

W. OWEN.
 ROTARY STEAM ENGINE.
 APPLICATION FILED NOV. 23, 1908.

917,116.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

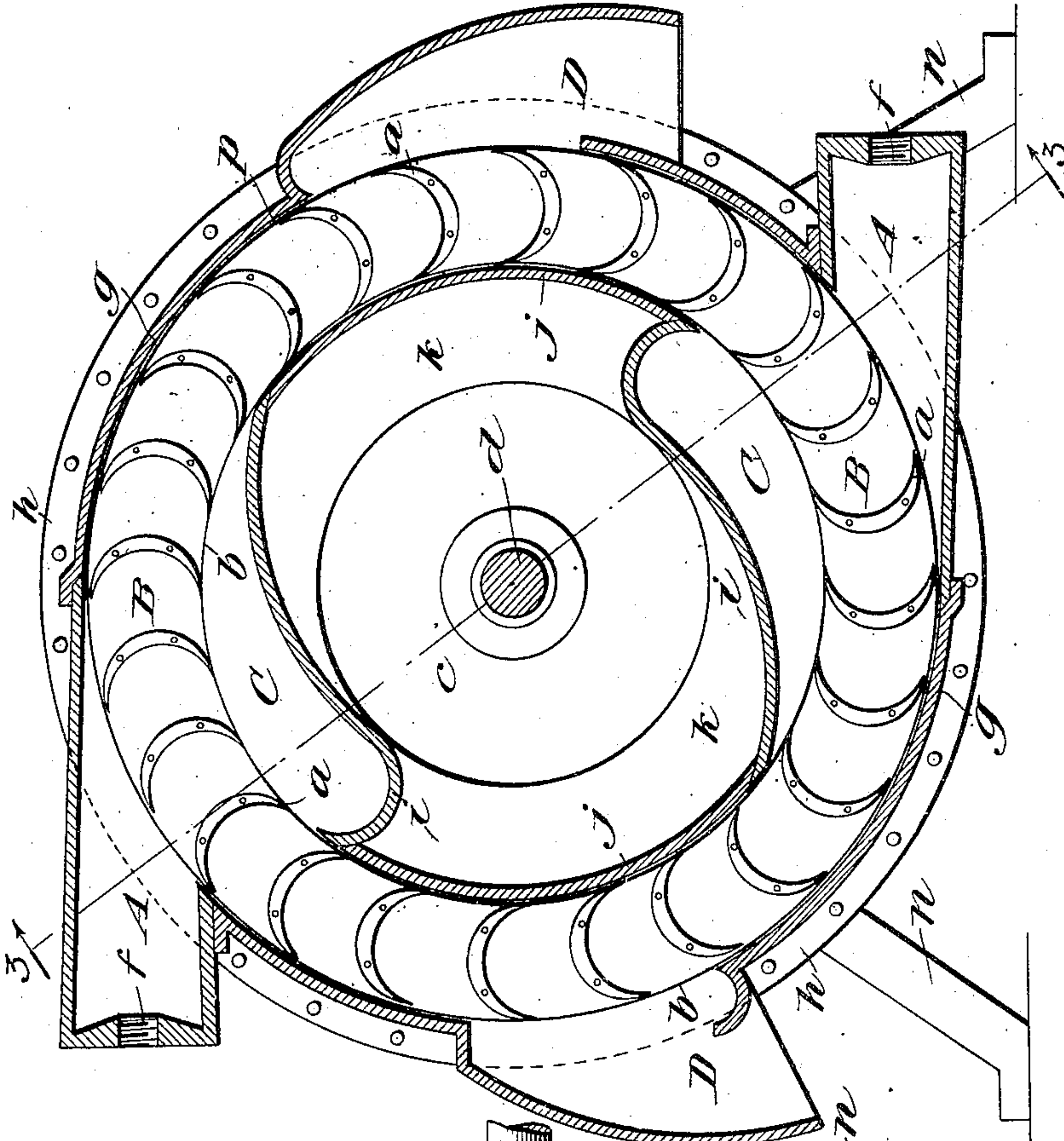
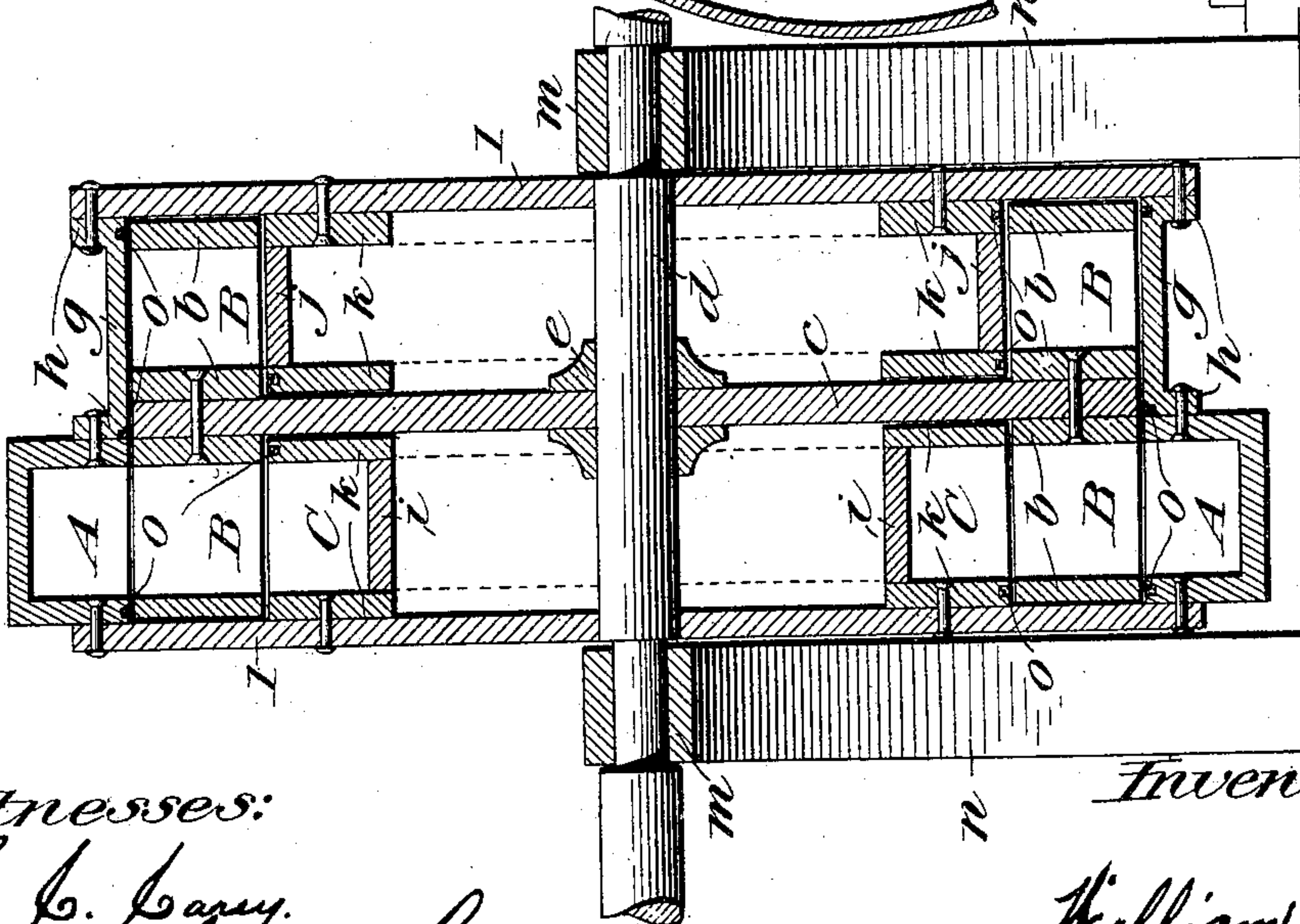


