O. B. HEJHAL.

ROTARY ENGINE.

APPLICATION FILED AUG. 28, 1917.

1,372,750.

Patented Mar. 29, 1921.

3 SHEETS—SHEET 1.

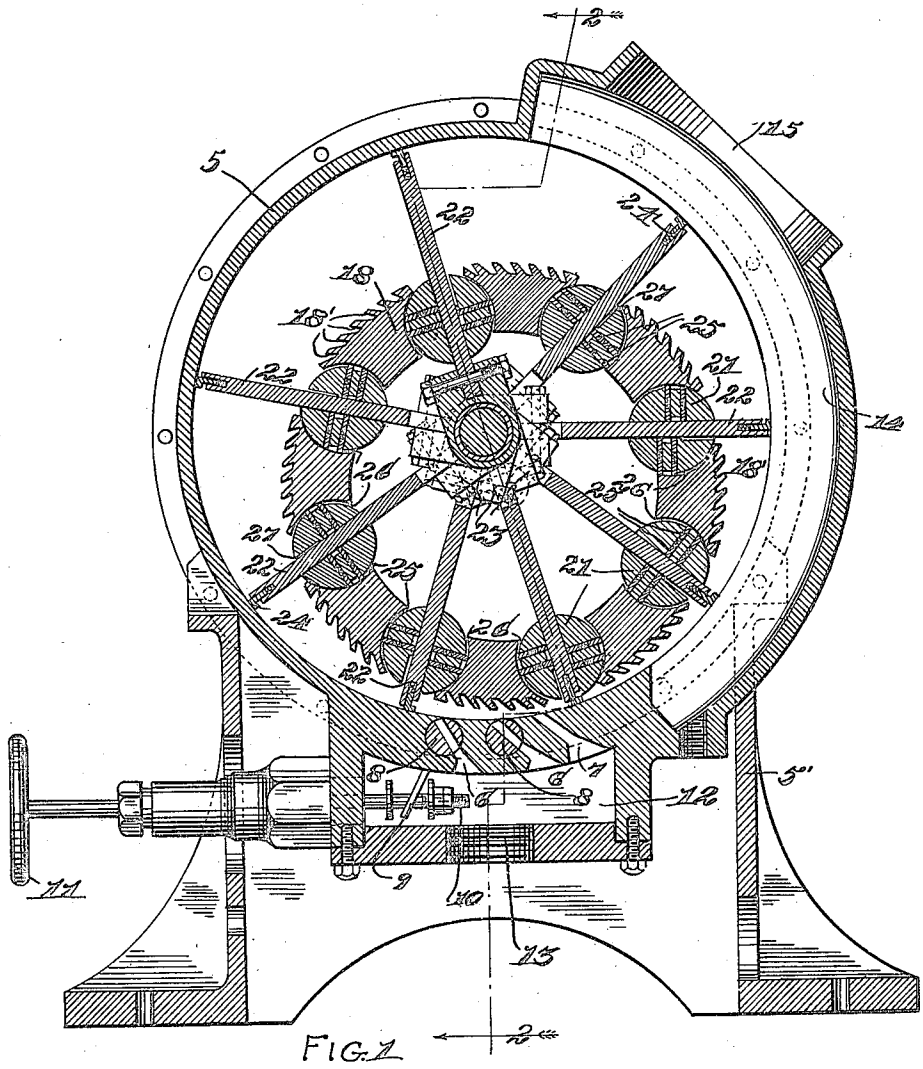


FIG. 1

WITNESSES
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B. Y. Richards

INVENTOR
Otto B. Hejhal
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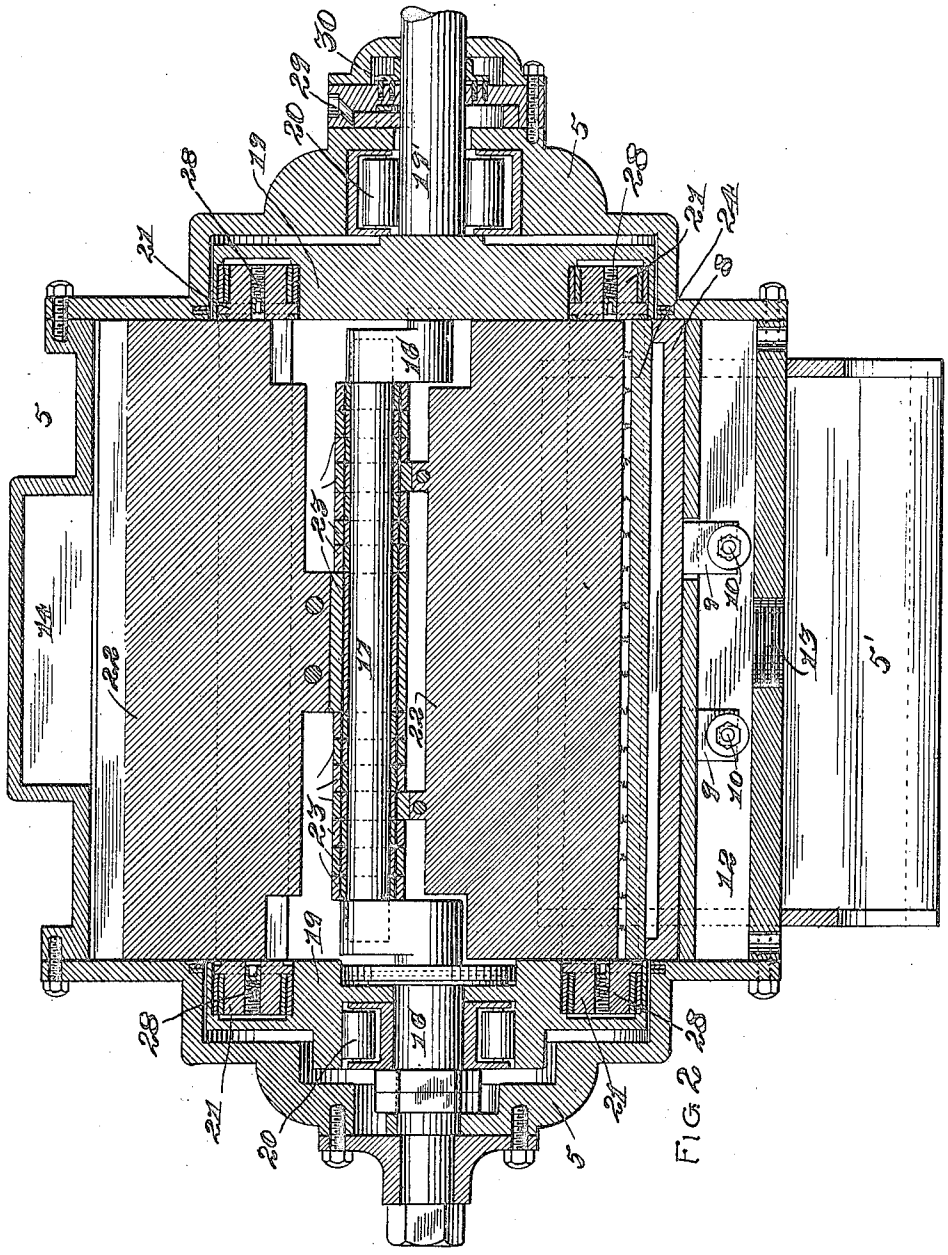


