

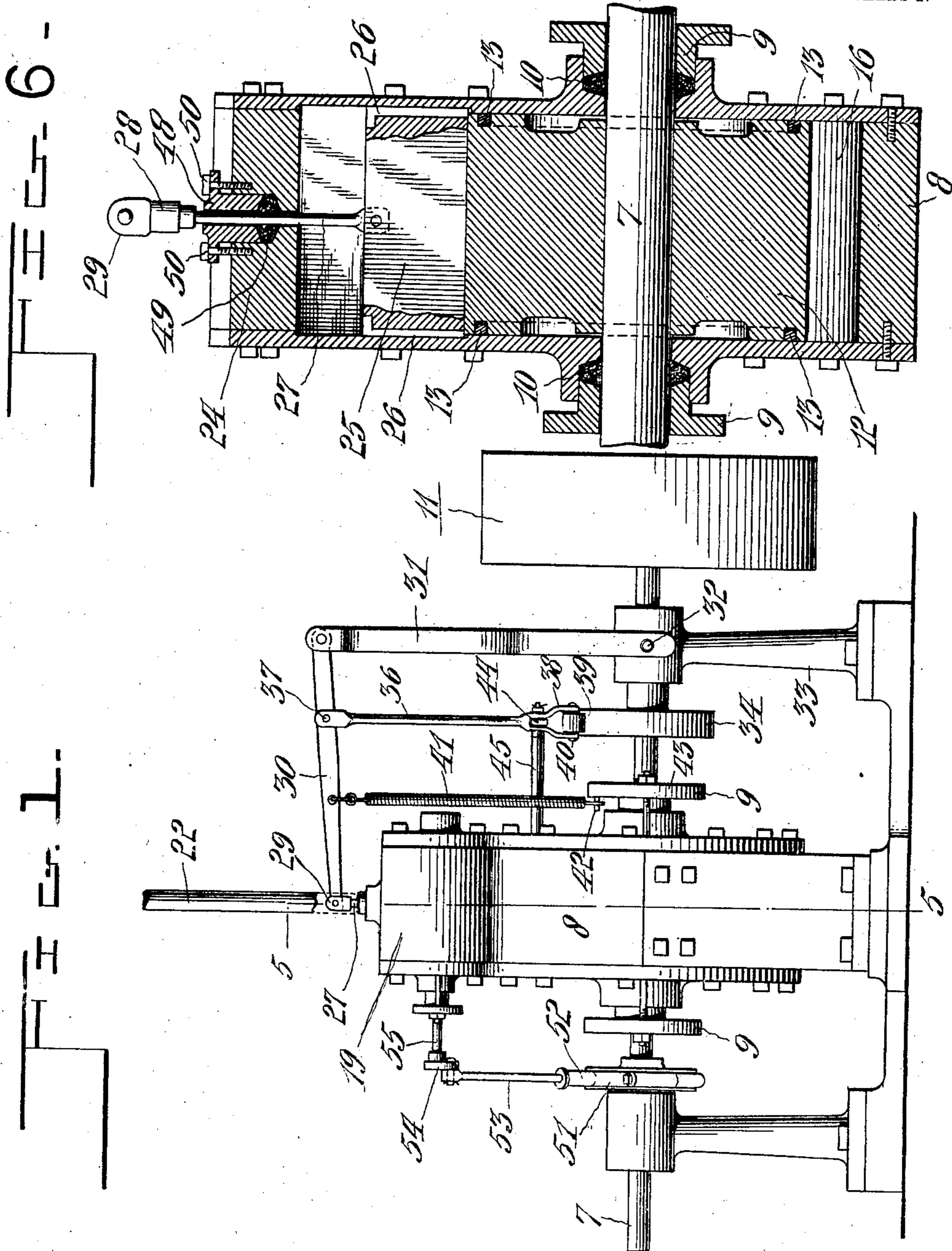
No. 830,621.

PATENTED SEPT. 11, 1906.

J. W. STODDERS.
ROTARY ENGINE.

APPLICATION FILED AUG. 17, 1905.

