccentric *f*, adapted to be reciprocated, as will be presently explained, for reversing the engine. One of the valve piston-rods is connected to the eccentric-strap by an ordinary pivot-pin, and the pivot-pins which connect the other two piston-rods pass through slots in the lugs on the strap, thus permitting the lateral movement necessarily resulting from the action of the strap around the eccentric. The inner face of the hub portion L' is formed with a journal-box *l*, which is adapted to support the end of the crank-shaft C, as clearly shown at Fig. 2, and may be lubricated in any suitable manner.

R is a steam-supply pipe leading from the boiler and entering the tubular projection O of the portion L' of the hub, and it is made steam-tight therewith through packing S and
5 a box T, which is adjustably secured by screw-bolts to flanges U, as clearly shown at Fig. 2.

The eccentric *f* is located upon a vertical support *g*, erected upon the bed of the engine, which support is formed with a wrist
10 pin or projection *h*, (see Fig. 3,) which projects through a vertically-disposed diametric gate *i* in the eccentric, and the eccentric is operated by a yoke-rod *j* and lever *k* in an obvious manner to reverse the engine.

15 V is a muffle-casing inclosing the engine and is provided with a suitable outlet for the steam which is successively exhausted from the cylinder E into the muffle-casing. The steam passing from the boiler through
20 the supply-pipe R travels through the passage P in the portion L' of the hub, thence through the pipes Q, and to the chests *b* between the valves *c* and enters the ports *a* of the cylinders (whence the parts are in the po-
25 sition shown in section at Fig. 2) to drive the piston F toward the fixed crank-shaft C, the eccentric relation of which causes the engine to rotate around said shaft. Through the
30 medium of the eccentric connection of the double valves *c* as the piston of each successive steam-cylinder reverses its movement the upper or outer valve *c* passes below the port *a*, and hence the dead steam is exhausted
35 chest *b* into the muffle-casing V.

While I have shown the sprocket-wheel on the extension of the hub portion L and the steam as supplied from the boiler through the extension of the hub portion L' to the pipes
40 N, I wish it to be understood that I do not confine myself to this arrangement, as I may, if desirable, reverse the same.

Many other changes may be made in the details of construction without departing from the spirit of my invention, the genus of which
45 resides in supplying the steam to cylinder-pistons through the rotative hub of the engine and an open-ended chest adjacent to each cylinder and provided with a reciprocating double valve and in exhausting the
50 cylinders through said chest, as heretofore explained.

Having described the construction and operation of my improved engine, what I claim as new, and desire to secure by Letters Pat-
55 ent, is—

1. In a multicylinder-engine, in combination with a fixed crank-shaft, radial cylinders provided with a steam-port near the outer end, and with pistons rotatively connected
60 with the stationary crank-shaft; a steam-supply passage through the axis of the engine, steam-pipe connections between the said axial steam-passage and the steam-chests connected with the ports of the cylinders, recip-
65 rocating valves in the steam-chests and rotatively connected with a sliding eccentric, substantially as described.

2. In an engine such as described, the rotating hub having on one side an axial extension surrounding and revoluble upon one end
70 of the fixed crank-shaft, and upon the opposite side an axial tubular extension communicating with a steam-supply pipe, supporting one end of the crank-shaft and itself sup-
75 ported upon bearings on the pillar of the engine, substantially as described.

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

WILLIAM SCANTLEBURY.

Witnesses:

WM. C. MCINTIRE,
R. B. RIVES.