C. H. PALMER & E. H. DEWEY.

Reciprocating Cylinder-Revolving Engine.

No. 165,175. Patented July 6, 1875.

Fig. 1.

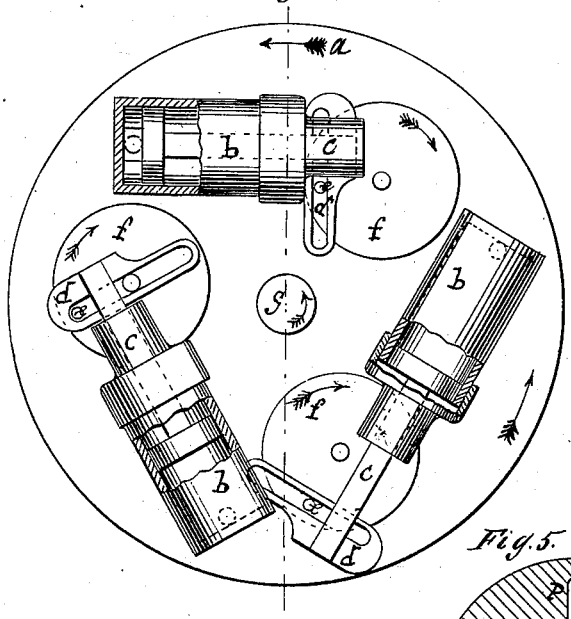


Fig. 2.

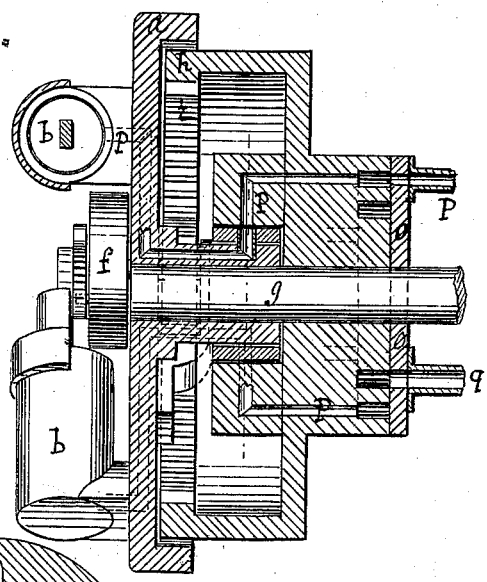


Fig. 5.

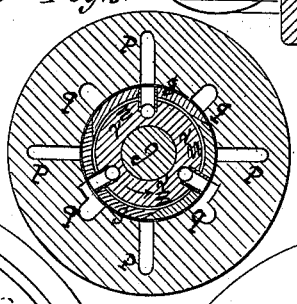


Fig. 3.

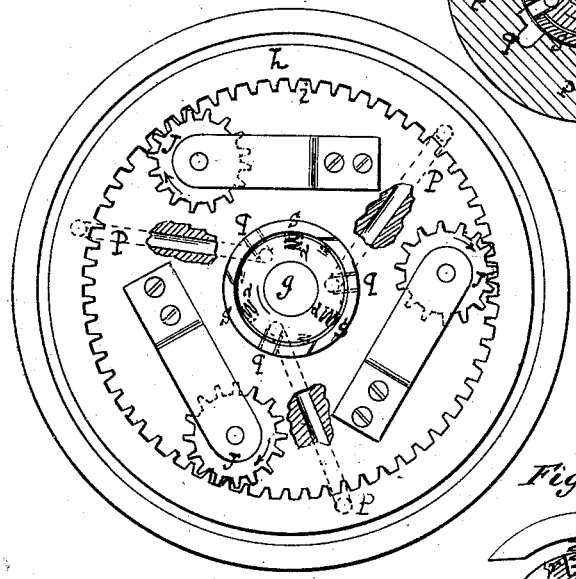


Fig. 4.