3 SHEETS—SHEET 1.



Witnesses:

John F. Deufferwiel
F. H. Gibbs

John W. Stodders, Inventor,

By

Marion & Marion

Attorneys

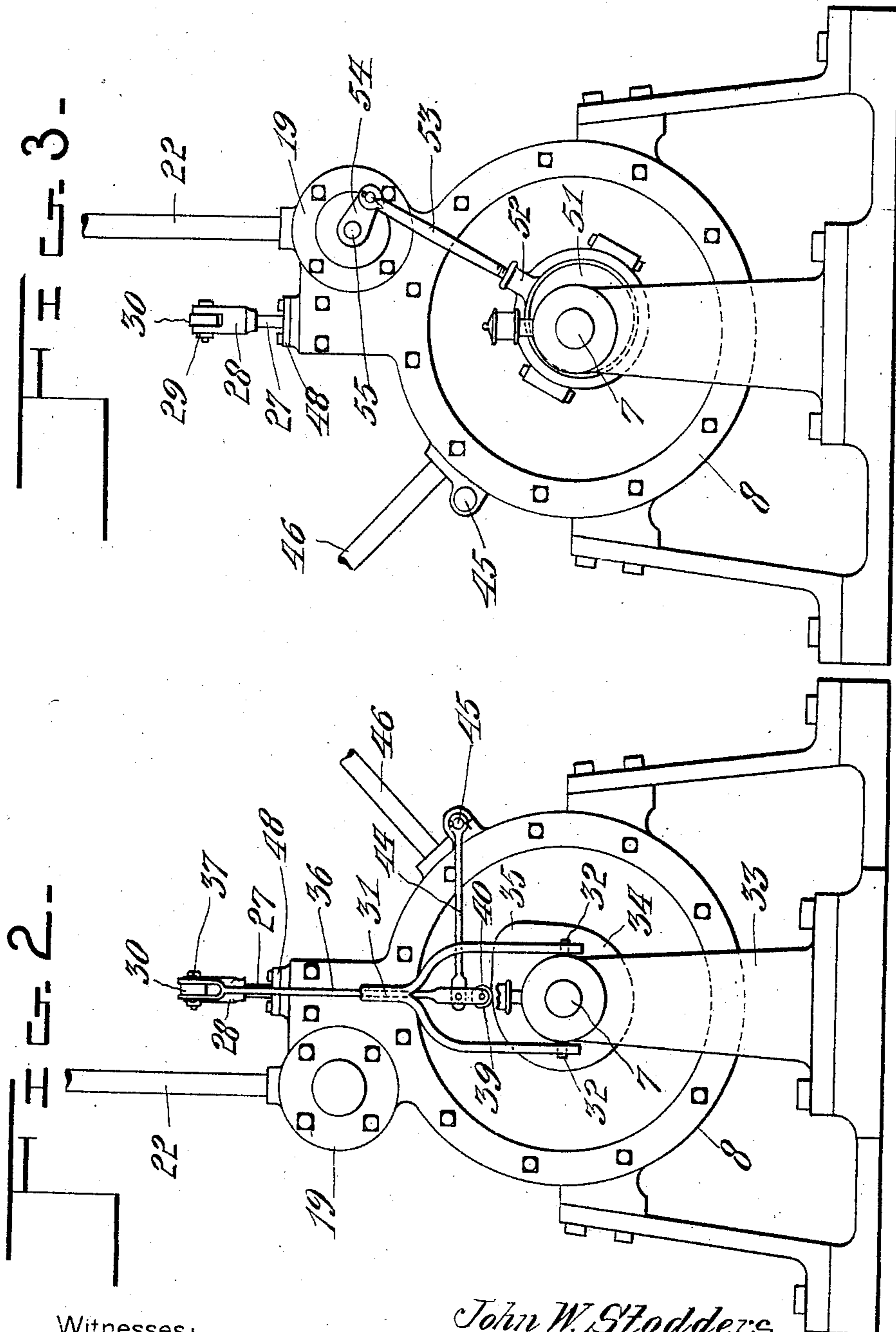
