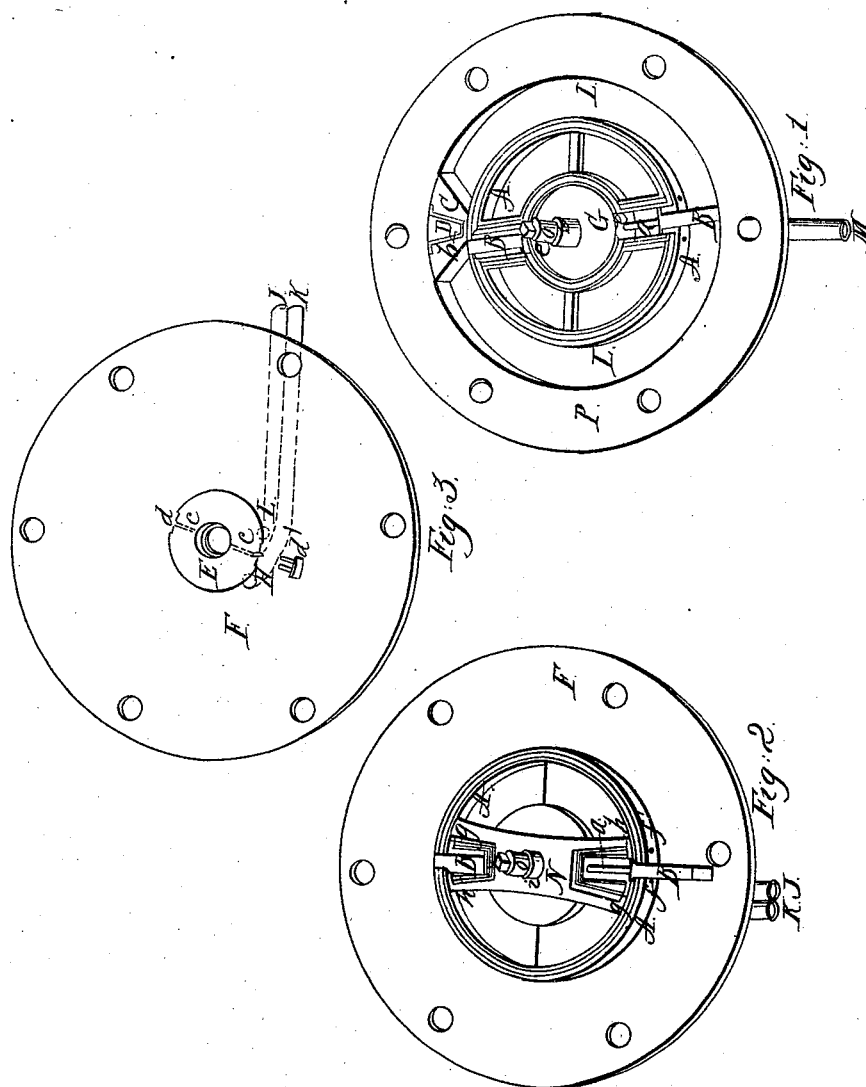


No. 2,037.

PATENTED APR. 2, 1841.

I. N. WHITTLESEY.
ROTARY STEAM ENGINE.



UNITED STATES PATENT OFFICE.

ISAAC N. WHITTELSEY, OF VINCENNES, INDIANA.

ROTARY STEAM-ENGINE.

Specification of Letters Patent No. 2,037, dated April 2, 1841.

To all whom it may concern:

Be it known that I, ISAAC N. WHITTELSEY, of Vincennes, in the county of Knox and State of Indiana, have made certain Improvements in the Manner of Constructing Rotary Steam-Engines; and I do hereby declare that the following is a full and exact description thereof.

The general construction of my improved engine is similar to that of some others which have been heretofore constructed, but I have made such improvements therein as are intended and calculated to obviate some of the difficulties which have been experienced in its action. The principal of those improvements consists in the employing of the steam to open and close the sliding valves, and in the arrangement of some of the other parts by which its action is governed. In the accompanying drawing Figures 1 and 2 represent the interior of my engine, the two disks F, and the part P, which constitute the chamber being separated, and which, when united, form a hollow drum within which a second drum revolves; said second drum being placed upon a suitable shaft and carrying the valves which are to be acted upon by the steam, which action causes the inner drum, with its shaft, to revolve in the ordinary way. Fig. 1, shows that part of the outer case, which constitutes the drum, or steam chamber, and this part is shown as containing the revolving drum within it. Fig. 2 is the opposite side of the case which is a flat disk and which, as represented in this figure, has the interior drum placed upon it; in this figure the side of the drum opposite to that shown in Fig. 1, is represented. Fig. 3 is the same with Fig. 2, excepting that the interior drum is removed.

