March 17, 1925. 1,530,307

J. H. DAWSON

FLASH ROTARY ENGINE

Filed April 21, 1921 2 Sheets-Sheet 1

Fig. 1.

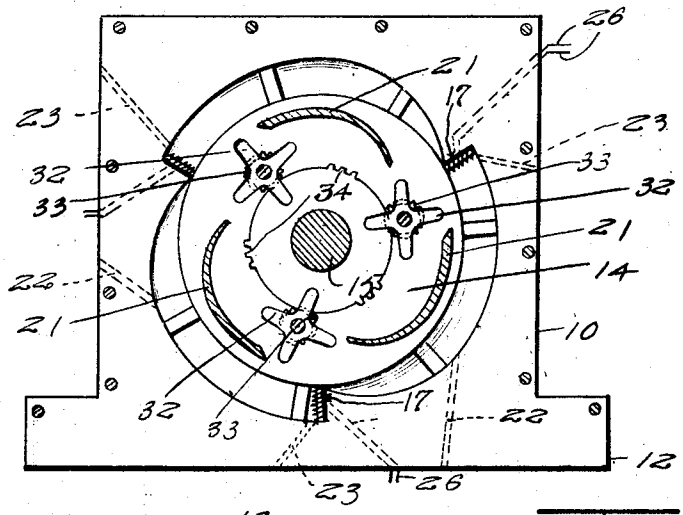


Fig. 4.

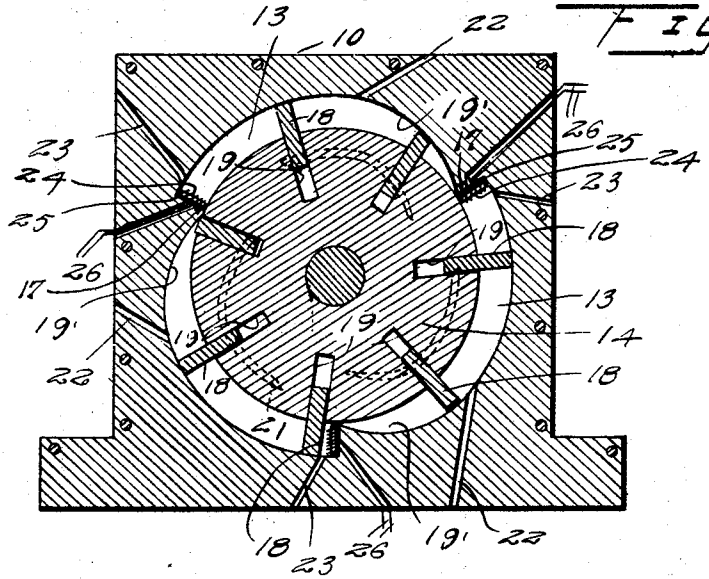
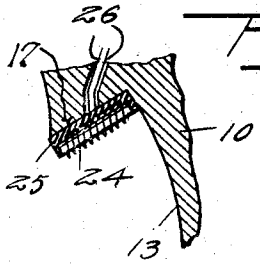


Fig. 6.



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Fig. 2.

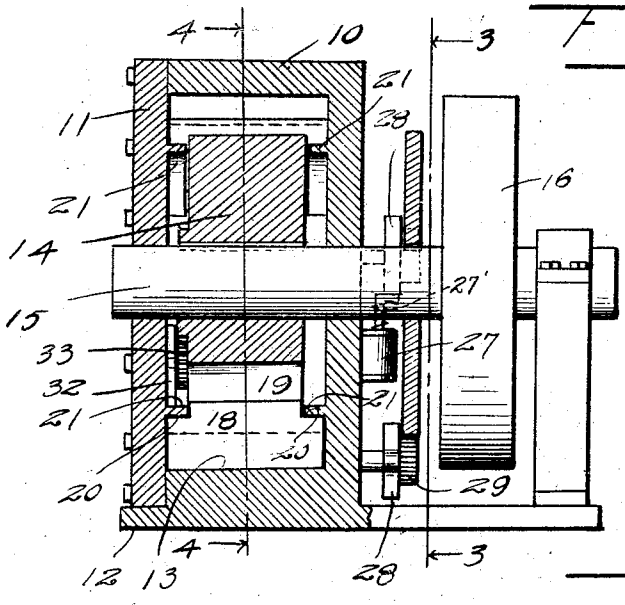


Fig. 3.

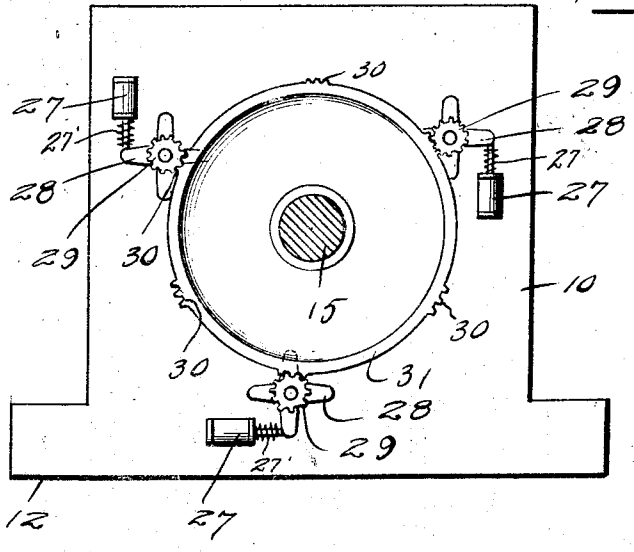
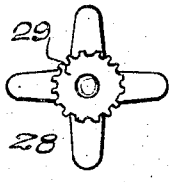


Fig. 5.



