(No Model.)

G. C. HOLLAR.

ROTARY ENGINE.

No. 437,892. Patented Oct. 7, 1890.

Fig. 6.

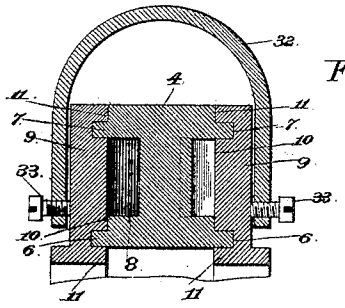


Fig. 1.

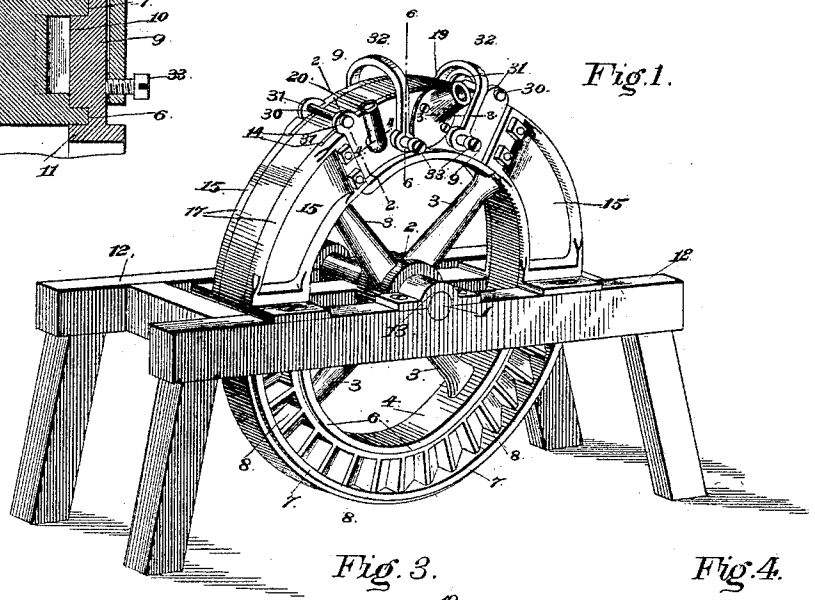


Fig. 2.

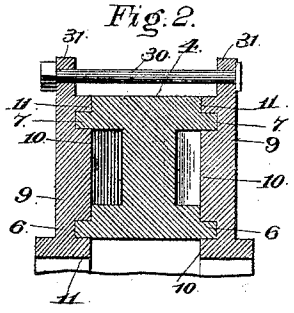


Fig. 3.

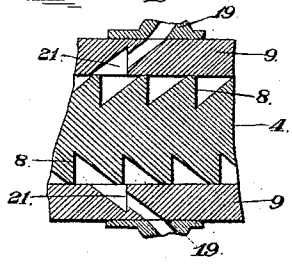


Fig. 4.

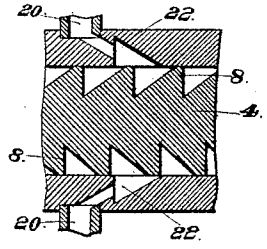
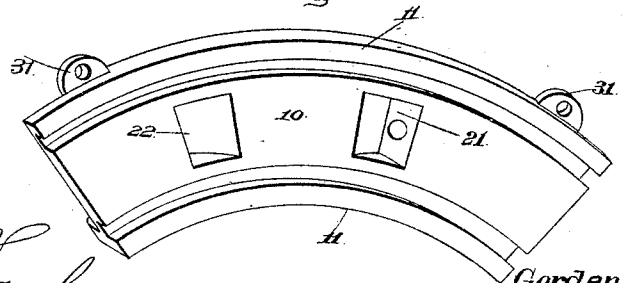


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

GORDEN C. HOLLAR, OF BETHANY, MISSOURI.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 437,892, dated October 7, 1890.

Application filed June 14, 1890. Serial No. 355,462. (No model.)

To all whom it may concern:

Be it known that I, GORDEN C. HOLLAR, a citizen of the United States, residing at Bethany, in the county of Harrison and State of Missouri, have invented a new and useful Rotary Engine, of which the following is a specification.

This invention relates to rotary engines; and it has for its object to construct a machine of this class which shall be simple, durable, and efficient in operation, and by means of which the power of the fluid-pressure employed shall be fully and thoroughly utilized.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the rotary engine embodying my improvement. Fig. 2 is a transverse sectional view taken on the line 2 2 in Fig. 1. Fig. 3 is a sectional view, taken on the line 3 3 in Fig. 1, through the steam-port. Fig. 4 is a sectional view, taken on the line 4 4, through the exhaust-port of the device. Fig. 5 is a detail view showing the slide having the steam and exhaust ports detached from the casing of the engine and reversed. Fig. 6 is a transverse sectional view taken on the line 6 6 in Fig. 1.

Like numerals of reference indicate like parts in all the figures.

