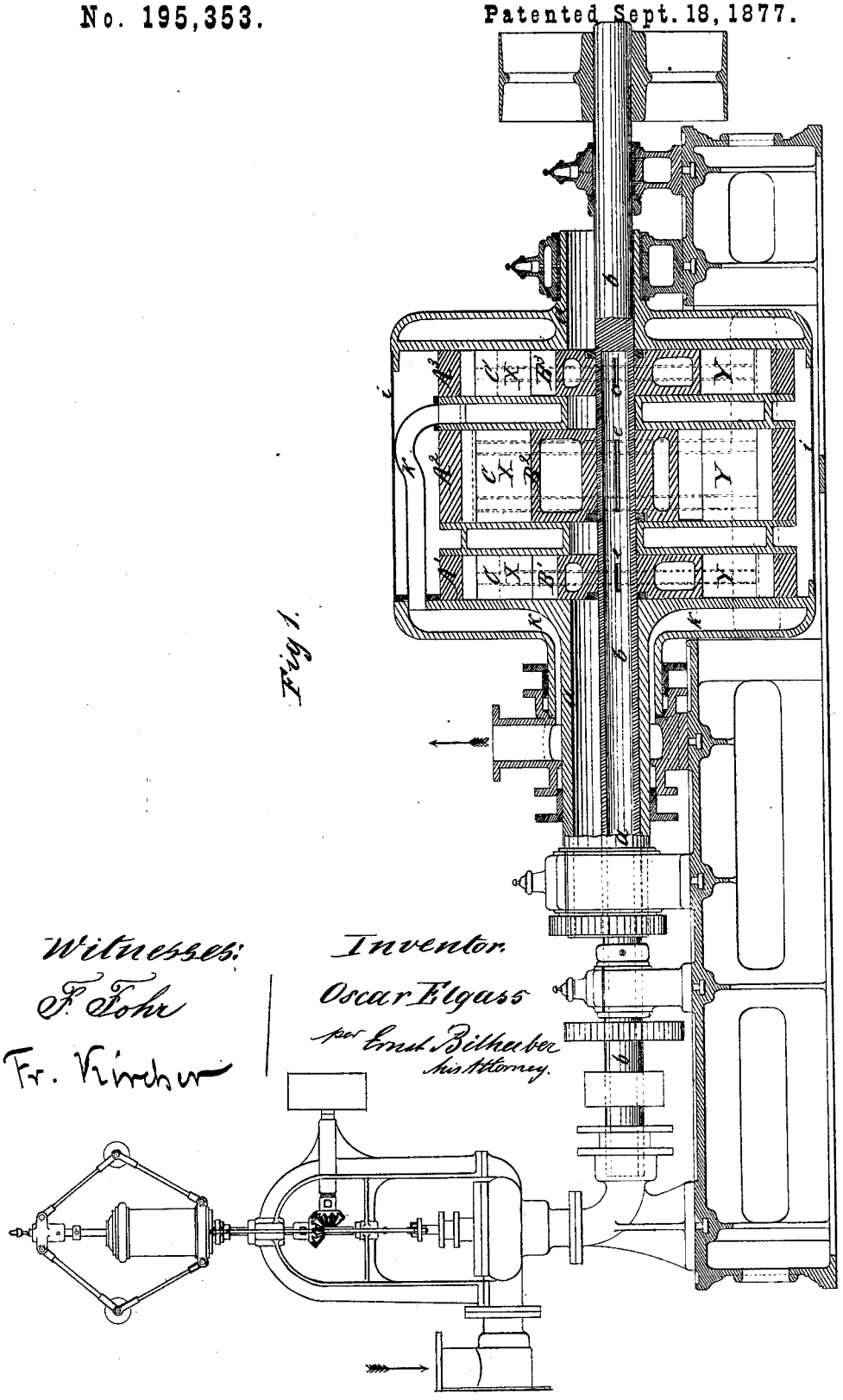
3 Sheets—Sheet 1

O. ELGASS.

ROTARY ENGINES AND PUMPS.

No. 195,353. Patented Sept. 18, 1877.



Witnesses:
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Fr. Kirchner

Inventor.
Oscar Elgass
per Ernst Bilhuber
his Attorney.

