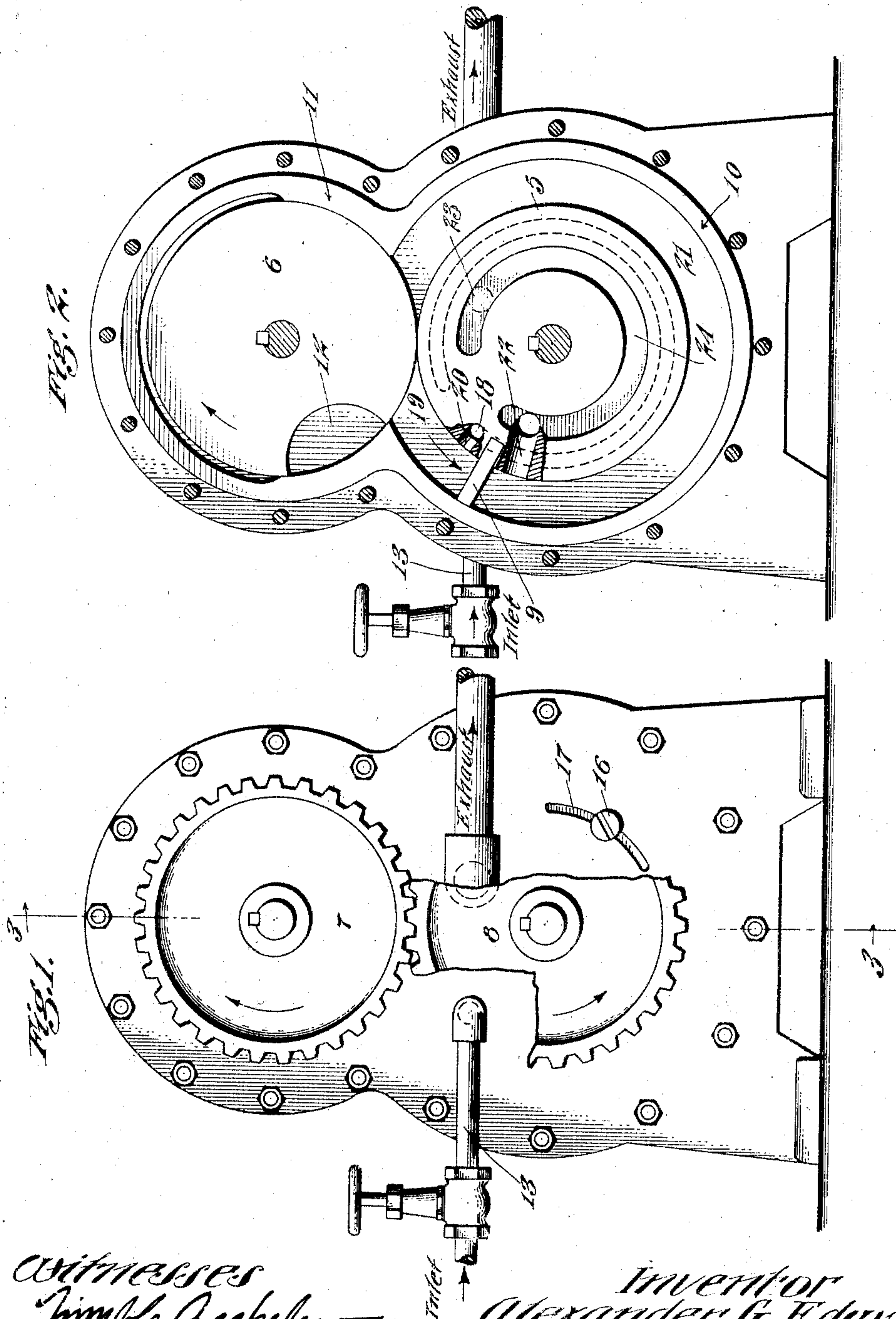


No. 864,889.

PATENTED SEPT. 3, 1907.

A. G. EDWARDS.
ROTARY ENGINE.
APPLICATION FILED FEB. 25, 1907.

2 SHEETS—SHEET 1.



Witnesses
H. M. Backe
M. A. Jones.

Inventor
Alexander G. Edwards
By Hazard & Strauss,
Attorneys.