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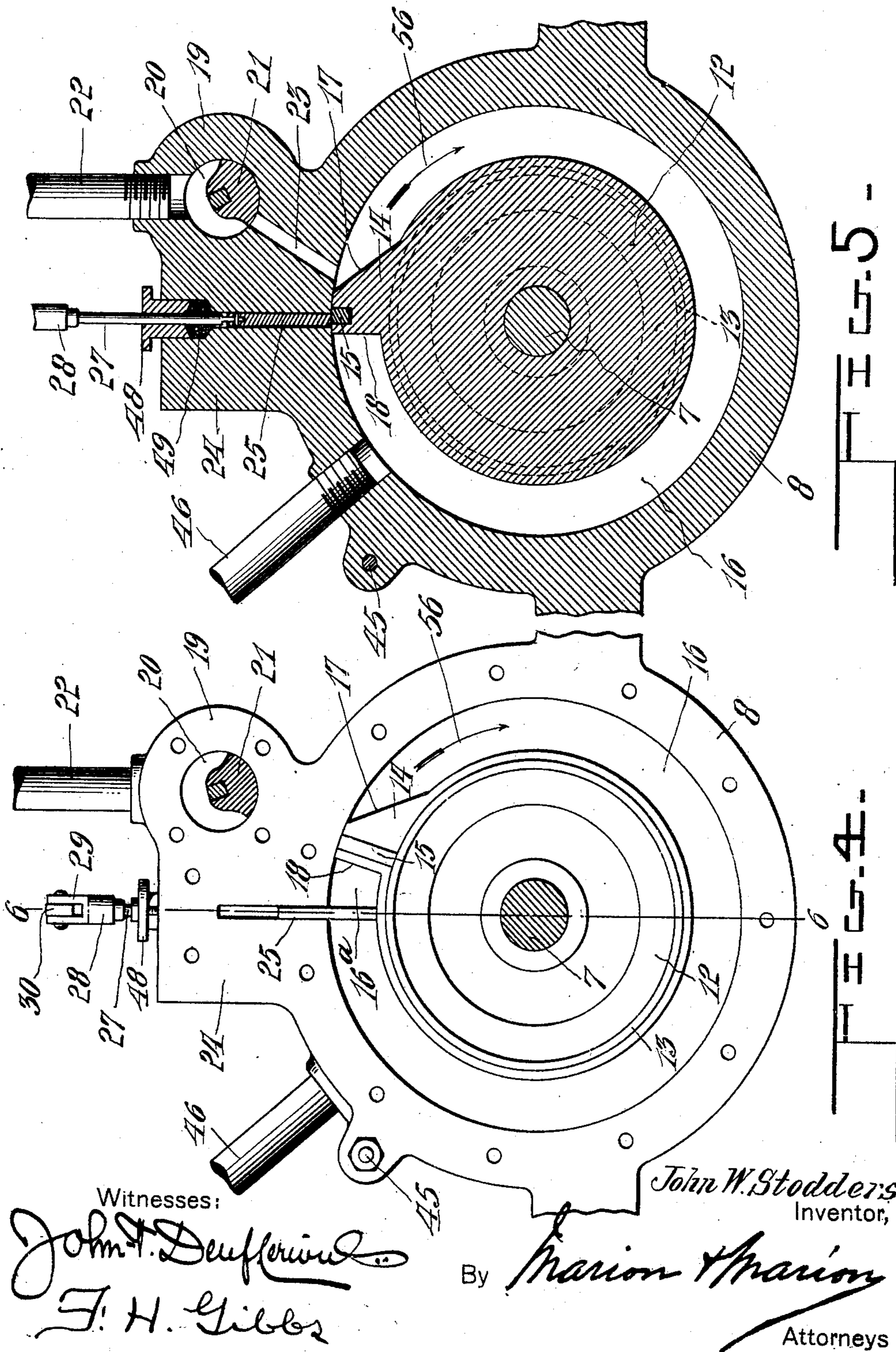
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

JOHN WILLIAM STODDERS, OF MORDEN, MANITOBA, CANADA.