3 Sheets—Sheet 2.

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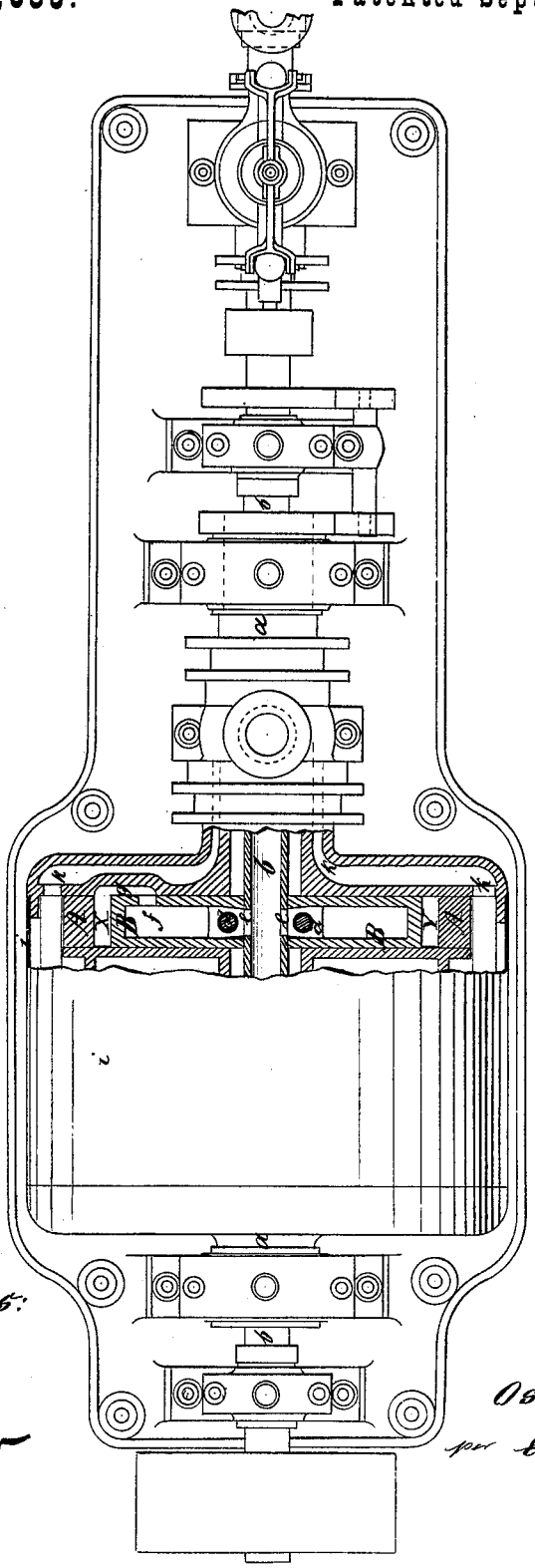

Fig. 2.

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Fig. 4.

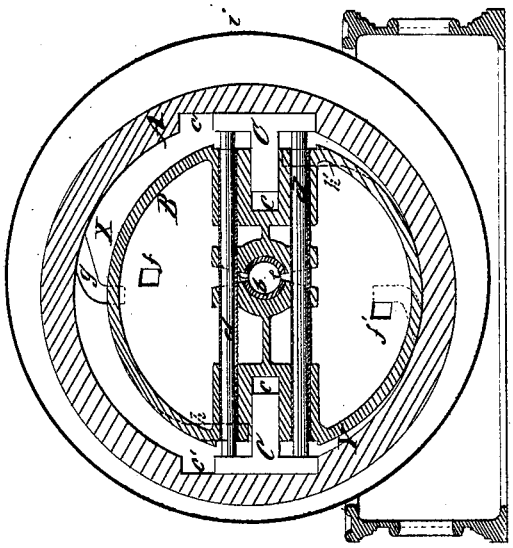
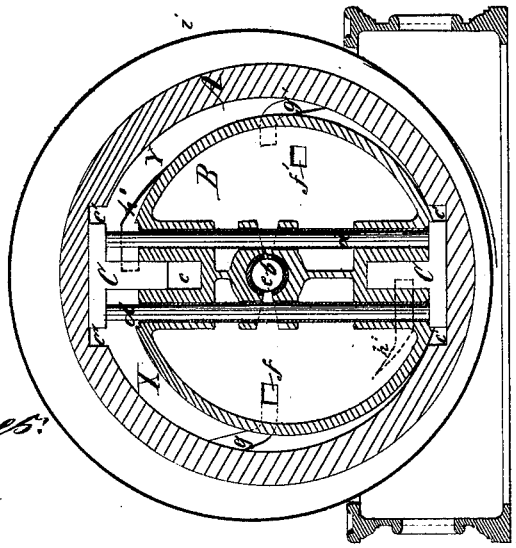