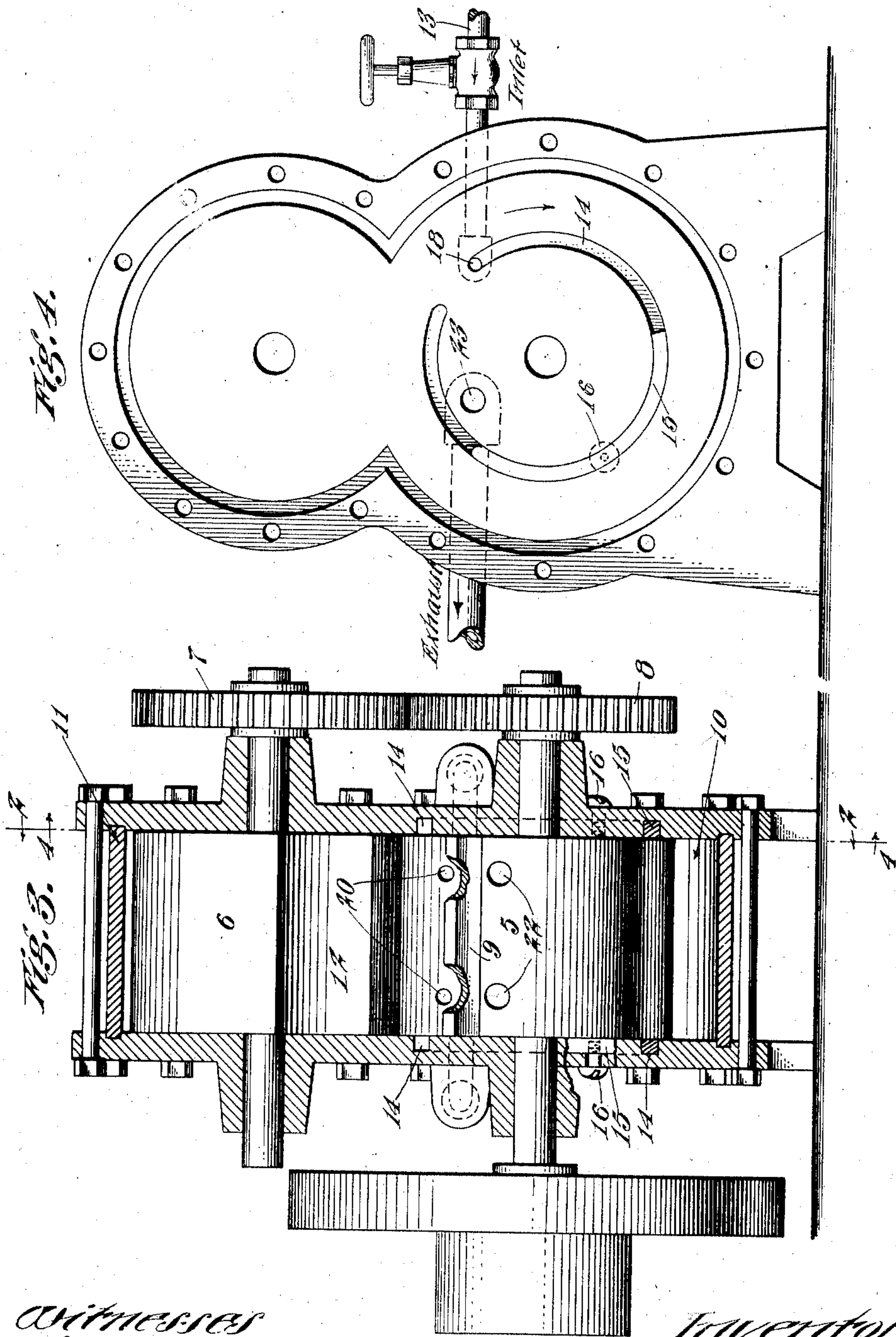
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2 SHEETS—SHEET 2.



Witnesses
J. M. C. Buckle
m. a. Jones

Inventor
Alexander G. Edwards
By Hazard & Strauss.
Attorneys.

UNITED STATES PATENT OFFICE.

ALEXANDER G. EDWARDS, OF LONGBEACH, CALIFORNIA, ASSIGNOR OF ONE-HALF TO
STEETMAN L. STRICKLAND, OF LOS ANGELES, CALIFORNIA.

ROTARY ENGINE.

No. 864,889.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed February 25, 1907. Serial No. 359,041.

To all whom it may concern:

Be it known that I, ALEXANDER G. EDWARDS, a citizen of the United States, residing at Longbeach, in the county of Los Angeles and State of California, have invented new and useful Improvements in Rotary Engines, of which the following is a specification.

An object of my invention is to provide means whereby steam or other agency employed in rotary engines is admitted at both ends of the rotary piston hub, and thereby equalize the pressure at either end thereof.

Another object is to provide an adjustable cut off for the inlet ports of the engine.

