

T. H. FRAZER & W. W. VANLANDINGHAM.
ROTARY ENGINE.

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970,035.

Patented Sept. 13, 1910.

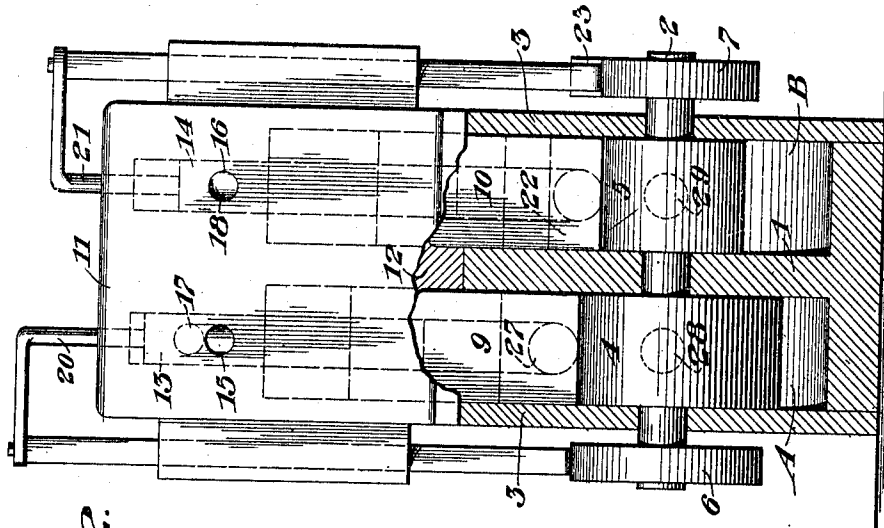


Fig. 2.

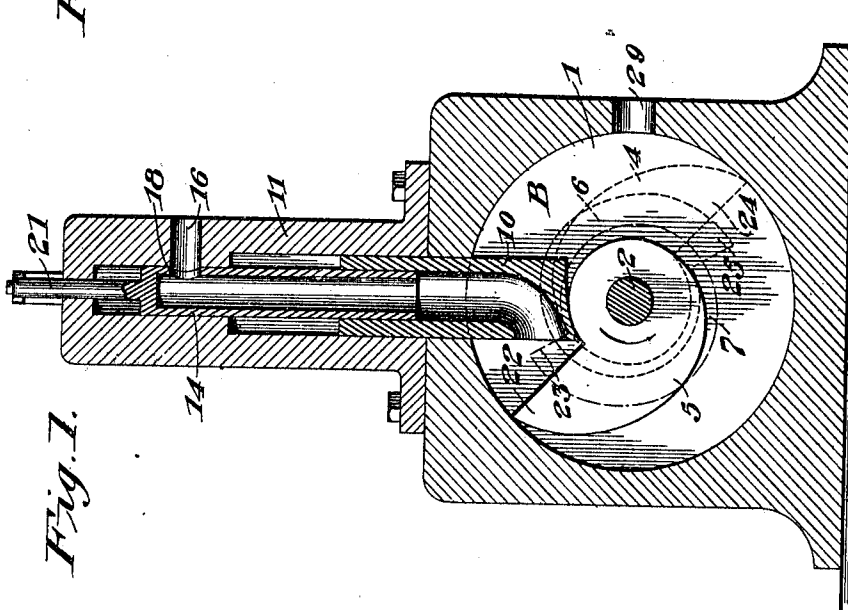


Fig. 1.

Witnesses
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By

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UNITED STATES PATENT OFFICE.

TERRY H. FRAZER AND WILLIAM W. VANLANDINGHAM, OF LONE OAK, TEXAS.

ROTARY ENGINE.

970,035.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed December 27, 1909. Serial No. 535,026.

To all whom it may concern:

Be it known that we, TERRY H. FRAZER and WILLIAM W. VANLANDINGHAM, citizens of the United States, residing at Lone Oak, in the county of Hunt and State of Texas, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

Our invention relates to an improvement in rotary engines, and the object is to provide means whereby the steam supply from the boiler can be controlled, and thereby overcome the objection which is found in many engines by causing a constant drain upon the boiler, making it practically impossible to generate a sufficient amount of steam to operate the engine.

The invention consists of certain novel features of construction and combinations of parts which will be hereinafter described and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a vertical sectional view; and Fig. 2 is a vertical longitudinal sectional view.