ROTARY ENGINE.

No. 830,621.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed August 17, 1905. Serial No. 274,565.

To all whom it may concern:

Be it known that I, JOHN WILLIAM STODDERS, farmer, a subject of the King of Great Britain, residing at Morden, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare that the following is 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.

This invention relates to new and useful improvements in rotary engines; and it consists in certain features of novelty relating thereto, all as hereinafter more fully described, and specifically pointed out in the claims.

The object of the invention is to provide a simple, convenient, and durable engine which is automatic in its operation and continuous in action, composed of few parts, so constructed and arranged as to provide a very durable and compact engine of the type referred to.

The invention consists in the combination and arrangement of parts, which are shown in the accompanying drawings, all as hereinafter more fully described, and particularly pointed out in the claims, it being understood that said drawings illustrate the preferred construction, which may be departed from in the form, proportion, and minor details of parts therein shown within the scope of the claims without sacrificing any of the advantages of the invention.

In the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the views, Figure 1 is an end elevational view of the engine with its fly-wheel attached. Fig. 2 is a side elevational view looking from the right of Fig. 1 with the fly-wheel removed. Fig. 3 is a side elevational view looking from the opposite direction. Fig. 4 is a view similar to Fig. 3 with the side plate of the outer engine-casing removed. Fig. 5 is a central vertical sectional view taken approximately on line 5 5 of Fig. 1, and Fig. 6 is a vertical sectional view taken on line 6 6 of Fig. 4.

Referring to the parts, 7 is a shaft which passes through the engine-casing 8, there being stuffing-boxes 9 and packing 10 provided at opposite sides of said casing for well-understood purposes. Carried by the shaft 7 is a fly-wheel 11, and in the casing 8, mounted on the shaft 7, is a rotatable piston 12, pro-

vided with annular packing-rings 13 at opposite sides thereof, while either integral with the piston 12 or rigidly connected therewith is a wing 14, which wing is provided with packing 15 at its sides and set in the outer face thereof, where said wing contacts with the casing 8. Between the piston 12 and the casing 8 is a steam-passage 16, in which the wing 14 travels.

As will be noted in the drawings, Figs. 4 and 5, the wing 14 is provided with a beveled face 17 on the advance side thereof and with a face 18 on the rear side thereof, which is substantially parallel with a radial line extending from the shaft 7.

Integral with the casing 8 is a steam-chest 19, which is provided with a central opening 20, in which is rotatably mounted the cut-off valve 21. Leading to the steam-chamber 20 is a steam-conduit 22, adapted to supply steam to the interior of the casing 8, there being a steam-passage 23 from the steam-chamber 20 to the interior of said casing 8 and communicating with the steam-passage 16 between the chamber 8 and the piston 12.

Slidably mounted in the upper or head portion 24 of the casing 8 is a gate 25, which gate is provided with packing-strips 26 at opposite sides thereof to render said gate 25 steam-tight. Connected with the gate 25 is a rod 27, which extends vertically therefrom, and connected with the upper end of said rod 27 is a head portion 28, which is provided with a bifurcated upper end 29, in which is pivotally mounted the link 30, the said link extending from the head 29 to the standard 31, which standard is rockably mounted by means of the pins 32 upon the pedestal 33, as shown in Fig. 1.

Carried by the shaft 7 is a cam 34, which is rotatable with said shaft 7, said cam 34 being relatively circular for the greater portion of its perimeter and being provided with the cam extension 35, which is relatively acute.

Connected with the link 30 and depending therefrom is a rod 36, which is connected with the link 30 by means of the pin 37. The rod 36 terminates in the bifurcated portion 38, in which is rotatably mounted the roller 39, said roller turning upon the pintle 40 and being held into contact with the cam 34 by means of the expansion-spring 41, which spring is connected at one end with the link 30 and at its opposite end with the pin 42, which projects from the head 43 of one of the stuffing-boxes 9, whereby the gate

25 is controlled in its movements by means of the cam 34. As the roller 39 would have a tendency to fly away from the cam 34, a link 44 is pivotally connected with the rod 36 at one end and is rockably mounted upon the pin 45 at its opposite end, thereby holding the roller 39 into close contact with the perimeter of the cam 34.

