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E. ALTERIO
ROTARY ENGINE

2,458,128

Filed Dec. 1, 1944

2 Sheets-Sheet 1

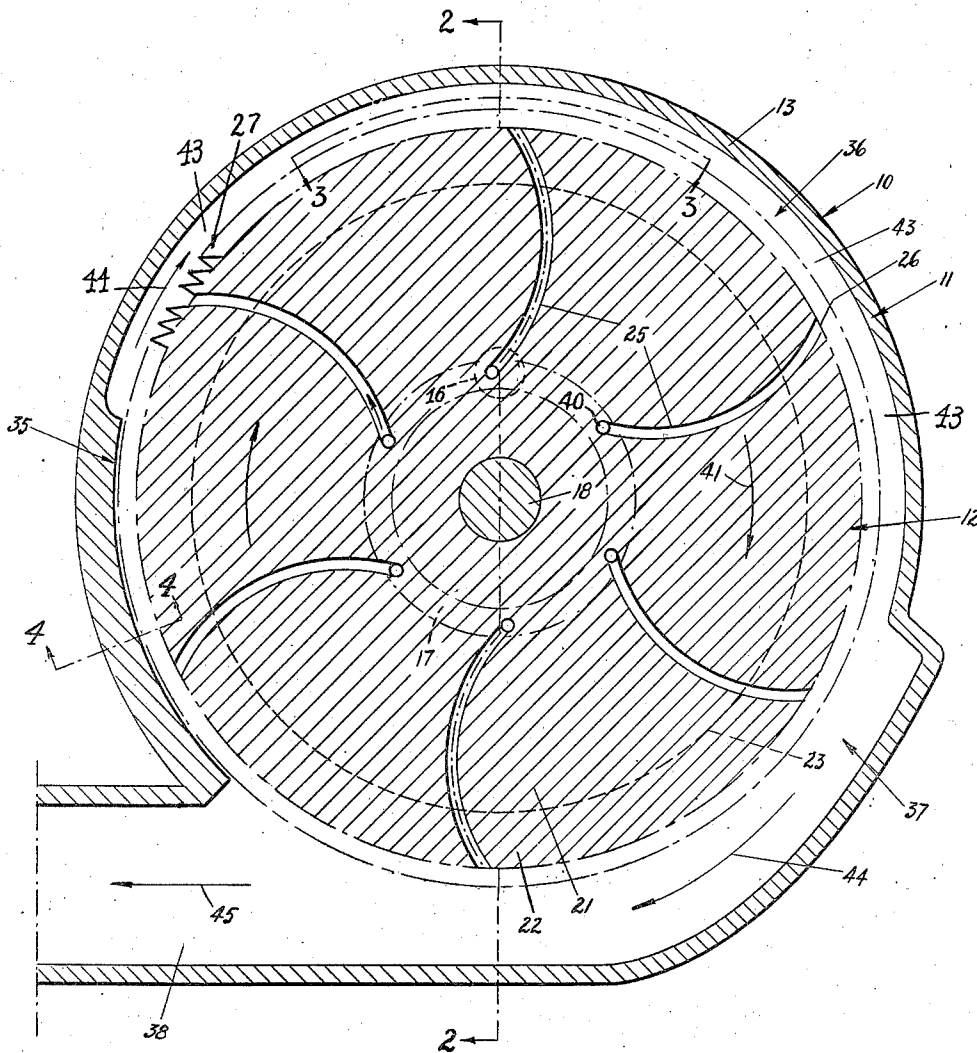


Fig-1

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2 Sheets-Sheet 2

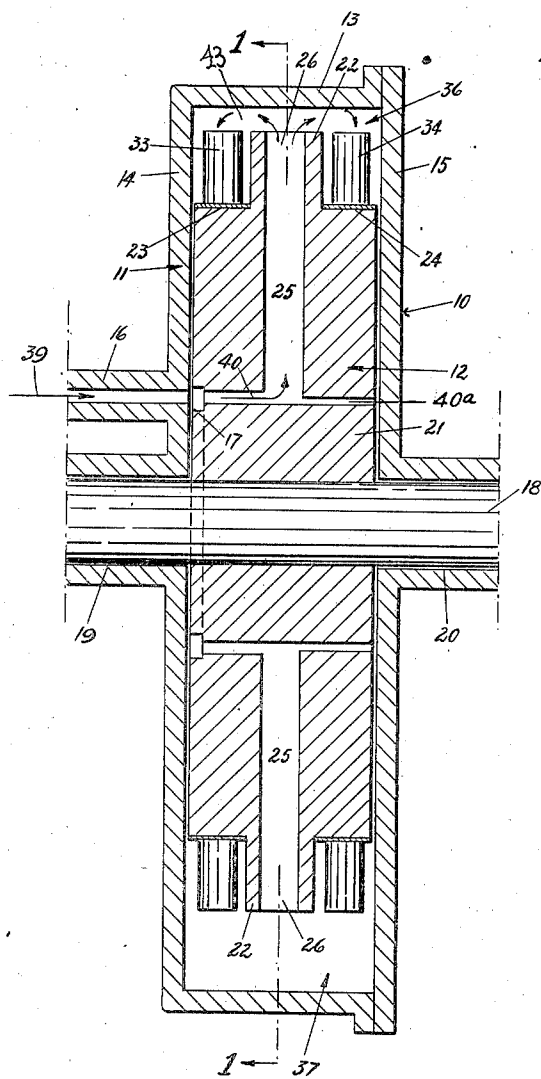


Fig-2

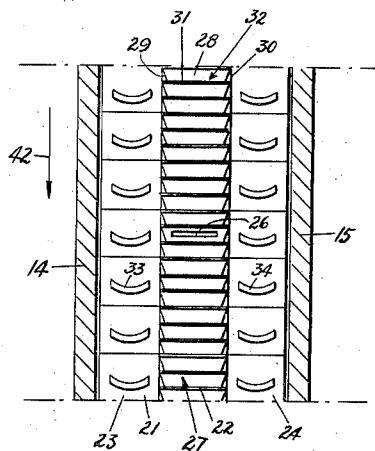


Fig-3

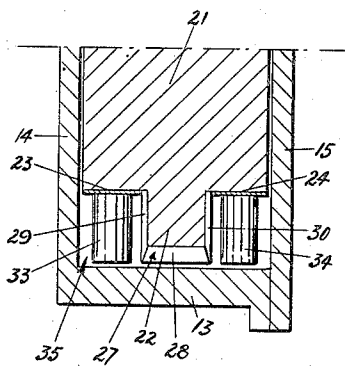


Fig-4

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UNITED STATES PATENT OFFICE

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ROTARY ENGINE

Eugene Alterio, New York, N. Y.

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4 Claims. (Cl. 253-79)

1

This invention relates to rotary engines operated by a fluid medium, particularly steam, and has for its main object to provide a device of this type in which the pressure, velocity, and the expansion of the fluid medium, is made use of in a novel manner, for producing a rotary motion and power therethrough.

A further object of my invention is to provide a device as characterized hereinbefore, which will be extremely simple in construction and still highly efficient in operation and use.

Further objects of this invention will be apparent as the specification of the same proceeds, and, among others, I may mention: to provide a device which will be easy and safe to operate, to assemble or disassemble, will be comparatively inexpensive to operate, and adapted to mass manufacturing in any desired units, from a small to a very large output.

In the drawings forming a part of this specification and accompanying the same,

Fig. 1 is a transverse sectional view, in a generally diagrammatic manner, of one embodiment of my novel motor, the section being taken on the broken line 1-1 in Fig. 2;

Fig. 2 is a longitudinal sectional elevation of the same, in a similar manner, the section being taken on the broken line 2-2 in Fig. 1;

Fig. 3 is a sectional view of a detail on an enlarged scale, taken on curved line 3-3 in Fig. 1, and flattened into the plane of the drawings;

Fig. 4 is another enlarged sectional detail on the line 4-4 in Fig. 1.

Referring now to the drawings more in detail by characters of reference, the numeral 10 indicates one embodiment of my novel rotary engine, in general, said engine being composed of two main parts, a stationary housing, generally indicated by the numeral 11, and a rotor generally indicated by the numeral 12. The housing may have a cylindrical outer wall 13, a front wall 14, and a rear wall 15. Preferably the cylindrical outer wall and the front wall 14 of the housing is made of one casting, while the rear wall 15 is made of a separate piece to be made removable, which, however, is secured on the rest of the housing in a fluid tight manner, as indicated in Fig. 2.

