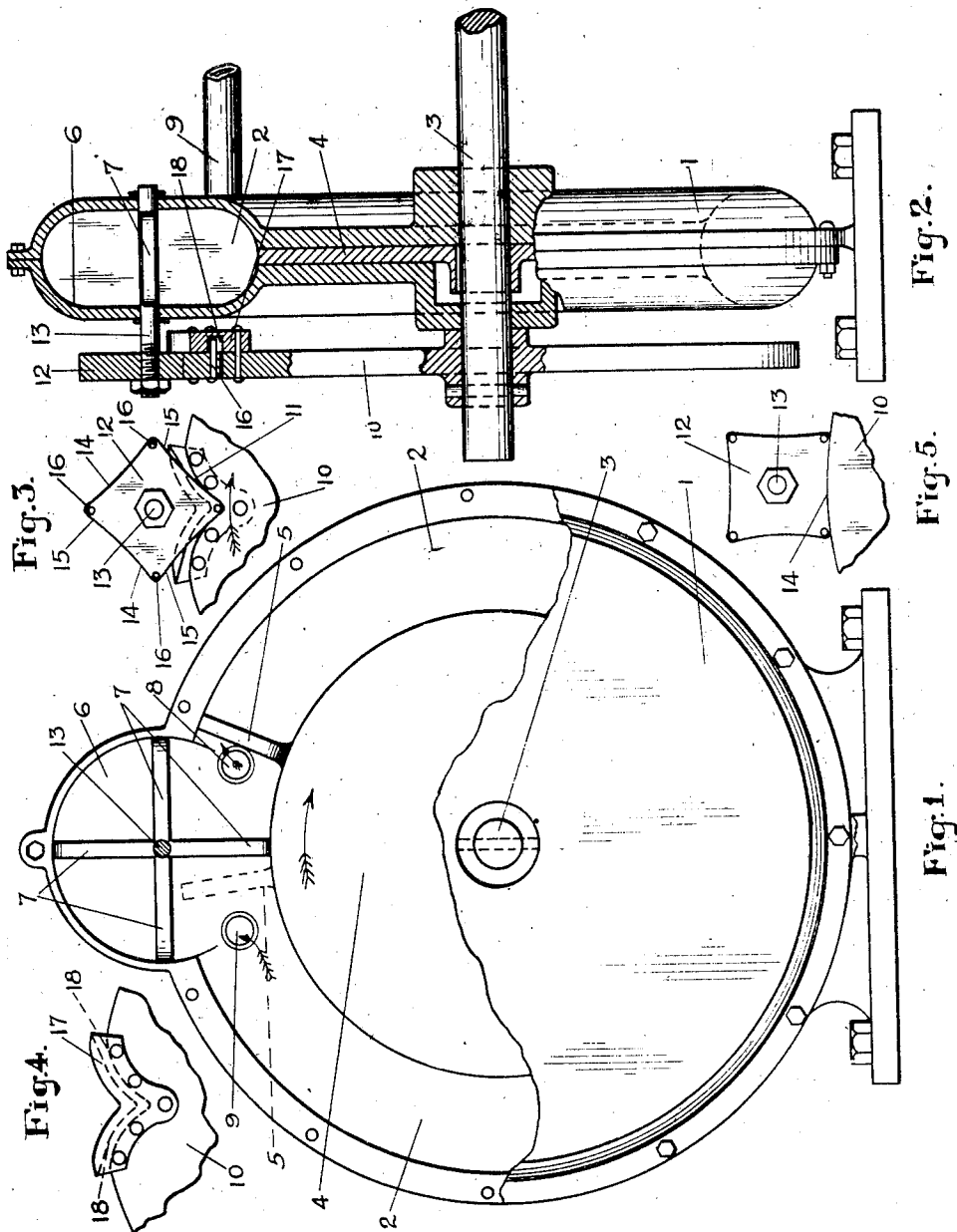


L. B. GESNER.
 ROTARY ENGINE.
 APPLICATION FILED JUNE 17, 1912.

Patented Apr. 8, 1913.

1,058,424.



Witnesses

Romaine W. Stone
B. G. Richards

Inventor

Louis B. Gesner

By *Joshua H. Horn*
 his Attorney

UNITED STATES PATENT OFFICE.

LOUIS B. GESNER, OF DOWNERS GROVE, ILLINOIS.

ROTARY ENGINE.

1,058,424.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed June 17, 1912. Serial No. 704,234.

To all whom it may concern:

Be it known that I, LOUIS B. GESNER, a citizen of the United States, and a resident of the city of Downers Grove, county of Dupage, 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 of the type employing a rotary piston head in conjunction with a rotary member provided with rotary cylinder heads coöperating with said rotary piston head, and has for its primary object the provision of improved means for communicating the proper motion to said rotary cylinder heads.

Other objects will appear hereinafter.

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 drawing forming a part of this specification, and in which,

Figure 1 is a side elevation of a rotary engine embodying my invention with portions broken away for the sake of clearness, Fig. 2, an elevation taken at right angles to Fig. 1 with portions broken away and shown in section for the sake of clearness, Fig. 3, a detail elevation of a star wheel employed in the construction, Fig. 4, a detail elevation of a portion of a cam employed in the construction, and showing a guide member attached thereto, and Fig. 5, a detail elevation showing a different position of the star wheel from that illustrated in Fig. 3.

