

W. Barry,

Rotary Steam Engine.

No. 113005.

Patented Mar. 28. 1871.

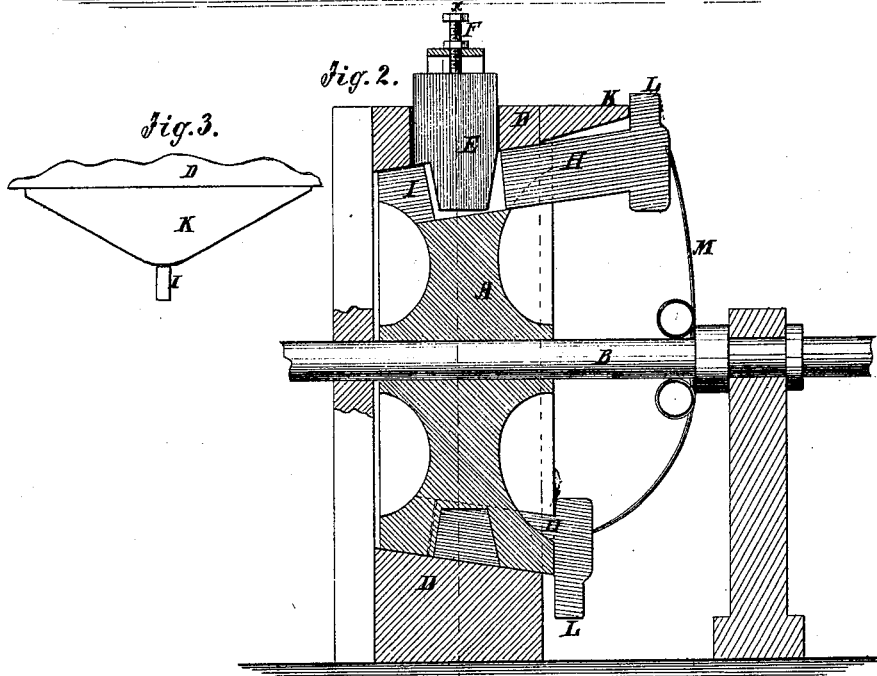
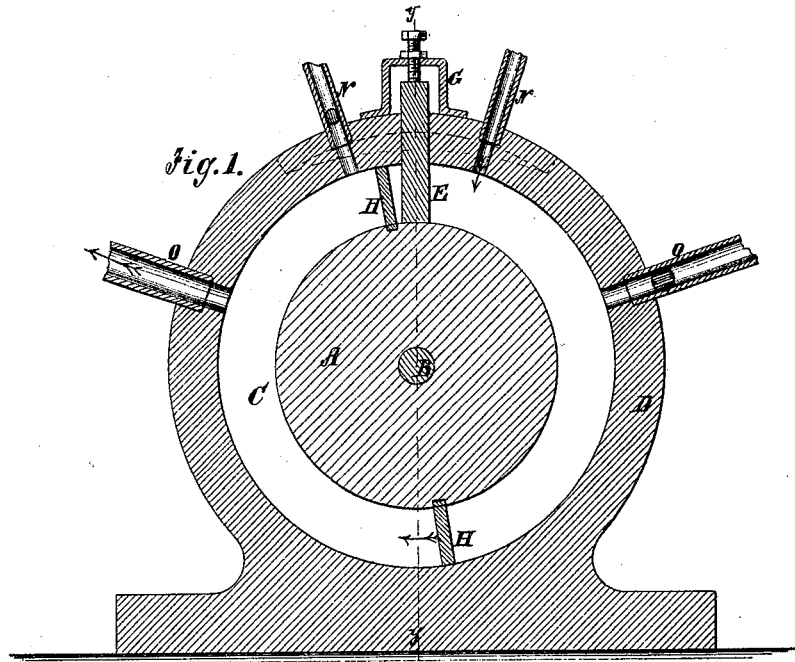
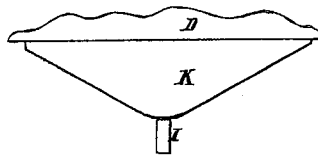


Fig. 3.



Witnesses:

A. Permeier  
G. S. Habel

Inventor:

W. Barry  
PER *Wm. H. Barry*

Attorneys.