Another object is to provide a rotary engine having large power for the size thereof.

I accomplish these objects by means of the device described herein and illustrated in the accompanying drawings, in which:—

Figure 1—is an end view of a rotary engine embodying my invention, the lower spur gear being removed to show the inlet and exhaust pipes and the adjustable steam cut off. Fig. 2—is a view showing the end of the rotating piston and of the abutment cylinder taken on line 2—2 of Fig. 3 looking in the direction indicated by the arrow heads 2—2 thereon. Fig. 3—is a central vertical section taken on line 3—3 of Fig. 1, parts shown in elevation. Fig. 4—is an end plate removed from the engine looking in the direction as indicated by the arrow heads 4—4 of Fig. 3.

Like most engines of this type the rotating piston 5 is workably connected with the abutment cylinder 6 by means of the usual spur gears 7 and 8. The piston cylinder carries on its periphery a piston 9 which has a sliding contact with the lower member 10 of the casing, while the abutment cylinder has a sliding contact with the upper member 11 of the casing. A recess 12 in the abutment cylinder provides clearance for the piston in its revolution. Live steam is admitted into the engine through the inlet pipe 13 which passes thence into the annular groove 14 (see Fig. 4) in the end plate. This annular inlet groove extends around on the inside of the end plate nearly the entire distance and is provided with an adjustable cut off 15 (see Fig. 4), which has an air tight fit therein and is held tightly in its adjusted position by the set screws 16. Segmental openings 17 (Fig. 1) are provided in the end plates for the passage therethrough of the shanks of the screws 16, providing thereby means for the adjustment of the cut off 15 at any desired position in the inlet groove 14. Both end plates are provided with these annular grooves, and

both ends of the piston cylinder are identical in construction and each end of the engine is provided with an inlet and an exhaust.

Live steam passing into the engine through the inlet pipes 13 will pass through the inlet port 18 into the inlet groove 14 and will pass out through the inlet passage 20 into the chamber 19 (see Fig. 2) and will force the piston around in the direction indicated by the arrow head in the drawing—the exhaust steam in the meantime passing out of the chamber 21 through the exhaust ports 22 and thence through the exhaust groove 24 out of the exhaust ports 23. The cut off 15 disposed in the groove 14 is so adjusted therein to stop the admission of steam into the inlet passage 20 at the proper time. Thus it will be seen that I have provided means which enables me to feed the engine with live steam and at the same time provide means to exhaust the steam. When live steam is admitted into the chamber 19 and exerts an impulse upon the piston 9 to move it forwardly, the exhaust ports are then open, permitting the passage outwardly of the exhaust steam through ports 22, the inlet ports being disposed immediately in the rear of the piston and the exhaust ports immediately in front thereof. When the piston blade enters the recess in the abutment cylinder, the recess will be filled with steam from behind the piston blade. This steam will be carried in the recess in its travel and when the blade leaves the recess it will act on the blade to force it forward until the position shown in Fig. 2 is reached, when admission takes place. It will be understood that the exhaust is cut off from the space in front of the blade during the entire period in which the blade is in the recess of the abutment cylinder, so that any steam which finds its way into the recess will not be exhausted.

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

1. In a rotary engine, the combination of a piston cylinder and an abutment cylinder, said piston cylinder provided with a piston blade; exhaust grooves and inlet ports, said abutment cylinder being provided with a recess; end plates having annular inlet grooves in their faces and an exhaust port; and a steam cut off adjustably mounted in the inlet grooves.

2. In an engine of the character described, a rotary piston cylinder carrying a piston blade and having in each end thereof an exhaust port communicating therewith; an abutment cylinder having on the periphery thereof a piston blade receiving recess, the said cylinders workably connected by spur gears, in combination with a casing surrounding said cylinders and having in each end thereof adjacent to the piston cylinder an annular inlet groove, the said piston cylinder having on either end thereof an

inlet port communicating with the inlet groove; a shut off adjustably secured in the inlet groove, substantially as herein shown and described.

3. In a rotary engine of the character described, a
5 piston cylinder carrying a piston blade the entire length thereof and having in each end thereof an exhaust groove communicating with an exhaust port, the said cylinder being provided at each end with an exhaust port in advance of the piston blades and provided at each end in
10 the rear of the piston blades with inlet ports, in combina-

tion with a casing having in each end thereof an annular inlet groove; and a check adjustably secured in the inlet groove.

In witness that I claim the foregoing I have hereunto subscribed my name this 16th day of February, 1907.

ALEXANDER G. EDWARDS.

Witnesses:

HENRY T. HAZARD,
EDMUND A. STRAUSE.