

No. 742,561.

PATENTED OCT. 27, 1903.

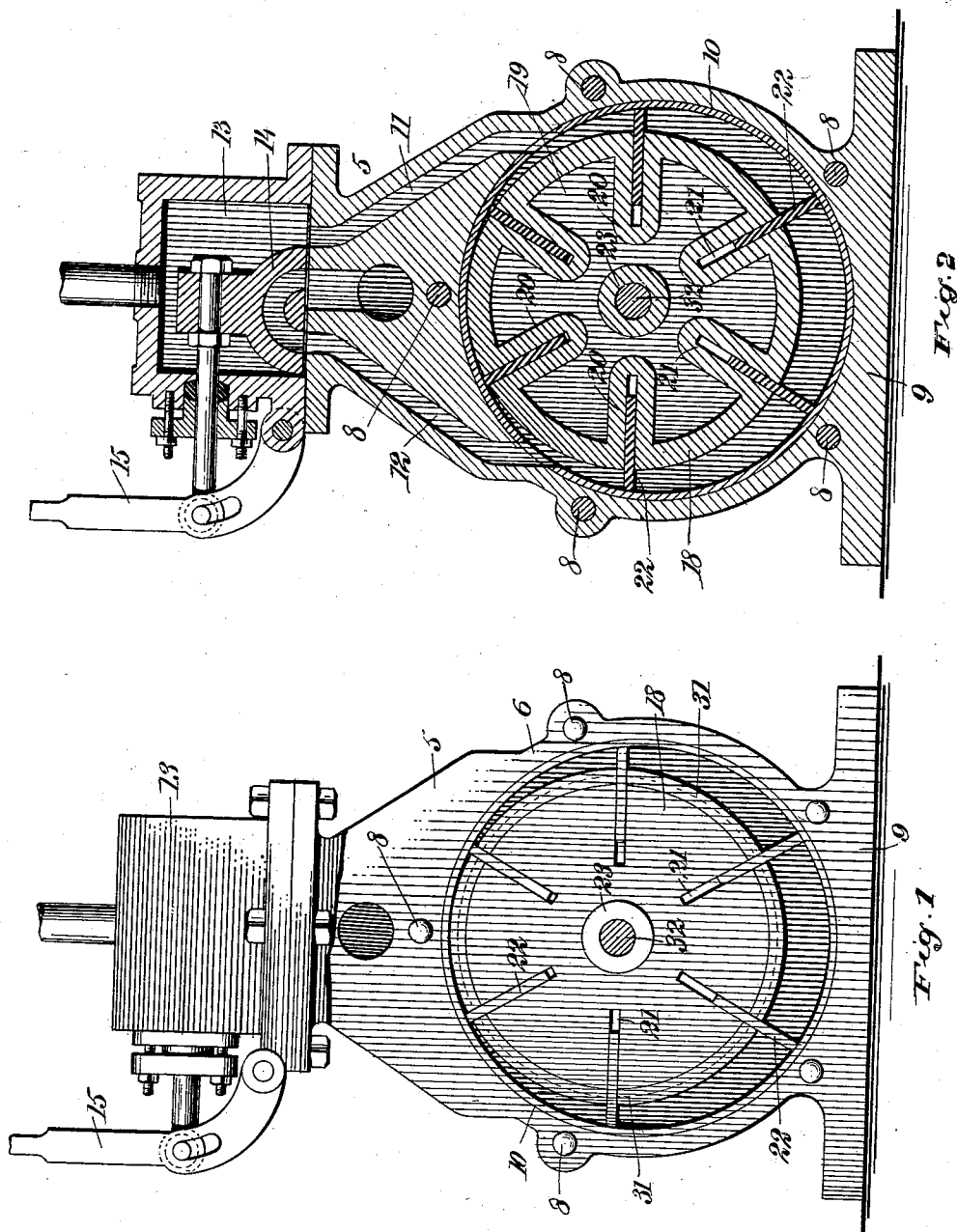
T. E. E. BARTLETT.

ROTARY ENGINE.