# United States Patent Office.

WILLIAM BARRY, OF CARTHAGE, NEW YORK.

Letters Patent No. 113,005, dated March 28, 1871.

## IMPROVEMENT IN ROTARY STEAM-ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, WILLIAM BARRY, of Carthage, in the county of Jefferson and State of New York, have invented a new and improved Rotary Steam-Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in rotary steam-engines; and consists in a rotary hub or wheel, with a conical face, in which is a groove or channel for the steam with taper sides, in which groove fits a tapered stop for separating the live steam from the exhaust, projecting through a case having an inner face corresponding to and fitting around the hub, in which are two pistons, on which the steam acts, fitted in grooves traversing the steam-groove, and arranged for sliding out, to pass the stop, and in again, by the action of a cam-groove, or a cam and a spring.

The tapered groove and stop are employed as the most ready means of maintaining tight joints as they wear, by forcing the stop in further, and the tapered hub and inclosing-case also afford a means of keeping the joints tight as the parts wear, by moving the hub endwise, and by this movement the wear of the pistons is also taken up, all as hereinafter described.

Figure 1 is a sectional elevation of my improved engine taken on the line *x x* of fig. 2.

Figure 2 is a section on line *y y* of fig. 1.

Similar letters of reference indicate corresponding parts.

A represents a hub or wheel, mounted on a shaft, B, arranged in suitable bearings.

Said hub has a beveled face, in which is an annular groove, C, having oblique sides, arranged so that it is narrower at the bottom than the top.

This hub is fitted within an exterior case, D, the inner wall of which is beveled to correspond with the face of the hub, so that end pressure on the shaft B will cause the two to work together steam-tight, and, by adjusting the hub and shaft from time to time properly, the wear may be taken up.

The case D is provided with a gate or stop, E, which has a tapered end corresponding to the form of the groove C in the hub, and projects through a radial mortise in said case into the groove, as shown, for cutting off the flow of the steam from the live steam to the exhaust-ports.

This stop is capable of adjustment, and a set-screw, F, is provided, in a suitable support, G, for forcing it in as it wears away.

H represents the pistons for taking the pressure of the steam.

They are arranged in slots I cut across the face of the hub, a little deeper than the groove C, and with

the bottoms parallel with the transverse line of the face of the hub, or the inner face of the case.

For passing the stop E these pistons are drawn out by the cam K placed opposite the stop, and acting on the projections L on the pistons.

In this example they are represented with springs M for forcing them back again; but it may be done by cams or other suitable devices.

It is believed that this arrangement provides the simplest means of making steam-tight joints without packing, and with the least amount of friction.

The hub and the stop E may be adjusted while in motion, and the adjustment of the hub also adjusts the pistons H for keeping the outer edges tight against the inner side of the case.

Instead of making the pistons to move in and out laterally across the groove C, they may be made to work radially from the inner part of the hub, which may be suitably hollowed for the purpose.

I may also arrange the stationary stop E in the hub in this way, and the movable pistons to work radially through the case.

By another modification the hub may be made stationary, and the case to revolve, in which case the steam-pipes N and exhaust-pipes O would be attached to the hub.

The mortise through the case D, for the stop E, should be slightly longer than the width of the stop, so that the latter may move laterally with the hub as the hub is moved for taking up the wear; but the groove may be so formed as not to require this; for instance, if made with a vertical or nearly vertical wall on the side next the greatest diameter of the hub, and the bottom on a straight line from this wall, terminating at the face of the hub, near the smallest end, forming a groove with only two walls, and the stop made wider than the bottom of the groove, the stop would always fit both walls snugly without lateral movement, although the hub be moved to keep the joint between it and the case tight.

I prefer, however, the form of groove here shown or a V-groove, to the one above described, the stop being arranged as stated for moving laterally with the hub.

In this example, two steam-ports and two exhaust-ports are represented, for turning the shaft in either direction, the said ports to have suitable valves or other stops, to be used as required.

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

The combination of the bevel-faced grooved hub, the bevel-faced case, stop E, and the sliding pistons H, all substantially as specified.

Witnesses:

D. O'BRIEN,  
F. S. SHUMAN.

WM. BARRY.