In the drawings, 1 designates the shaft upon which is mounted the wheel, which constitutes the body of my improved rotary engine. The said wheel consists of the hub 2, having radial arms or spokes 3 carrying the rim 4. The latter is provided on opposite sides with circumferential series of triangular buckets 5, and adjacent to the inner and outer edges of said buckets are formed the annular flanges designated, respectively, by 6 and 7.

As will be seen by reference to Figs. 3 and 4 of the drawings, the buckets 5 on opposite sides of the rim do not register or align with each other, but are so arranged as to break joints, the vertical or abrupt wall 8 of each bucket in one side of the wheel being arranged intermediately between two such walls on the opposite side. This construction is adopted for the reason that owing thereto the buckets on at least one side of the wheel will at all times be under the influence or impact of the steam or other pressure employed.

The casing of the engine is composed of the segments 9, which are provided on their inner sides with segmental ribs 10 to fit between the flanges 6 and 7, and with flanges 11 to fit against the outer and inner sides of the said outer or inner flanges upon the arm of the wheel, thus effecting practically steam-tight joints. These segments may be connected with each other by means of bolts 30, extending transversely through lugs 31, with which the said segments are provided, and they are additionally secured by means of U-shaped clamps 32, straddling the rim of the wheel and the segments on opposite sides thereof. Said U-shaped clamps are provided with set-screws 33 to bear against the outer sides of the segments, which may thus be held against the sides of the wheel with any desired degree of tension. Packing may be interposed at any desirable point where its presence may be deemed useful. The inner faces of the ribs 10 are adapted to bear against the outer sides or edges of the buckets in the opposite sides of the rim of the wheel.

The segments 9 9, of which two are preferably used on each side of the rotary wheel, are mounted upon suitable supports or standards 12, which are provided with braces or brackets 13, having bearings in which the main shaft 1 is journaled. The segments 9 on each side of the wheel are arranged a suitable distance apart, and they are provided at their adjacent ends with flanges 14, affording seats or bearings for the additional removable segment-plates 15, which may be bolted or otherwise suitably secured in position. The segment-plates 15 are provided, like the segment-plates 9, with segmental ribs and with flanges 17 to abut against the flanges 6 and 7 of the wheel, and they are held, like the said segments 9, by means of U-shaped clamps 32, having set-screws 33, in contact with the sides of the rim of the wheel. The said segment-plate 9 is also provided with the steam inlet and exhaust ports, designated, respectively, by 19 and 20. The inlet-port 19 communicates with and extends in a slanting direction through the segment-plate 9 and the rib 10 of the latter and communicates with a bucket-

shaped recess 21, formed in the said rib, thus enabling the buckets 5 as they pass the said inlet-port to receive the full impact of the steam. The exhaust-port 20 communicates with a similar bucket-shaped recess 22, but is slanted in the opposite direction, so as to permit of the escape of exhaust-steam without the liability or possibility of back-pressure.

The operation and advantages of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed.

The construction of my improved rotary engine is very simple, and it will be seen that the pressure is applied near the periphery of the wheel, making it correspondingly more effective. An advantage is also derived from the fact that the pressure is applied to opposite sides of the rim of the wheel, which latter is therefore balanced and friction reduced to a minimum. Owing to the arrangement of the buckets in such a manner as to break joints on opposite sides of the wheel, the pressure will be constantly exerted and the engine will move smoothly and evenly.

The general construction is simple and inexpensive, and my improved engine is simple, durable, and easily operated.

Having thus described my invention, I claim—

1. In a rotary engine, the wheel the rim of which is provided with buckets in its opposite sides or faces and with annular flanges adjacent to the inner and outer edges of said buckets, in combination with the segmental casing-strips having ribs fitting between the said annular flanges and in contact with the faces of the buckets, and steam inlet and exhaust ports, substantially as set forth.

2. The combination of the wheel having the buckets and the annular flanges adjacent to said buckets, with the casing-strips having the ribs fitting between said annular flanges and segmental flanges bearing against the latter, substantially as set forth.

3. In a rotary engine, the combination of the wheel having the buckets and the annular flanges adjacent to said buckets, the casing-strips having the segmental ribs and flanges and provided with radial flanges at their inner or adjacent edges, the segmental casing-strips mounted in said flanges and having the segmental ribs and flanges, said ribs being provided with bucket-shaped recesses, and the inclined or slanting steam and exhaust ports communicating with said recesses, substantially as set forth.

4. In a rotary engine, the combination of the wheel the rim of which is provided in opposite sides with triangular buckets and with annular flanges adjacent to the inner and outer edges of said buckets, the segmental casing-plates arranged on opposite sides of the said wheel in pairs and having the segmental ribs and flanges to make tight joints, the segmental plates mounted detachably between the said casing-plates and having the steam and exhaust ports and provided with bucket-shaped recesses in their inner sides, communicating with said steam and exhaust ports, and the supporting-standards for the casing-plates, having brackets provided with bearings for the wheel-carrying shaft, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GORDEN C. HOLLAR.

Witnesses:
W. C. ALLEN,
GEO. W. FAIL.