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

OSCAR ELGASS, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY ENGINE AND PUMP.

Specification forming part of Letters Patent No. **195,353**, dated September 18, 1877; application filed July 24, 1877.

To all whom it may concern:

Be it known that I, OSCAR ELGASS, of the city, county, and State of New York, have invented a new and useful Improvement in Rotary Engines and Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section of a machine with three sets of cylinders. Fig. 2 is a plan view of the same, partly in section; Fig. 3, a cross-section through the cylinders, showing both steam port and exhaust fully open; Fig. 4, a similar cross-section, showing steam and exhaust ports just opening.

This invention refers to rotary steam engines and pumps; and consists in the arrangement of one or more sets of cylinders, each set having an exterior and interior cylinder eccentrically mounted, both rotating together, but not on the same axis, two sliding partitions being so arranged between the outer and inner cylinders as to allow the common rotation of the two cylinders.

In the drawings, A^1 A^2 A^3 are the outer cylinders, mounted on the hollow shaft *a*; B^1 B^2 B^3, the inner cylinders, mounted on the hollow shaft *b*. C C are partitions, moving in recesses *c c* of the inner cylinders, and sliding on ways *c' c'* of the outer cylinders, so as to allow the relative motion of the two cylinders in two directions at right angles to each other. The partitions are connected by the rods *d d*, so that they are compelled to move together. Between the inner and outer cylinders and the partitions the working-chambers X and Y are formed, which working-chambers, during the rotation, alternately receive and discharge the steam through suitable induction and eduction ports, hereinafter described, causing the cylinders to alternately approach and recede from each other on opposite sides, by means of which the proper rotation of said cylinders on their journals is effected.

The shafts *a* and *b* are both hollow. The steam from the boiler is admitted through the shaft *b*, and passes through notches *e e e* into the interior space of the inner cylinders B^1 B^2 B^3. *f* and *f'* are steam-ports, which, during part of the revolution, communicate with the passages *g g'* leading to the space between the two cylinders. *h* and *h'* are exhaust-ports, which, during about one-half of a revolution, are closed alternately for each one of the two chambers formed by the outer and inner cylinders and the sliding partitions. As shown, the ports are opened and closed by the motion of the side faces of the cylinders on each other; but any other motion may be applied for this purpose.

The outer as well as the inner cylinders are mounted eccentrically on their respective shafts; but the centers of the shafts are necessarily always at some distance apart, so as to cause the alternate expansion and contraction of the two working-chambers X and Y. Surrounding the inner and outer cylinders is a casing, *i*, within which said cylinders operate. The steam from the exhaust-ports passes off through channels K K.

I prefer to use three systems of cylinders together, the two outer ones, A^1 and A^3, Fig. 1, having their eccentricity in opposite direction to A^2, so as to produce greater uniformity of motion and to balance the forces.

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

1. In a rotary steam engine or pump, the combination, with an outer cylinder, A, and an inner cylinder, B, both eccentrically mounted on hollow shafts, having their axes parallel, of the sliding partitions C C, working in ways *c c'*, the whole constructed to operate substantially as described.

2. In combination with the inner and outer cylinders and the sliding partitions, the induction-ports *f f'*, steam-passages *g g'*, and eduction-ports *h h'*, arranged to alternately admit and exhaust steam on opposite sides of the space between the two cylinders, substantially as set forth.

O. ELGASS.

Witnesses:
ERNST BILHUBER,
GUSTAV SCHUETZ.