Inventor

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By A. Randolph Jr. Attorney

Patented Mar. 17, 1925.

1,530,307

UNITED STATES PATENT OFFICE.

JOHN H. DAWSON, OF WELLMAN, IOWA.

FLASH ROTARY ENGINE.

Application filed April 21, 1921. Serial No. 463,425.

To all whom it may concern:

Be it known that I, JOHN H. DAWSON, a citizen of the United States, residing at Wellman, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in a Flash Rotary Engine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the invention is to provide a rotary engine of relatively simple and efficient construction operating on the principle of a flash boiler by producing pressure through the agency of flashing means located in the expansion chamber of the motor under conditions tending to economize in the consumption of fuel while securing the maximum motive power; and with these objects in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the drawing, wherein:

Figure 1 is a sectional view taken on a vertical plane extending parallel with and between the face plate and casing of the engine, looking in the direction of the casing.

Figure 2 is a sectional view taken on a vertical plane extending centrally and transversely through the engine.

Figure 3 is a sectional view taken on the plane indicated by the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the plane indicated by the line 4—4 of Figure 2.

Figure 5 is a detail view in elevation of one of the tappets, and

Figure 6 is a detail sectional view of one of the flash plates and the adjacent parts of the stator.

The stator 10 consists of a casing having a suitable removable face plate or head 11 and a base 12 with an interior construction providing a series of expansion chambers 13, and mounted in the stator is a rotor 14, having a shaft 15 mounted in suitable bearings and carrying a fly wheel or pulley 16.

The expansion chambers 13 are provided at one end with an abrupt wall 17 forming a stationary abutment and the rotor carries a plurality of pistons 18 mounted for radial sliding movement in suitable guides 19 and adapted for extension to span the expansion chambers to constitute the moving abutments or wings between which the expansive action of the motive agent operates to drive the rotor, the end of each expansion chamber opposite to the abrupt wall or abutment 17 being formed to produce a cam surface 19′ for depressing the pistons successively to pass the succeeding stationary abutment. Preferably the rotor carries a considerably greater number of pistons than the number of expansion chambers to insure the maintenance of a continuous operating pressure or impulse upon the rotor to avoid dead centers, and the pistons are shouldered at opposite ends as indicated at 20 for cooperation with cam guides 21 on the inner surfaces of the heads of the casing to maintain said pistons in their extended and operative positions during their progress through the expansion chambers until they reach the cam faces 19. The exhaust ports from the several expansion chambers are indicated at 22 and the inlet ports at 23, the latter being disposed to project water upon heating or flash plates 24 which are set in insulating beds 25 in the abrupt walls 17 constituting the stationary abutments of the engine, and said flash plates are adapted to be maintained in a state of incandescence or at a temperature sufficient to instantly convert water projected against the same into steam, by suitable electrical energy conveyed thereto from any suitable source (not shown) through the conductors 26. The water is supplied in timed relation with the speed of rotation of the rotor by means of pumps 27 arranged in communication with the feed ports 23 and operated by rotary tappets 28 having pinions 29 for engagement by mutilated gear sections 30 on a wheel or disk 31 carried by the shaft of the rotor. The pistons of the pumps are preferably spring returned after each actuation in preparation for the succeeding impulse, the spring being indicated at 27′.

Moreover in order to insure the prompt extension of each wing or gate after it passes an abutment 17 there is arranged between the adjacent extremities of succeeding cam guides 21 a tappet 32 having a pinion 33 for engagement by gear faces 34 on the rotor as shown in Figures 1 and 2.

Having thus described the invention, what I claim is:—

1. A rotary engine having a stator, a rotor operable in the stator having pistons movable outwardly with respect to the periphery thereof, the stator having walls arran

substantially tangentially to said periphery to provide expansion chambers as a power medium, said walls adjacent one end constituting cam portions terminating relatively close to said periphery, cams extending inwardly from the side walls of the stator and engageable with the pistons to move and maintain them in contact with the said walls of the expansion chambers until they engage said cam portions, rotatable tappets on the rotor intermediate said cams provided with gear teeth, and gear teeth on the rotor to engage said teeth to drive the tappets to cause them to extend the pistons after disengagement with one wall of and into engagement with the succeeding wall of said expansion chambers.

2. A rotary engine having a stator, a rotor operable in the stator having pistons movable outwardly with respect to the periphery thereof, the stator having walls arranged substantially tangentially to said periphery to provide expansion chambers as a power medium, said walls adjacent one end constituting cam portions terminating relatively close to said periphery, cams extending inwardly from the side walls of the stator and engageable with the pistons to move and maintain them in contact with the said walls of the expansion chambers until they engage said cam portions, rotatable tappets on the rotor intermediate said cams provided with gear teeth, gear teeth on the rotor to engage said teeth to drive the tappets to cause them to extend the pistons after disengagement with one wall of and into engagement with the succeeding wall of said expansion chambers, a shaft journaled on the stator and carrying said rotor, a wheel on said shaft exteriorly of the stator, gear teeth on said wheel, pumps to supply water to said chambers, tappets to operate said pumps having gear teeth to mesh with the last mentioned gear teeth, and means to vaporize the water as it enters the chambers.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. DAWSON.

Witnesses:
MALINDA GOLLOHITZ,
W. T. HAMBRIGHT.