APPLICATION FILED MAR. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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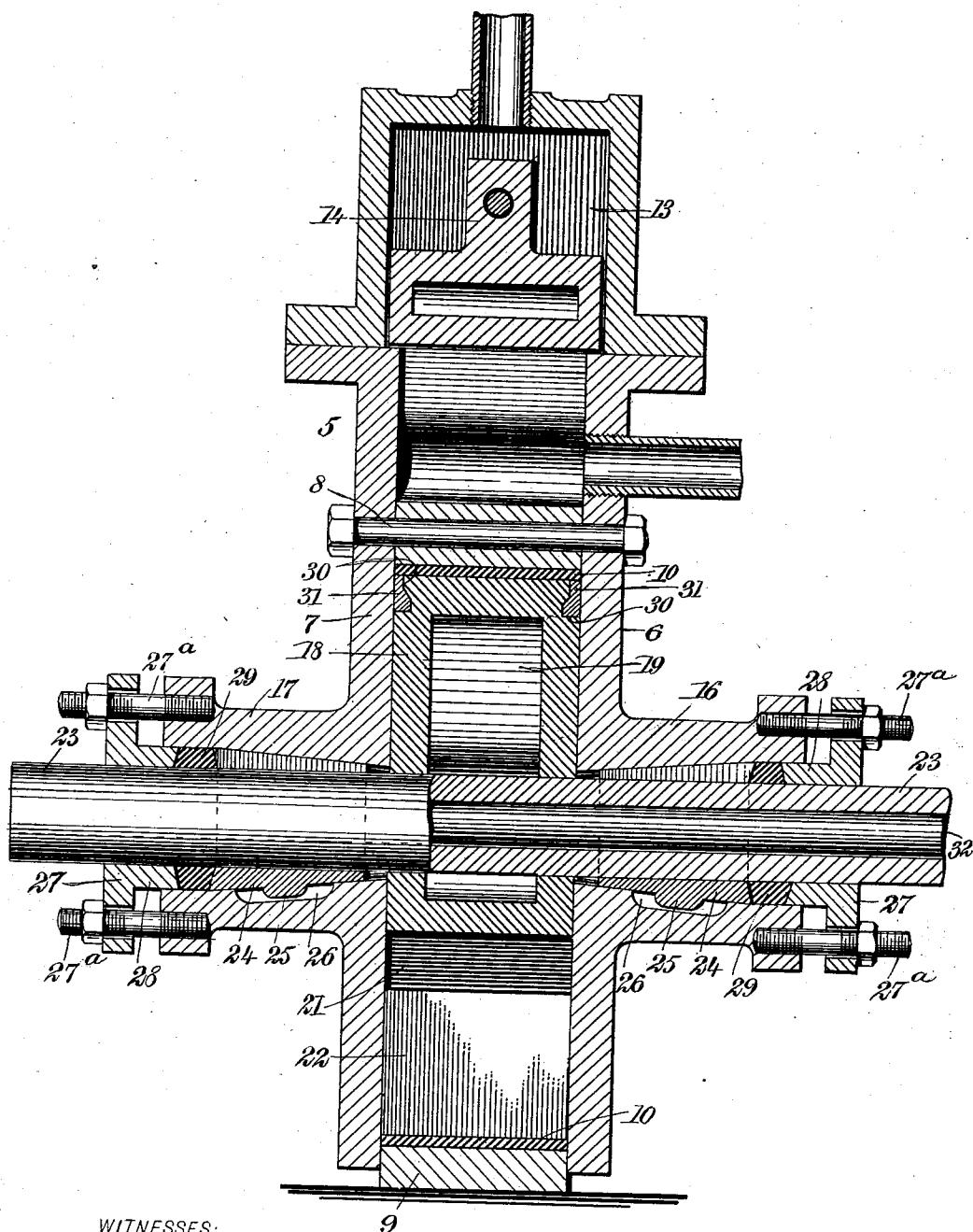
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9

WITNESSES:

John A. Serpentine
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Fig. 3

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UNITED STATES PATENT OFFICE.

THOMAS EDWARD EVE BARTLETT, OF MERIDIAN, MISSISSIPPI.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 742,561, dated October 27, 1903.

Application filed March 24, 1903. Serial No. 149,348. (No model.)

To all whom it may concern:

Be it known that I, THOMAS EDWARD EVE BARTLETT, a citizen of the United States, and a resident of Meridian, in the county of Lauderdale and State of Mississippi, have invented a new and Improved Rotary Engine, of which the following is a full, clear, and exact description.

This invention relates to improvements in rotary engines; and the object that I have in view is to produce a simple, compact, and durable construction which is packed to reduce the leakage of the motive fluid and which is efficient in operation.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty will be defined by the annexed claims.

Figure 1 is an elevation of a rotary engine constructed in accordance with my invention and showing one head of the engine-casing removed in order to represent the rotary eccentric piston. Fig. 2 is a vertical sectional elevation in a plane at right angles to the axis of the engine-shaft; and Fig. 3 is a sectional elevation of the engine, taken longitudinally through the engine-shaft.

5 designates the casing or cylinder of the engine, having the removable heads 6 7, the latter being secured rigidly to the casing by suitable transverse bolts 8. The casing is constructed with a base 9, which may be cast in one piece therewith, and the inner surface of this casing is made a true circle. The interior of the casing is provided with a metallic lining 10, which may be of steel or other metal and is adapted to be renewed when worn by the frictional engagement of certain parts of the piston therewith, thus making provision for economically repairing the engine. Said casing 5 is also provided with inlet and exit passages 11 12, which communicate with the piston-chamber on opposite sides of the vertical axis of the engine, and these passages communicate with a valve-chest 13, in which is arranged an ordinary slide-valve 14, the rod of which is pivoted to a reversing-lever 15, said valve being arranged to control the direction in which the motive fluid flows to and from the engine, thus making provision for reversing the direction of rotation of the eccentric piston.