Fig. 3.



Witnesses:

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 Thomas Farnsworth

Inventor:

William Owen

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2 SHEETS—SHEET 2.

Fig. 2.

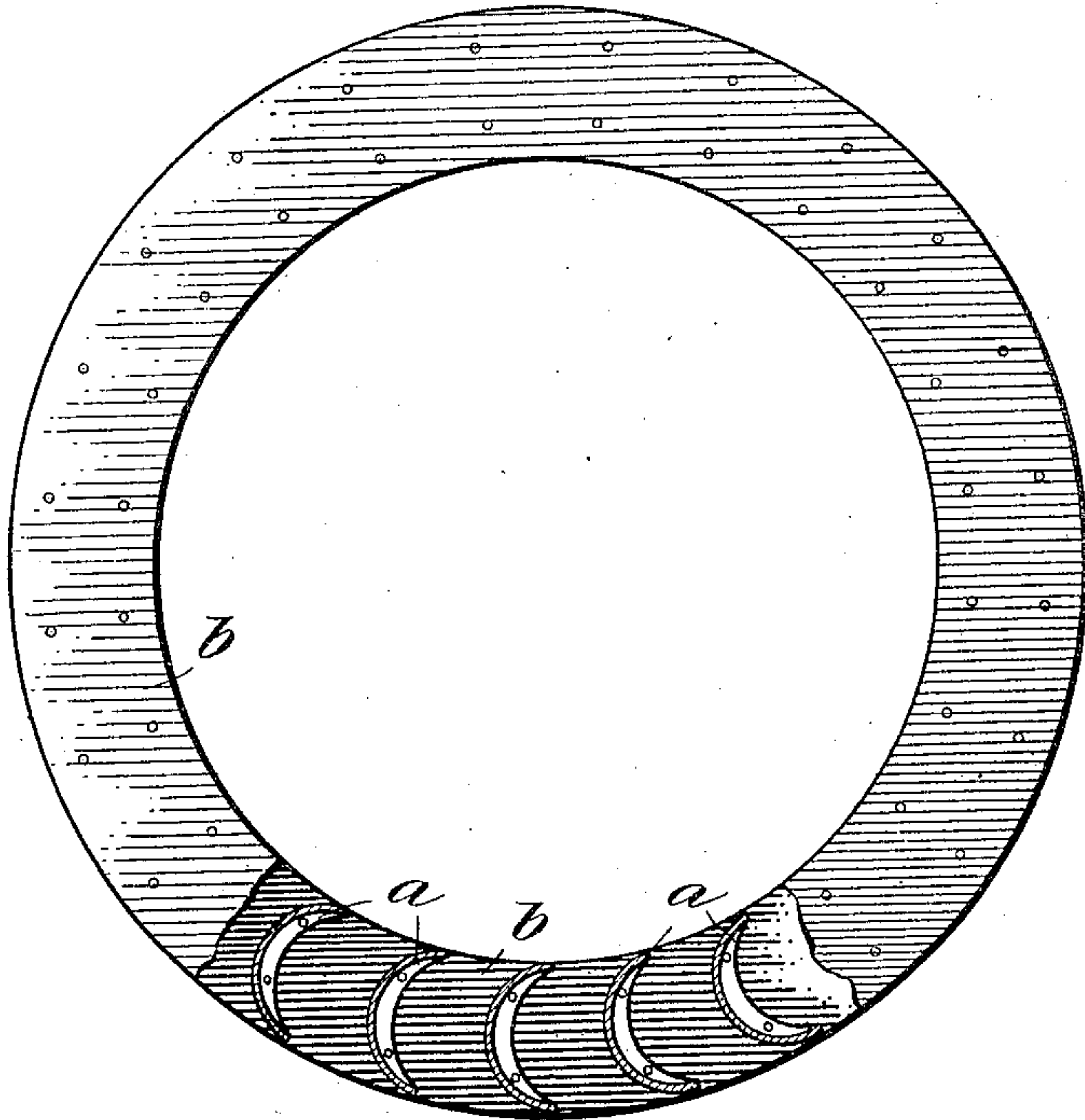
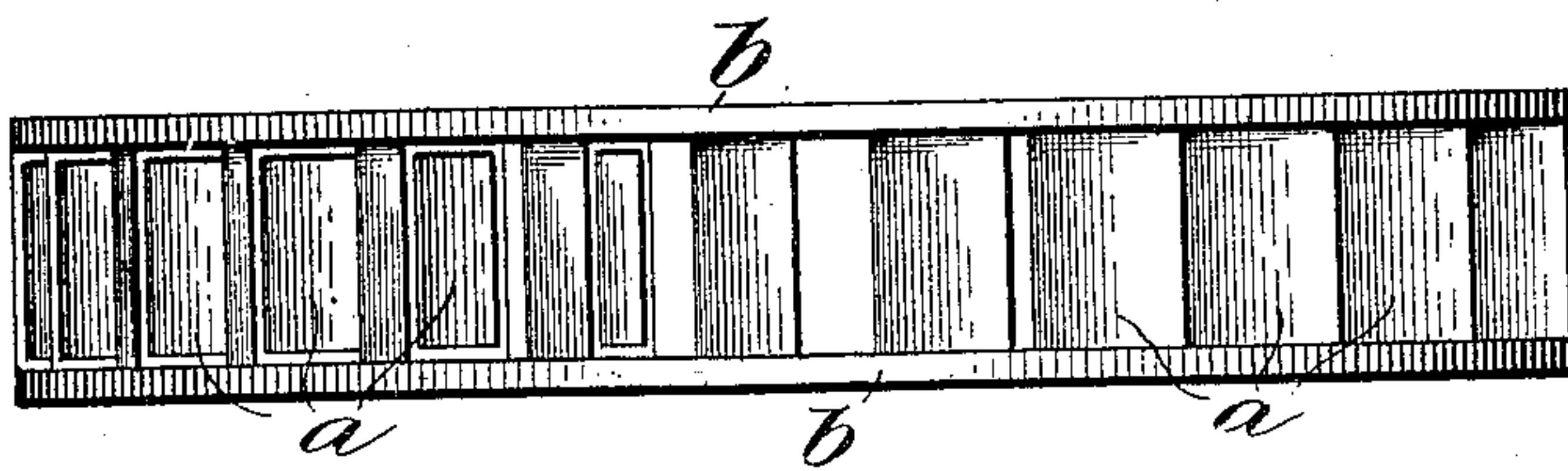


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM OWEN, OF SAN ANTONIO, TEXAS.

