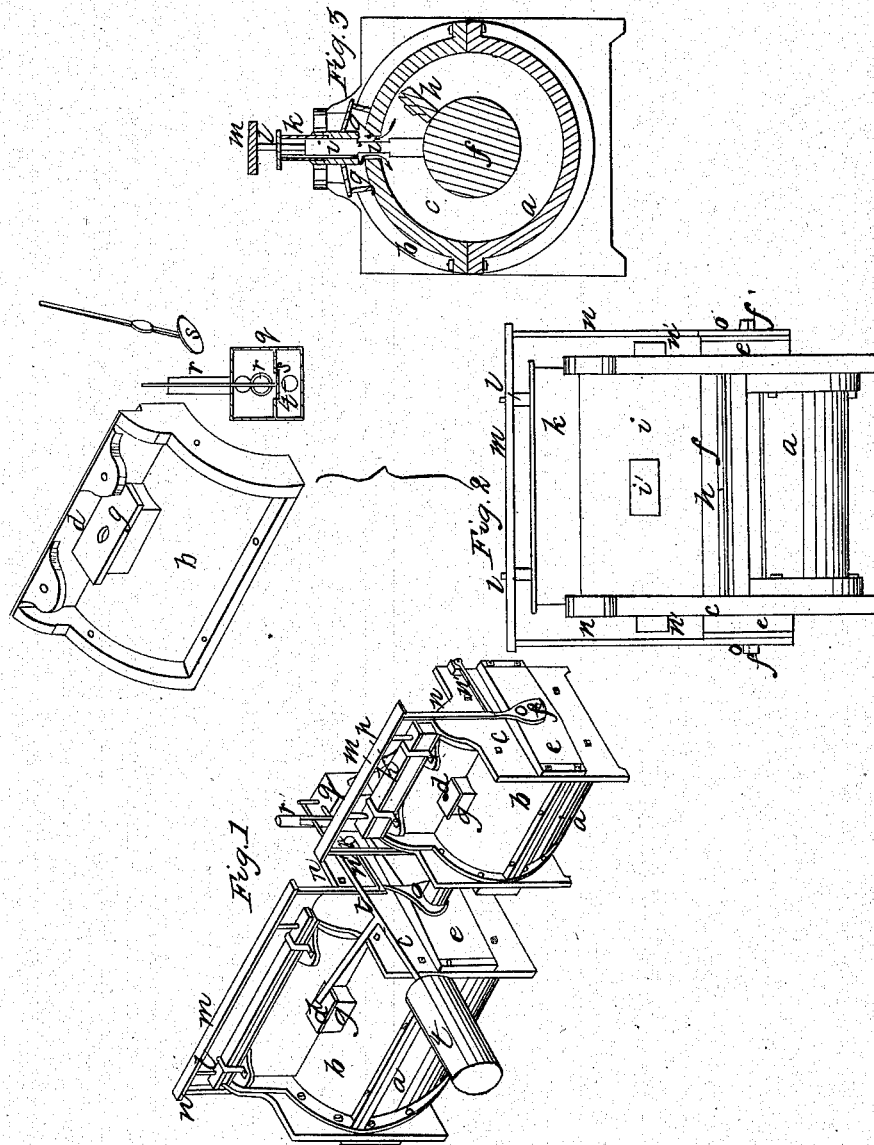


R. C. Grant,
Rotary Steam Engine.
No 3,360. Patented Dec. 4, 1843.



UNITED STATES PATENT OFFICE.

ROYAL C. GRANT, OF POMEROY, OHIO.

ROTARY STEAM-ENGINE.

Specification of Letters Patent No. 3,360, dated December 4, 1843.

To all whom it may concern:

Be it known that I, ROYAL C. GRANT, of Pomeroy, in the county of Meigs and State of Ohio, have invented a new and useful Improvement in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

10 Figure 1 is a perspective view, Fig. 2 detached parts, Fig. 3 section.

The nature of my invention consists in using the slide valve in the steam chamber as a cut off, and the apparatus for trans-
15 ferring the steam from one engine to another.

The outside of my engine is a hollow cylinder (*a*) a quarter of which (*b*) is removable; this cylinder is placed horizontally and has a head (*c*) screwed onto flanges in the usual manner of steam cylinders; above this cylinder a box (*d*) is formed which opens into it; one side of said box being removable with the segment (*b*); this seg-
20 ment has a flange running along its lower edge, corresponding with the part it fits, on the cylinder, by which it is attached to it. Outside the heads of the cylinder a thick brace of metal (*e*) runs across the
30 center, a little convex on the inside, and firmly bolted at each end; this is to spring the end in to keep it steam tight and can be screwed up at pleasure; it serves also as a bearing for the shaft (*f*) to work in which
35 runs through the axis of the cylinder. On each side of the box (*d*) a small steam chest (*g*) is cast, which on one side admits the steam to the cylinder and on the other serves for the receiver for escape steam.

40 The shaft on the inside of the cylinder is enlarged and from one side of it projects radially a piston or wing (*h*). The edge of this is packed similar to many rotary engines now in use. In the box (*d*) a valve
45 (*i*) is made to slide up and down and a cover or cap (*k*) shuts into said box down onto a packing which surrounds the valve and keeps it steam tight. Two rods (*l*, *l*) attached to the valve project up through this
50 cap, and are affixed to a cross head (*m*), from each end of which a lifting bar (*n*) is pendent, the lower end being connected with

horizontal links *n'* having a pivot at their other end on which they turn. The lifting bars are raised at each revolution of the
55 shaft by cams (*o*) on said shaft, these raise the valve (*i*) to allow the wing (*h*) to pass. The valve (*i*) has a recess formed in its face at each side at (*i'*) the same width as the induction opening, and deep enough
60 when shut down, as shown in Fig. 3, to form a clear steam way into and from the steam cylinder. When the valve is raised, this way is cut off and the ingress and egress of steam stopped.

65 The escape steam is conveyed through a pipe (*p*) into a valve box (*q*) having a horizontal partition therein, the pipe entering on the upper side of said partition through which there is a hole closed by a valve (*s*)
70 on the under side; a pipe (*r*) also leads from the upper side of the partition for the steam to escape in the air, this is closed on the inside by a vertical valve (*r'*) that slides down over the opening into it, said
75 valve being attached to the side of the stem of the valve (*s*) so that when one is opened the other is closed. From below the partition a pipe (*t*) leads into a cylinder (*t'*)
80 which is placed on the back end of the furnace so that its heat may be regulated by dampers in any convenient way, by which means the steam is heated up, and is then worked into another cylinder on the same
shaft as the first, with all its appurtenances
85 similar but of double the capacity. This cylinder instead of having the same shaft as the first may be coupled with it, so that it can be detached at pleasure.

What I claim as my invention and desire
90 to secure by Letters Patent is—

1. The recess (*i'*) in valve (*i*) for a steam way which cuts off the steam as the valve rises, in the manner and for the purpose
95 described.

2. I claim the valve box (*q*) and combination of valves therein, in combination with the cylinder (*t*) constructed and arranged as herein set forth.

R. C. GRANT.

Witnesses:

J. J. GREENOUGH,
J. H. GODDARD.