FIG 2

WITNESSES

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3 SHEETS—SHEET 3.

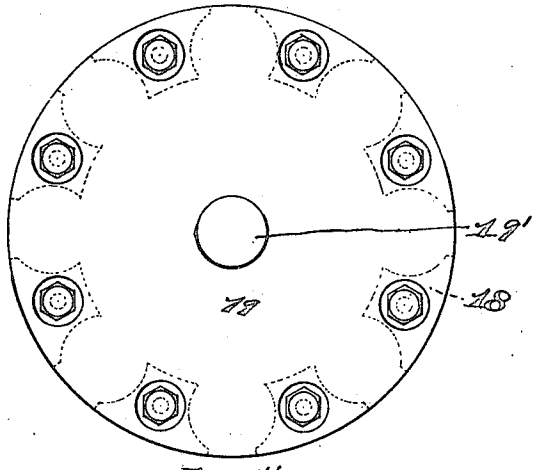


FIG. 4

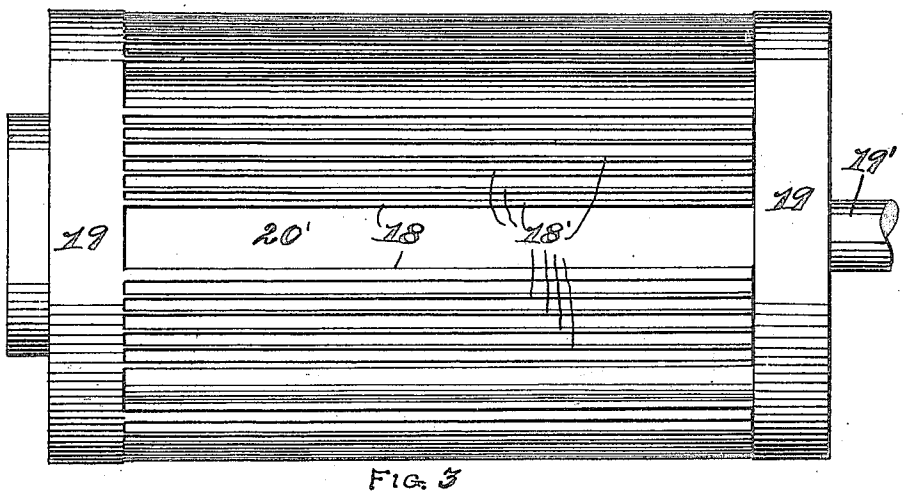


FIG. 3

WITNESSES
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UNITED STATES PATENT OFFICE.