A and B represent the cylinders which are divided by a partition 1. A shaft 2 is journaled in the partition 1 and sides 3 of the engine. Mounted on the shaft and in the cylinders A and B are cams or pistons 4 and 5 respectively. Mounted upon the shaft on the exterior of the engine are cams 6 and 7. The top 8 of the engine or cylinder is provided with openings through which abutments 9 and 10 are adapted to slide. Mounted upon the top of the cylinders of the engine is a valve casing 11. The valve casing is provided with a partition 12 and slidably mounted in the valve casing are the valve stems 13 and 14. The valve stems are preferably hollow, and are adapted to be received in the hollow abutments 9 and 10. The steam ports 15 and 16 are formed in the valve casing for admitting steam to the valve stems which are provided with ports 17 and 18 respectively.

Connected to the upper ends of the valve stems 13 and 14 are rods 20 and 21 respectively. The rod 20 is adapted to engage the cam 6 and the rod 21 is adapted to engage the cam 7. Cam 6 and the cam or piston 4 are arranged upon the shaft 2 in a similar manner, and the cam 7 and the cam or piston 5 are arranged similarly upon the shaft 2, but directly opposite to the position taken by the cams 4 and 6. Therefore one of the valve stems 13 or 14 will be down and regis-

tering with the steam port when the other valve stem is raised and closing the steam port. As the shaft rotates, the cams 5 and 7 will allow the abutment 10 and the rod 21 to drop after they pass the projections 22 and 23 on the cams 5 and 7, causing the port 18 in the valve stem 14 to register with the steam port 16 for admitting steam into the sliding abutment, from which it will pass through the opening 26 in the face thereof against the projection 22 on the cam 5, causing it to travel around the cylinder B. The cylinders A and B are so constructed that as the cam or piston travels about half way around, sufficient space will be allowed to permit the exhaust steam to pass from the cylinder through the exhaust ports 28 and 29, before the cams have reached the exhaust ports, to allow full discharge of the exhaust steam, and preventing any back pressure.

Assuming that the abutment 10 and rod 21 have passed the projections 22 and 23 on the cams 5 and 7: the cams 4 and 6 have traveled a half-revolution, raising the rod 20 and the abutment 9, causing the valve stem 13 to be raised, shutting off the supply of steam to the valve stems 13. The steam is shut off from the valve stem 13 before the valve stem 14 drops and permits the port 18 of the valve stem to register with the steam port 16. The shaft continues to rotate, due to the pressure of steam admitted through the valve stem 14 and abutment 10, whereupon the valve stem 13 is raised, closing the steam port 16 just prior to the rod and abutment 9 passing the projections 24 and 25 on the cams 4 and 6. As soon as the abutment and rod pass the projections 24 and 25, the steam port 15 is brought into registry with the steam port 17 in the valve stem 13, whereby steam is immediately admitted to the abutment 9, from which it passes through the opening 27 against the projection 24, causing the cam to revolve to bring the cam 5 into position for the next operation. By this method the constant pressure is being imparted to the shaft 2, causing it to revolve at the same speed, and the valve stem of one cylinder closing the steam port before the other valve stem registers with the steam port relieves the drain usual in most engines. Any vacuum which might be created in either cylinder is relieved before the steam pressure is admitted to the other cylinder, therefore there is no danger of any back pressure

Having fully described our invention, what we desire to secure by Letters Patent is:—

1. In a rotary engine, the combination
5 with a casing having cylinders, of a shaft, pistons mounted upon the shaft in the cylinders, a valve casing, sliding abutments in the casing adapted to be received in the cylinders, valve stems movably mounted in the
10 valve casing and in engagement with the abutments for conducting the steam to the cylinders, whereby the pistons are operated, and means for operating the valve stems whereby the steam is cut off from one cylinder
15 before steam is admitted to the other.

2. In a rotary engine, the combination with a casing having cylinders, of a shaft, pistons mounted upon the shaft in the cyl-

inders, a valve casing, sliding abutments in the valve casing adapted to engage the pistons and for delivering steam to the cylinders for causing the pistons to be rotated, sliding valve stems mounted in the valve casing and in engagement with the sliding abutments, cams on the shaft, and means engaging the cams and valve stems whereby
25 the stems are alternately operated and the steam is shut off from one valve stem before steam is admitted to the other valve stem.

In testimony whereof we affix our signatures, in the presence of two witnesses.

TERRY H. FRAZER.

WILLIAM W. VANLANDINGHAM.

Witnesses:

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