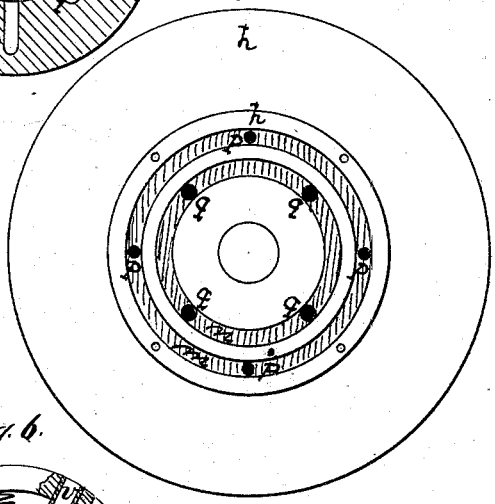
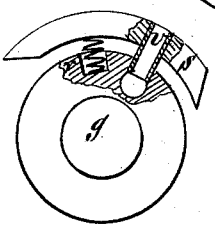


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES H. PALMER AND EDMUND H. DEWEY, OF NEW YORK, ASSIGNORS TO CHARLES H. DEWEY, OF BROOKLYN, N. Y.

IMPROVEMENT IN RECIPROCATING-CYLINDER REVOLVING ENGINES.

Specification forming part of Letters Patent No. **165,175**, dated July 6, 1875; application filed April 6, 1875.

To all whom it may concern:

Be it known that we, CHARLES H. PALMER and EDMUND H. DEWEY, of the city, county, and State of New York, have invented an Improved Reciprocating Revolving Engine, the object of which is to make steam more efficient as a motive power than has heretofore been accomplished, the peculiarities of which are clearly and fully set forth in the following description, including the accompanying drawings and letters of reference thereon.

Figure 1 is a front view of the face of the engine. Fig. 3 is an inside view of the face. Fig. 2 is a vertical section. Fig. 4 is a view of the steam-chamber and steam-ports, with cap *o* lifted off. Fig. 5 is a sectional view of the same. Fig. 6 is a transverse section of a portion of the steam-valve.

Like letters refer to like parts.

a is a fly-wheel, to which are attached straight steam-cylinders *b*, pistons *c*, slotted cross-heads *d*, crank-wheels *f*, with crank-pins *e*, and pinion-wheels *j*, all of which are affixed to and revolve with the center shaft *g*. *h* is an outer casing, which remains fixed, and within which is an internal gear, *i*, attached, which also remains fixed, and in which pinion-wheels *j* mesh. Pinions *j* and crank-wheels *f* revolve together upon the same shaft. *m* is the live-steam chamber. *n* is the exhaust-steam chamber. *p* are supply, and *q* are exhaust, ports. Surrounding shaft *g* (see Figs. 3, 5, and 6) are three segments, *s*, forming a circle and encompassing said shaft, which constitutes the interior of the valve. These segments are pierced with holes, which serve as supply and exhaust ports. The segments *s* are held against the outer casing or jacket of the valve by spiral springs *r*, and thus prevent the escape of steam between the outer and inner parts of the valve. *v* (see Fig. 6) are tubes fixed in segments *s*—through which steam circulates—and movable in the steam-ports of shaft *g*. Said tubes thus prevent the escape of steam through the space between shaft *g* and segments *s*.

When the engine is in operation the casing *h* remains stationary. Steam being let into the cylinders *b*, they are, in effect, thrown forward, carrying therewith fly-wheel *a* and all attached thereto. The steam-cylinders *b* and pistons *c* are arranged to work in a line tangential to the line of revolution, and to have full steam, half steam, and no steam, while some one of the three is taking steam at all points of the circle in which they revolve. Cylinders *b* are in fixed bearings, begin to take steam immediately after crank-pins *e* have passed the inner dead-centers, and begin to exhaust immediately before they (the crank-pins *e*) pass the outer dead-centers, and as internal gearing *i* is stationary, and pinions *j* are made to revolve in one way—viz., forward—it follows that fly-wheel *a* is put in continuous revolution, with all that is attached thereto.

We may use steam in both ends of the cylinders *b*, it being only required for that purpose to duplicate the ports.

What we claim is—

1. Revolving cylinders *b*, with fixed bearings, together with pistons *c*, when arranged to operate tangentially to the line of revolution of the crank-wheels *f*, in combination with gearing *i*, pinions *j*, crank-wheels *f*, crank-pins *e*, and slotted cross-heads *d*, substantially as set forth.

2. Segments *s*, as described, with tubes *v*, when arranged to operate in combination with the ports *p* and *q*, substantially as set forth.

CHARLES H. PALMER.
E. H. DEWEY.

Witnesses:
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