The heads 6 7 of the engine-casing are provided with elongated sleeves or journal-bearings 16 17, respectively, each sleeve or bearing being cast in one piece with the head and provided with an internal tapering passage, the purpose of which will presently appear.

18 designates the revoluble piston, which is mounted eccentrically within the circular chamber of the engine-casing, so that it will touch the interior lining of the casing at one point, as shown by Figs. 1 and 2, and is common in the art. This eccentric piston is of a circular form, and it is provided with a chamber 19 and with a series of integral radial wings 20, the latter extending into the chamber 19 and terminating flush with the periphery of the piston. Said wings 20 are provided with slots or guideways 21, which extend radially to the axis of the piston and open through the exposed face thereof, and in these radial guideways are fitted the piston-shoes 22, the latter being preferably in the form of flat plates arranged to slide or travel freely in the guideways 21 of the piston-wings and to ride against the inner surface of the renewable lining 10. The piston-shoes normally project beyond the periphery of the circular eccentric piston in order to afford abutments to sustain the pressure of the motive fluid, and these shoes pass across the piston-chamber within the engine-casing, the shoes when the piston is in motion being thrown to their operative positions by the centrifugal energy developed by the rotation of the engine-piston.

The piston 18 is provided on opposite sides with tubular shaft-sections, which may be made in one piece with the parts of the piston and which are disposed in axial alignment relatively to each other, although I may employ a single continuous tubular shaft 23, which passes through the piston and the sleeves 16 17 of the engine-casing. The shaft 23 or the sections thereof are surrounded by tapering sleeves 24, arranged to fit snugly in the tapering passages of the bearings 16 17, said sleeves being disposed on opposite sides of the engine proper and provided with ribs or feathers 25, which are received in the recesses 26, provided in the bearings 16 17, whereby the sleeves 24 are so connected with the bearings as to be held against rotation

therein with the shaft. The recesses 26 in the bearings 16 17 are longer than the keys or feathers 25, and this construction allows the sleeves 24 to have a limited adjustment in an endwise direction within the bearings 16 17, thus making provision for taking up the wear due to the rotation of the shaft and maintaining a steam-tight joint in the engine at the point where the shaft passes there-
10 through or emerges therefrom.

The sleeves 24 are not as long as the bearings 16 17, and in these bearings are fitted the packing-glands 27, said glands being fastened adjustably to the end portions of the
15 bearings by the bolts 27^a. (See Fig. 3.) Said glands are provided with circular flanges 28, arranged to snugly inclose the engine-shaft and to extend into spaces which are left within the bearings 16 17 and beyond the outer
20 ends of the sleeves 24, said spaces in the two bearings 16 17 receiving the packings 29 of any suitable character. It is evident that the packing-glands may be adjusted in the bearings to compress the packings 29 between the
25 flanges 28 and the sleeves 24, thus materially contributing to the tightness of the joint between the engine-shaft and its bearings. The eccentric piston 18 is furthermore provided with recesses 30 in the side faces there-
30 of, said recesses adapted to receive the sections forming the packings 31, which I prefer to make of metal. Each packing 31 consists of a number of sections, which are supported by the wings 22, and said packings rotate with
35 the piston and have frictional engagement with the heads 6 7 of the engine.

The hollow shaft 23 may be filled with a solid rod or core 32, which may be inserted therein or cast inside the shaft, said core serving to increase the strength of the shaft.

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

1. In a rotary engine, a casing having tapered bearings, a piston - shaft, tapering
45 sleeves fitted snugly on the shaft and housed in the bearings, each sleeve being interlocked with one bearing for endwise movement therein and held from rotation with the shaft, and means for adjusting said sleeves.

2. A rotary engine comprising a casing having shaft-bearings provided with conical pas-
50 sages, each shaft-bearing having a longitudinal recess, a piston, a shaft fast with the piston, tapering sleeves fitted on the shaft and
55 within said passages of the bearings, each sleeve having a radial rib of less length than the recess and fitted in said recess to permit a limited endwise adjustment of the sleeve, glands secured to the bearings and provided
60 with flanges which embrace the shaft, and interposed packings contained within the shaft-bearings between the outer ends of the sleeves and the flanges of the glands.

In testimony whereof I have signed my
65 name to this specification in the presence of two subscribing witnesses.

THOMAS EDWARD EVE BARTLETT.

Witnesses:

R. O. SMITH,

W. H. MILLSAUGH.