Leading from the casing 8 on the side of the gate 25 opposite the steam-chest is an exhaust-conduit 46, which may lead to atmosphere or to a suitable condenser, as may be desired.

The rod 27 passes through a stuffing-box 48, which is mounted in the head 24 of the casing 8, and said stuffing-box is provided with packing 49 for well-understood purposes. This stuffing-box is secured to the head 24 by means of bolts 50, passing through said stuffing-box into the head 24.

On the shaft 7 is mounted an eccentric 51, comprising the usual cam and strap incident to eccentrics, with which strap there is connected a socket 52, in which is seated the pitman 53, said pitman being connected at its opposite end with the crank-arm 54, which is mounted upon the valve-shaft 55, and on the shaft within the valve-chest and rotatable in the steam-chamber 20 is the valve 21, before referred to.

In the operation of the engine the wing 14 of the piston rotates with the piston 12, and said wing and the valve 21, with the gate 25, are so timed that when the wing 14 reaches the position shown in Fig. 4, or slightly beyond that position in the direction indicated by the arrow 56, the valve 21 will be thrown to a position to open communication between the expansion-chamber 16^a and the steam-chamber 20 through the passage 23, thereby admitting steam to said expansion-chamber 16^a and between the wing 14 and the gate 25, which gate is at this time at its innermost position—that is, in contact with the perimeter of the piston 12. The valve 21 is then carried to closed position by means of the eccentric referred to and communication is cut off from the steam-chamber 20. The expansion of the steam in the expansion-chamber 16^a will cause the piston 12 to rotate in the direction indicated by the arrow 56, and until the said wing has been carried beyond the entrance to the exhaust-conduit 46 the expansive power of said steam will be exerted upon the wing 14. When the wing 14 has been carried beyond the port leading to the exhaust-conduit 46, steam will be exhausted from the steam-passage 16 through said port, and almost immediately the gate

25 will be lifted by means of the cam 34 to permit the wing 14 passing said gate. When the wing 14 has passed the gate and before it has passed the mouth of the passage 23, the gate 25 will be projected inwardly into contact with the piston 12, thereby forming the expansion-chamber 16^a between said wing and gate, and when the valve 21 is rotated by means of the eccentric referred to steam will be again admitted to the expansion-chamber 16^a, and this operation will be repeated indefinitely while the engine is in use.

It is evident that the fly-wheel 11 will acquire considerable momentum during the rotation of the piston 12 and will be available to cause a smooth running of the engine during the ordinary operation thereof.

In lieu of the side packing-strips 15 flanges may be substituted to run in grooves in the side plates of the engine.

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

1. In a rotary engine, a casing, a shaft rotatable therein, a winged piston on said shaft, an extension on said casing, a steam-chest therein, a valve rotatable in said steam-chest, an eccentric on said shaft operatively connected with said valve, a gate slidable in said extension into contact with said piston, a rod connected with said gate, a rockable link connected with said rod, means for supporting said link, a cam on said shaft, a rod depending from said link, a roller carried by said rod, and a spring connected with said link and adapted to hold said roller into contact with said cam.

2. In a rotary engine, a casing, a shaft rotatable therein, a winged piston on said shaft, an extension on said casing, a steam-chest therein, a valve rotatable in said steam-chest, an eccentric on said shaft operatively connected with said valve, a gate slidable in said extension into contact with said piston, a rod connected with said gate, a rockable link connected with said rod, means for supporting said link, a cam on said shaft, a rod depending from said link, a roller carried by said rod, a spring connected with said link and adapted to hold said roller into contact with said cam, and a guide-rod connected with said casing and with said rod.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN WILLIAM STODDERS.

Witnesses:

MAGGIE FREEBORN,
JAN C. H. EIWELER.