Steam inlet pipe 16 is arranged in the front wall, and a ring form open channel 17 is provided in the rotor 12 in registering relation with the steam inlet 16.

The rotor 12 is secured on shaft 18 which may be journaled in the stationary housing of my de-

2

vice, as at 19 and 20, in a substantially fluid sealing manner.

The rotor is composed of a main wider disk shaped body 21 having a circumferentially arranged projecting central part 22, forming the two shoulders 23 and 24.

A plurality of curved steam exit slots or channels 25 are arranged in the rotor 12 communicating with the steam receiving channel 17 and ending in steam exit openings 26.

A plurality of teeth or projections, generally indicated by the numeral 27, are arranged around the circumferential projecting portion 22 of the rotor, said teeth or projections having top portion 28 and two side portions 29 and 30 around said member 22, and said projections also having a generally radial flat front surface 31, and being inwardly and rearwardly inclined as indicated at 32. Only a portion of said teeth is fully shown in the sectional view of Fig. 1, the rest being indicated by the dot and dash lines therein.

A plurality of curved plates or blades 33 and 34 are arranged on the shoulders 23 and 24 of the rotor 12, alongside the central projecting portion 22, being secured on said shoulders by any appropriate means, and preferably being narrower than said shoulders leaving open spaces at their sides.

The outer cylindrical wall 13 of the stationary housing, is at a good portion thereof very closely set to the rotor, as indicated at 35, so as to impede the exit of the steam at this place but permit an easy sliding motion of the rotor on said portion of the housing. Following this portion, the largest part of said wall 13 is set away from the rotor to a desired small distance, as indicated at 36, while, finally, the last portion of the circumference of that housing is set apart from the rotor to quite a considerable distance, as indicated at 37, and said largest portion thereof terminates in a steam exhaust 38. The radial fronts of the teeth 27 and the concave sides of the blades 33 are facing towards said closed portion of the cylindrical housing.

The use and operation of my engine is as follows: Steam is introduced through the pipe 16, as indicated by arrow 39, entering the channel 17 and being conducted from there into the steam ejecting channels 25, as indicated by the arrow 40. The steam blowing from the mouth 26 of said channels will hit the cylindrical wall 13 of the stationary housing, will be reflected therefrom, and will act on the flat radial surfaces 31 of the teeth 27, and by such action will have a

tendency of rotating the rotor 12 in a clockwise direction, as indicated by arrow 41.

Similarly, the steam will act on the curved blades or plates in the direction of arrow 42, and will give a rotary momentum in the same clockwise direction.

It will be obvious that the original passing of the steam from the channel 17 through the exit channels 25, will also have a tendency to rotate the rotor 12 in a clockwise direction, as indicated by arrow 41.

Now, the steam cannot exit from the space 43 in an anti-clockwise direction on account of the substantially closed portion 35 of the stationary housing on the rotor, and the steam, so-to-say, will be compressed and will develop quite a high pressure in the space 43, while the steam will move in the direction of arrows 44, and will exit through the exhaust 38 (arrow 45).

This pressure and this movement of the steam produces the action previously described on the teeth 27 and on the blades or plates 33 and 34, all of which will drive the rotor in the same direction as the reaction through the curved exit channels 25 has a tendency to move it, that is, in a clockwise direction (arrow 41). This action is further aided by the wide portion 37 of the housing through which the steam will develop a high speed, and will exert so-to-say, an exhaust action on the remaining steam in the space 36.

The steam therefore acts in my engine several ways, all in the same direction, like through the curved channels 25, the reaction from the cylindrical housing, the compression upon exit from said channels, and its accelerated movement to its exit, the latter ones acting on the teeth 27 and on the blades 33.

It will be seen that in my engine steam will blow outwardly through the major portion of the circumference of the rotor, will exert a rotary momentum on the rotor in several ways, will move with great speed in the space 43 and 37 in the same clockwise direction as the motion of the rotor, and at the end will exit with great velocity through the pipe 38.

Since some of the steam upon exit will still have considerable pressure, the exhaust steam in pipe 38 may be introduced into any appropriate other device to make use of its temperature and pressure, or, preferably, I introduce said steam into a second rotary engine of this invention, to cause its pressure, speed and elasticity to further work in said second motor.

