

G. R. WINKLER.

Improvement in Rotary Steam Engines.

No. 123,320.

Patented Jan. 30, 1872.

Fig. 1.

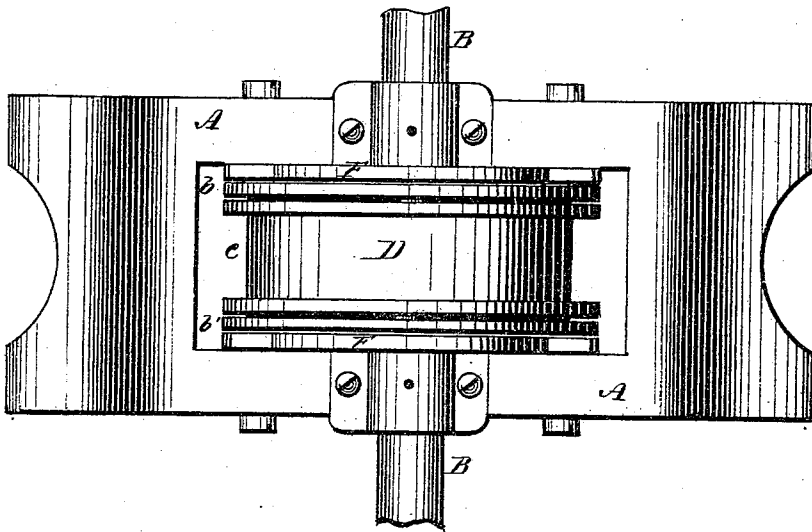
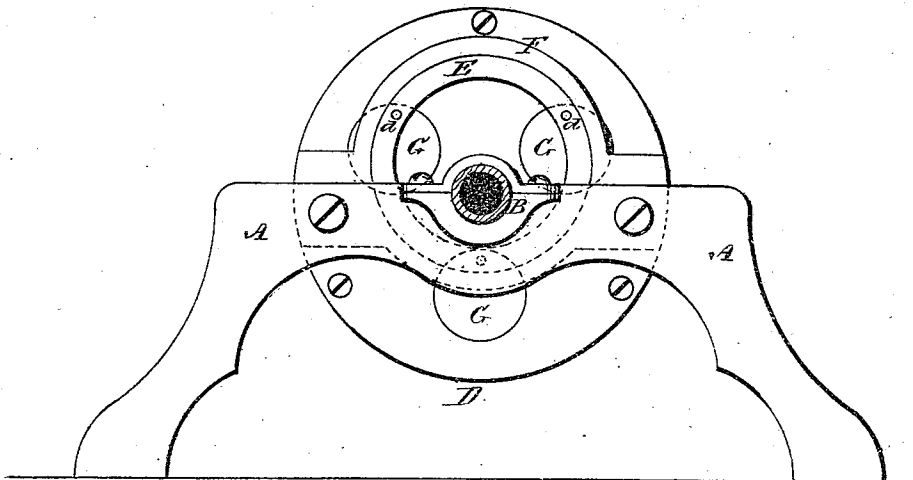


Fig. 2.



Witnesses.

Alfred H. Young
John R. Young

Inventor.

Gustavus B. Winkler
by Prindle & Dyer, his
Attys.

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Fig. 3.

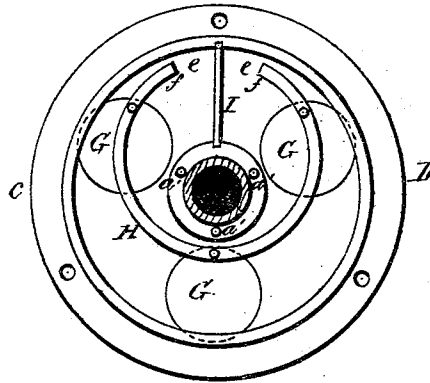


Fig. 4.

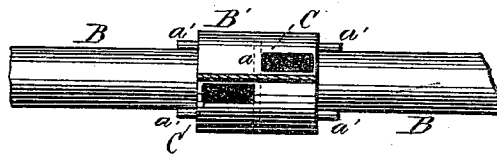


Fig. 5.