OTTO B. HEJHAL, OF CHICAGO, ILLINOIS.

ROTARY ENGINE.

1,372,750. Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed August 28, 1917. Serial No. 188,576.

To all whom it may concern:

Be it known that I, OTTO B. HEJHAL, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

My invention relates to improvements in rotary engines and has for its object the provision of an improved and simple construction of this character, enabling the expansion of motive fluid to the greatest practical capacity and thus insuring economical efficiency.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a vertical transverse section of an engine embodying my invention,

Fig. 2, a section taken substantially on line 2—2 of Fig. 1,

Fig. 3, a detail view of a rotor employed in the construction, and

Fig. 4, an end view of the same.

The preferred form of construction as illustrated in the drawings comprises a cylindrical casing 5, set upon a suitable standard 5′. The casing 5 is provided with inclined inlet ports 6 and 7, the two ports 6 being equipped with rotary valves 8 and the port 7 being constantly open as shown. Each of the valves 6 is provided with an oscillating operating arm 9, operatively engaging a threaded adjusting stem 10 equipped with an operating hand wheel 11, as shown, whereby the ports 6 may be readily controlled. The ports 6 and 7 lead from a steam chest 12 supplied with live steam through an opening 13. The casing 5 is also provided with a segmental central peripheral exhaust passage 14 communicating with an exhaust 15, as shown.

A crank shaft 16 is arranged in casing 5 eccentrically with its crank 17, concentric with said casing. A cylindrical rotor 18 is mounted eccentrically in casing 5 as shown, said rotor being hollow and provided with one integral and one removable end member 19. The end member 19 is provided with an integral driving shaft 19′ mounted in suitable roller bearings 20 and one end of the crank shaft 16 is rotatably mounted in the corresponding end member 19 concentric with the shaft 19′. The other end of crank shaft 16 is mounted in another suitable roller bearing 20 in the corresponding end member 19, the arrangement being such as to permit of rotation of the rotor 18 eccentrically in casing 5 and about the crank 17, crank shaft 16 being fixed at one end in said casing. Vanes 18′ are provided on the periphery of the rotor 18 and so inclined as to cause the steam injected through ports 6 and 7 to impinge upon said vanes, thus deriving turbine action from the incoming steam.

The rotor 18 is provided with a plurality of bearing sockets 20′ and oscillatory bearing members 21 mounted in said sockets as indicated. Plates 22 are arranged to slide through suitable slots in the bearing members 21, said plates being connected at their inner ends with suitable sleeves or collars 23 loosely mounted on crank 17, as shown. Each of the plates 22 also carries a spring held packing strip 24 at its outer end, bearing against the inner walls of casing 5. Each of the bearing blocks 21 is provided on each side of the corresponding blades 22 with spring held packing strips 25 contacting with the corresponding walls of the corresponding sockets 18 and spaces 26 are left between the bearing members and the walls of the sockets to admit motive fluid to alleviate friction. Likewise spaces 27 are provided between the blades 22 and the bearing blocks 21 to admit motive fluid to alleviate friction. Combined sealing and oiling devices 28 are mounted in the ends of bearing members 21 to oil the ends of the blades 22 and seal the same. A suitable splash oiling device 29 is provided on shaft 19′ and a suitable packing 30 is also provided therefor.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the claims.

Having described my invention what I

claim as new and desire to secure by Letters Patent is:

1. A rotary engine comprising a cylindrical casing; a stationary crank shaft traversing said casing with its crank portion mounted in the axis of said casing; an annular hollow rotor mounted on said crank shaft; a plurality of oscillatory bearing members mounted in said rotor; a plurality of blades slidable in said oscillatory bearing members, pivotally connected at their inner ends to the crank of said crank shaft, and provided at their outer ends with spring held strips bearing against the inner walls of said casing; vanes formed on said rotor between said blades; two inclined ports, equipped with adjustable valves, arranged to inject motive fluid into said casing to impinge on said vanes; a constantly open inclined port arranged to inject motive fluid into said casing to impinge against said vanes; and means for exhausting the spaces between said blades, substantially as described.

2. The combination with a rotor for rotary engines, of oscillatory bearing members mounted in said rotor, there being spaces between the walls of said bearing members and said rotor adapted to admit motive fluid under pressure to alleviate friction; and blades slidable in said rotary members, there being spaces between said blades and the walls of said bearing members adapted to admit motive fluid to alleviate friction, substantially as described.

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

OTTO B. HEJHAL.

Witnesses:

JOSHUA R. H. POTTS,

ARTHUR A. OLSON.