At 40a in Fig. 2, I show a bore opposite each of the entrance bores or holes 40 for the steam, said bore 40a leading to the rear surface of the rotor 12. It will be seen that the steam also will pass through these rearward bores 40a and there-through may reach the narrow space between the rotor 12 and the rear plate 15 of the housing. In this manner the rotor will be released of a one-sided pressure by the steam.

While I have shown and described a preferred embodiment of my invention, I am aware of the fact that changes and variations may be resorted to in the elements, combinations and constructional details of my invention, and I reserve my rights to such changes and variations, which are within the spirit of this specification and within the scope of the claims hereunto appended.

What I claim as new and want to protect by Letters Patent of the United States, is:

1. In a rotary engine, having a fluid operating medium, like steam, a cylindrical housing with

flat end walls, a shaft journaled in said end walls in a substantially fluid tight manner, a disk shaped rotor secured on said shaft, its side walls being close to the flat end surfaces of the housing to prevent the escape of the fluid medium therebetween, and a fluid inlet provided through the front flat end wall of said housing, the combination, of a ring shaped fluid receiving channel provided in the side of the rotor, facing, and open towards, said fluid inlet and in registering relation therewith, and a plurality of curved fluid exit operating channels in said rotor from said receiving channel to the circumference of the rotor, a first portion of the cylindrical outer wall of the housing, towards which the exits of all of said operating channels are directed, being slidably but sealingly closed on the outer circumference of the rotor to impede the exit of the working fluid in that direction, the rest of said cylindrical wall being set wider apart from said rotor to permit the impact of the increasing fluid thereon for a reaction therefrom on the rotor, and to ease and accelerate the exit of the fluid in a direction away from said closed portion, the last portion of said space between the rotor and the cylindrical wall being made the widest and having a fluid exit communicating therewith, teeth around the outer marginal portion of the rotor, said teeth being triangular in cross section and having generally radial flat front surfaces facing towards said closed portion of the housing and rearwardly and inwardly inclined rear surfaces.

2. In a rotary engine, having a fluid operating medium, like steam, a cylindrical housing with flat end walls, a shaft journaled in said end walls in a substantially fluid tight manner, a disk shaped rotor secured on said shaft, its side walls being close to the flat end surfaces of the housing to prevent escape of the fluid medium therebetween, and a fluid inlet provided through the front flat end wall of said housing, the combination, of a ring shaped fluid receiving channel provided in the side of the rotor, facing, and open towards, said fluid inlet and in registering relation therewith, and a plurality of curved fluid exit operating channels in said rotor from said receiving channel to the circumference of the rotor, a first portion of the cylindrical outer wall of the housing, towards which the exits of all of said operating channels are directed, being slidably but sealingly closed on the outer circumference of the rotor to impede the exit of the working fluid in that direction, the rest of said cylindrical wall being set wider apart from said rotor to permit the impact of the increasing fluid thereon for a reaction therefrom on the rotor, and to ease and accelerate the exit of the fluid in a direction away from said closed portion, the last portion of said space between the rotor and the cylindrical wall being made the widest and having a fluid exit communicating therewith, a central portion of the circumference of the rotor being raised forming two shoulders at the two sides thereof, teeth on said raised portion extending around all the three sides thereof, said teeth being triangular in cross section and having generally radial flat front surfaces facing towards said closed portion of the housing and converging inclined rear surfaces.

3. In a rotary engine, as set forth in claim 2, a plurality of radially set blades secured on said shoulders.

4. In a rotary engine, as set forth in claim 2, a plurality of radially set blades secured on said shoulders, said blades being curved, the concave

5

side of their curvature facing towards said closed portion of the housing.

EUGENE ALTERIO.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
132,829	Harris -----	Nov. 5, 1872
783,232	Hewlett -----	May 19, 1903

5

Number
1,849,478
1,944,504
2,074,650
2,083,167
2,087,834

10

Number
511,841
620,978

6

Name	Date
Clarke -----	Mar. 15, 1932
Geer -----	Jan. 23, 1934
Holdaway -----	Mar. 23, 1937
Lamere -----	June 8, 1937
Brown et al. -----	July 20, 1937

FOREIGN PATENTS

Country	Date
France -----	Jan. 5, 1921
France -----	May 3, 1927