ROTARY STEAM-ENGINE.

No. 917,116.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed November 23, 1908. Serial No. 464,196.

To all whom it may concern:

Be it known that I, WILLIAM OWEN, a citizen of the United States, residing at San Antonio, in the county of Bexar and the State of Texas, have invented a new and useful Rotary Steam-Engine, of which the following is a specification.

My invention relates to an improvement in steam rotary engines; and the object of my improvement is to approximate as nearly as possible the principle of the cylinder engine, with a view to simplicity of construction, increase in effective power, and consequent reduction in quantity of fuel consumed. I accomplish these objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a sectional side view of interior parts of machine, Fig. 2, a cross-section on a line between the arrow points at top and bottom of Fig. 1, and Figs. 3 and 4 views of parts forming the circle of buckets and manner of construction.

On the right side in Fig. 2 the parts are so arranged as to make the machine reversible. If the reverse is not desired the extension of the case and wheel may be utilized to double the power of the rotor, or be left out entirely.

In construction, the circle of arcuate buckets, B, is made by riveting crescent shaped plates, *a*, between two circular side plates, *b*, as shown in Fig. 2; the heads of bolts to be sunken even with the face of the plates. This circle of buckets is then bolted to the side of the wheel-disk, *c*, on a line with the edge of its circumference. The wheel-disk, *c*, is bolted and keyed to the shaft, *d*, by means of the hub clamps *e*. The wheel carrying one or two circles of buckets should be so adjusted and ground, by revolution on its shaft, as to set at an exact right angle to its axis, and be within an equal radius in revolution.

I am aware that this style of wheel is not new, but I believe this manner of construction to be the simplest and best.

The chambers, A, of the shape and trend indicated, opening into the buckets, B, may be formed in one piece of metal each, provided with threads at the openings, *f*, for the insertion of supply pipes. Thus formed they are fitted into openings provided in the annular rim of the case, *g*, and bolted in place. Openings are also made in the rim, *g*, for the exhaust escapes, D, which may be

hooded as shown in Fig. 1, or piped to any desired point. The annular rim of the case is angled at the edges and around the openings as seen at *h*, for the convenience of bolting the parts together. The chambers, C, in shape as indicated, opening into the buckets, B, are made by riveting curved plates, *i* and *j*, between two circular plates, *k*, in like manner as are the crescent blades, *a*, the plates, *k*, fitting snugly within the plates, *b*. This circle is bolted to the inner side of the case-disks *l*, as shown in Fig. 3. The circular sides of the case, *l*, provided with openings for the shaft, *d*, are assembled and bolted to the rim, *g*, as plainly shown in the drawings. The journal boxes, *m*, are secured to and supported by substantial frames of angle iron, *n*, which are bolted to the sides of the casing. Leakage may be prevented by packing grooves made in casing at certain points as indicated at *o*. Apertures may be made in the sides of case for the escape of any fluid reaching the interior. Oiling cups may be inserted in casing, preferably at points marked *q*.

As an example of the practical working of this machine the wind gage is cited, where the convex side of a cup is exposed to the pressure of the wind and is opposed by the concave side of another cup, with a well known result. Therefore, in the description which follows reference is made solely to the effect of the pressure of elastic fluids on solid substances in certain shapes, positions and arrangements.

In operation, the elastic fluid is admitted to the chambers, A, through supply pipes screwed into the openings, *f*, rushes against the blades, *a*, into the chambers, C, where it is compressed and reacts, equalizing the pressure in all directions, which is admitted if the geared machinery offers sufficient resistance. The convex face of the crescent plates is exposed to the pressure in the aperture between the chambers, A and C, at a point in their greatest combined depth, where the elasticity of the fluid is greatest. The concentrated pressure of the fluid against the concave side of the plates in the apex of the angle between the chambers, A and C, readily carries the series of buckets through the space between the chambers, thus effecting a forced revolution of the wheel.

What I claim as my invention and desire to secure by Letters Patent is—

1. A combination of chambers and an exhaust opening in the casing of a rotary steam engine, having a series of arcuate buckets attached to a wheel movable between the said
5 chambers, two bucket blades intervening between the opposing chambers and the exhaust opening, so as to effect a revolution of the wheel by the excess pressure of the fluid on the concave side of the crescent shaped
10 plates which divide the buckets, as set forth.
2. A casing, for a rotary engine using elastic fluids having a wheel carrying a circle of arcuate buckets concentric with its axis of rotation, comprising one or more receiving chambers for the fluid set at a tangent to and 15 opening into the buckets on the outer circle, an equal number of compress chambers directly opposite and opening into the buckets on the inner circle, and corresponding exhaust openings in the rim of the case a 20 bucket length from the opposing chambers, substantially as described.

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Witnesses:

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