A, A, is the interior drum, and B, B, the valves which are connected together by a rod or stem *a*, so that they shall open and close simultaneously.

C, is the stop against which the steam is to react, as the valves to pass around within the chamber; this stop is borne up against the revolving drum, by means of an elastic packing of wool or other material interposed between it and the stationary piece D, which stationary piece is made fast to the drum or case; the part C being movable, and the packing between it and D, being inserted at the point or end of *b*, of the piece D. The yellow lines on the edges of the

revolving drum A, are also representations of elastic packing contained in grooves prepared to receive it.

In Fig. 3, E, is a circular plate, or disk, elevated on the center of the disk F, Figs. 2 and 3, the space between the two forming a steam chamber. The disk E, is received within the space G, in the revolving drum, Fig. 1; there is a packing on the bottom of the space G, which prevents the admission of steam between the face of the disk E, and the bottom of G, as this, if admitted, would exert an injurious lateral pressure. H, and I, are the openings for the induction of steam, through the induction tubes J, and K, which tubes pass along on the outside of the disk F, as shown by dotted lines on Fig. 3. The space between the small disk E, and the disk F, through which the steam enters, is divided into two parts by a partition represented by the dotted lines *c, c*. Upon the ends of this partition I place two movable pieces *d, d'*, one of which, *d'*, is shown as removed from its place, that the parts may be seen which embrace the partition *c, c*, and keep *d, d'* in place. The faces of *d, d'*, fit against the periphery, or rim, of the hollow space G, and, as the valves B, pass around, cover the openings at *e, e*, through the rim of G; the steam passes through the openings *e, e*, so as to press alternately upon the back ends of the valves, and when one of these valves is pressed out, the steam then enters the chamber L, L, within which the valves revolve. The pieces *d, d'*, should have some elastic substance interposed between them and the partition *c, c*, to bear them forward, and prevent friction. The faces of the pieces *d, d'*, I generally make of such length only as just to cover the openings *e, e*, so that the steam may enter behind the valve, which has passed the stop *c*, the moment that it has so passed. If, however, it is desired to allow the steam to operate expansively, in any degree, by lengthening that one of these faces which is opposite to the stop *c*, this effect will be produced. When, in the revolution of the valves B, B, one of them has passed the orifice of the eduction pipe M Fig. 1, the steam, in consequence, escapes from that side of the chamber L, in which it had been acting, steam will be at that time admitted behind the opposite valve which has just passed the stop *c*, through one or other of the induction tubes J, or

K, as the case may be, and will, by its elasticity, force out such valve, and draw the other in ready to pass the stop C. The eduction tube M, opens into the chamber
 5 L, L, in the ordinary way.

The openings through which the steam enters the chambers L, L, are shown at *f, f*, Figs. 1 and 2, there being similar openings alongside of each of the valves B, B. The
 10 direction in which the engines will move will depend upon the introduction of steam through one or the other of these openings, and when this direction is to be changed the openings through which the steam has
 15 entered are to be closed and the opposite ones opened, and, at the same time, the admission through the induction tube J, or K, must be reversed by means of cocks, or valves, in the manner well known. The
 20 device for reversing the passage through the openings *f, f'*, is novel, and will now be explained.

N, Fig. 2, is a piece of metal the ends of which *g, h, g, h*, are made to open or to close
 25 these openings; as represented in the drawings, those governed by *g, g*, are supposed to be open, and those governed by *h, h*, closed; but this may be reversed by reversing the positions of *g*, and *h*. The vibrating
 30 piece N, is attached to a tube, or socket *i*, which slips over the shaft O, of the revol-

ing drum. This tube passes through the shell, or case, of the engine, so that, by means of a key, or other device, the piece N, may be vibrated, or moved around suffi- 35
 ciently far to cover or uncover the holes *f, f'*.

Having thus fully explained the nature and operation of my rotary steam engine, and described the operation of the respec- 40
 tive parts thereof, what I claim therein as constituting my invention, and which I desire to secure by Letters Patent, is—

1. The manner of protruding the valves B, B, by the elastic force of the steam, act- 45
 ing behind them by an arrangement of parts substantially the same with that herein set forth; said arrangement consisting of the partition *c, c*, the stops *d, d*, the apertures H, and I, combined with the valves B, and 50
 their appendages, and operating in the manner described.

2. The manner of reversing the motion of the engine by the shifting or vibrating of a piece of metal, constructed, connected, and 55
 operating, in the manner of that marked N, in the foregoing specification.

I. N. WHITTELEY.

Witnesses:

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 THOS. P. JONES.