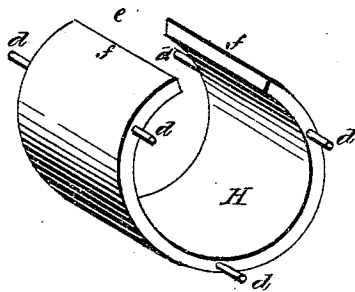


Fig. 6.



Witnesses.

Alfred M. Smith
John R. Young

Inventor.

Gustavus R. Winkler
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UNITED STATES PATENT OFFICE.

GUSTAVUS R. WINKLER, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. 123,320, dated January 30, 1872.

To all whom it may concern:

Be it known that I, GUSTAVUS R. WINKLER, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Steam-Engines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a top-plan view of the device; Fig. 2, an end elevation of the same; Fig. 3, a plan view of the shell with one of the ends removed; Fig. 4, a view of the hollow shaft, showing the steam-ports; Fig. 5, a separate view of the piston; and Fig. 6, a vertical section of one of the ends of the shell, showing an eccentric-wheel in position.

Like letters of like kinds denote corresponding parts in each figure.

The nature of my invention relates to rotary steam-engines; and it consists in the peculiar construction and arrangement of the piston; in the combination with such piston of a hollow shaft provided with steam-ports; in the means employed for revolving the shell and the shaft together; and in the combination of the several operative parts, all as more fully hereinafter described.

In the drawing, A represents a proper frame for the support of the engine, upon which is journaled the shaft B, which is hollow from end to end, with a central enlargement, B', which is divided in the center vertically by a partition, *a*, on each side of which are the steam-ports C, arranged as shown in Fig. 4. This shaft passes centrally through a circular shell, D, to which it is firmly secured by the pins *a'*, composed of end pieces *b b'* and a central periphery, *c*, properly secured together. Upon each of these ends, and upon the outsides of them, is a ring, E, surrounding the shaft B in such a position that the central point of said ring is at a little distance from said shaft, and in the revolution of said shaft turns eccentrically around it. Embracing these rings just named are guides F, secured to the frame A, in which guides the rings revolve, as before named. Three pins, *d*, pass through these rings and through three wheels, G, near the periphery of each of them, and serve as spindles, upon which each of said wheels revolves eccentrically in suitable beds within each of the end pieces *b b'* of the shell D. These same pins *d* enter into the ends of the scroll-piston

H, of the form particularly shown in Fig. 5, filling up the space between the interior walls of the shell, by means whereof the motion of the rings E is communicated to said piston, which revolves in precisely the same orbit as that of said rings. This piston has an opening, *e*, between its ends *f*, as shown in the figure just alluded to. A partition, I, filling the interior of the shell, extends from the enlargement B' of the shaft through the opening *e* of the piston to the opposite inner wall of the shell, being firmly secured at each end.

In the operation of my device the live steam enters the hollow shaft B at one end, passes out of one of the ports C, strikes against the partition I, and fills the space between the piston on that side and the shaft. - By its impulse the shell and shaft are rotated, the piston in its eccentric movement closing the opening between its end *f* and the side of the partition upon which the steam has entered, and opening the space between its other end and the opposite side of the partition, by means of which the steam is exhausted in each revolution of the shell, through the other port, and out of the other end of the shaft, which motion is continued as long as steam is admitted. To reverse the rotation of the shell live steam is admitted into the opposite end of the shaft and the shell is rotated in the opposite direction in the manner just described.

Having thus described my device and its mode of operation, what I claim as new therein and my invention, is—

1. The scroll-shaped piston H, constructed, arranged, and operated substantially as set forth.

2. The combination of the shell D and hollow shaft B, secured together and turning simultaneously, substantially as set forth.

3. The combination of the hollow shaft B, the scroll-piston H, and the partition I, constructed and arranged substantially as described and shown.

4. In combination with the shell D, the shaft B, rings E, guides F, wheels G, piston H, and partition I, constructed and arranged substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of November, 1871.

GUSTAVUS R. WINKLER.

Witnesses:

ADOLPH NIEMEYER,
BENJAMIN H. DETWILER.