The preferred form of construction as illustrated in the drawing comprises a suitable casing or frame 1 having an annular cylinder chamber 2 therein. A power shaft 3 is rotatably mounted in casing 1 and a rotor 4 in the form of a disk is secured to shaft 3 so as to rotate in casing 1. Rotor 4 carries a piston head 5 fitting piston chamber 2 and rotating therein. At the top of casing 1 a supplemental chamber 6 is formed in communication with chamber 2 and a rotatable member is mounted in chamber 6 and provided with radiating blades 7 closely fitting chamber 6 and chamber 2 and operating in chamber 2 to constitute movable cylinder heads for chamber 2. An inlet pipe 8 communicates with chamber 2 at one

side of the lowermost blade 7 and an exhaust pipe 9 communicates with chamber 2 on the other side to said blade 7. By this arrangement it will be observed that if steam or other fluid under pressure be admitted through pipe 8, with the parts in the positions illustrated in full lines in Fig. 1, piston head 5 and consequently rotor 4 and shaft 3 will be caused to rotate in the direction of the arrow on Fig. 1 until piston head 5 passes exhaust pipe 9. After said piston head 5 passes exhaust pipe 9 it would strike the lowermost blade 7 unless said blade were properly moved to prevent such striking, and the primary object of my present invention is to provide improved means for effecting such movement of said blade. To accomplish this I secure a circular cam 10 to shaft 3 as shown in Fig. 2, said cam being provided at one portion with a recess 11, as indicated in Fig. 3. A star wheel 12 is secured to the end of shaft 13 which constitutes the pivotal mounting for blades 7 and is extended from casing 1 at one side, as shown in Fig. 2. This power wheel 12 is provided with a plurality of concave bearing surfaces 14 curved to bear upon and fit the circular periphery of cam 10 when in the position as illustrated in Fig. 5. Each of the points 15 of star wheel 12 is provided with a laterally extending pin 16 and, a guide member 17 is secured to the inner face of cam member 10 and is provided with a guide recess 18 shaped to conform to the recess 11 and adapted to receive pins 16 as cam 10 and star wheel 12 rotate. Both ends of channel 18 are made upwardly flaring as shown to facilitate the entry of pins 16 from either direction. The recess 11 and guide member 17 are so positioned on cam member 10 with respect to star wheel 12 and piston head 5 that when one of the surfaces 14 is running upon the circular periphery of cam 10, the corresponding blade 7 is in the position shown in Fig. 1, and when piston head 5 passes exhaust pipe 9 and approaches the corresponding blade 7, the corresponding pin 16 enters guide channel 18 which causes a partial rotation of the star wheel and consequently of the blades 7 so as to permit the passage of piston head 5 and move the succeeding blade 7 into operative position. Then said pin passes from the opposite end of channel 18 and the corresponding surface 14 of star wheel 12 running upon the circular periphery of cam 10

holds said blade 7 in position in cylinder chamber 2 between pipes 8 and 9, as shown in Fig. 1.

It will be observed that during the time when each of the blades 7 is operating, as a cylinder head in chamber 2, the corresponding bearing surface 14 on star wheel 12 is running upon the circular periphery of cam 10 and thus holds said blade positively and rigidly to resist the pressure of the active steam or fluid in chamber 2. The construction also furnishes a positive and reliable means for operating blades 7 at the proper time. It will also be observed that when it is desired to reverse the engine, all that is necessary is to supply the live steam or fluid under pressure through pipe 9 and permit the same to exhaust through pipe 8, as will be readily understood by those skilled in the art.

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 appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination of a casing having an annular cylinder chamber therein; a rotor; a piston head on said rotor and traveling in said chamber; a rotary member provided with a plurality of cylinder heads operating in said piston chamber, there being inlet and exhaust ports for said chamber arranged on opposite sides of said cylinder heads when in operative position; a circular cam member adapted to be driven by said rotor and provided with a recess in its periphery; a star wheel provided with bearing surfaces running upon the periphery of said cam member and points adapted to enter said recess to permit a partial rotation of said star wheel; means for effecting a partial rotation of said star wheel; and an operative connection between said star wheel and said rotary member, substantially as described.

2. The combination of a casing having an annular cylinder chamber therein; a rotor; a piston head on said rotor and traveling in said chamber; a rotary member provided with a plurality of cylinder heads operating in said piston chamber, there being inlet and exhaust ports for said chamber arranged on opposite sides of said cylinder heads when in operative position; a circular cam member adapted to be driven by said rotor and provided with a recess in its periphery; a star wheel provided with bearing surfaces running upon the periphery of said cam member and points adapted to enter said recess to permit a partial rotation of said star wheel; a pin projecting laterally from each of said points; a guide member secured to said cam member adjacent said recess and adapted to engage said pins to effect partial rotations of said star wheel; and an operative connection between said star wheel and said rotary member, substantially as described.

3. The combination of a casing having an annular cylinder chamber therein; a rotor; a piston head on said rotor and traveling in said chamber; a rotary member provided with a plurality of cylinder heads operating in said piston chamber, there being inlet and exhaust ports for said chamber arranged on opposite sides of said cylinder heads when in operative position; a circular cam member adapted to be driven by said rotor and provided with a recess in its periphery; a star wheel provided with bearing surfaces running upon the periphery of said cam member and points adapted to enter said recess to permit a partial rotation of said points; a guide member secured to said cam member adjacent said recess and provided with a lateral recess adapted to receive said pins and shaped to correspond with the recess in said cam member; and an operative connection between said star wheel and said rotor member, substantially as described.

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

LOUIS B. GESNER.

Witnesses:

JOSHUA R. H. PORTS,
ARTHUR A. OLSON.