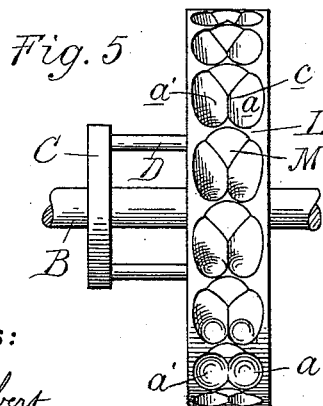
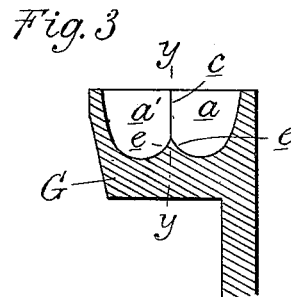
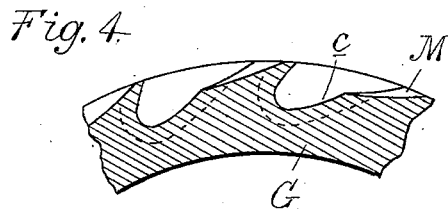
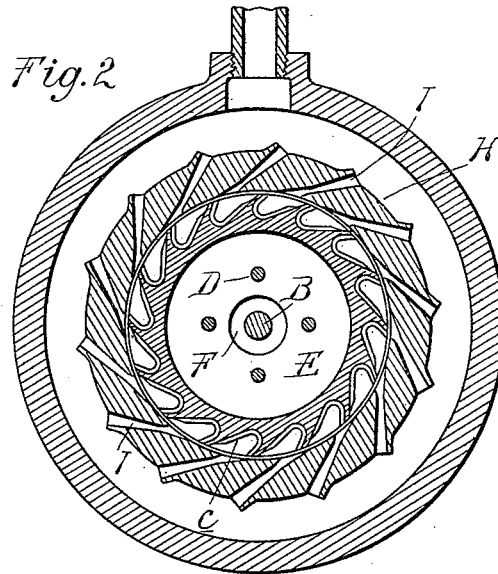
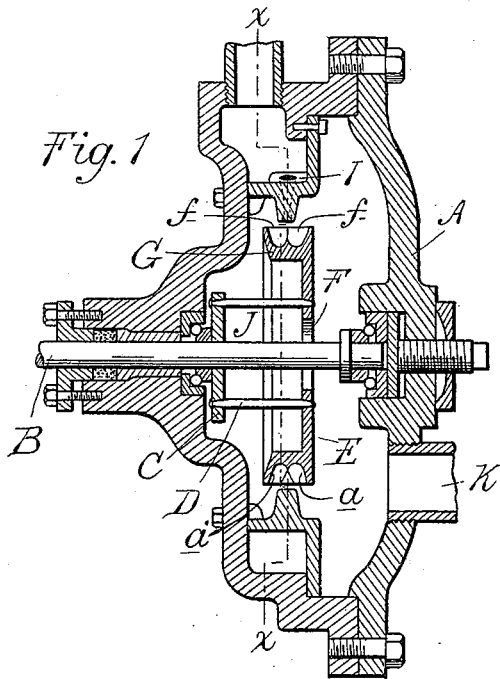


(No Model.)

J. F. McELROY.  
ROTARY ENGINE.

No. 525,793.

Patented Sept. 11, 1894.



Witnesses:  
P. M. Hulbert  
M. D. O'Leary.

Inventor.  
James F. McElroy  
By Tho. S. Sprague & Son  
Attys

# UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF ALBANY, NEW YORK, ASSIGNOR TO THE CONSOLIDATED CAR-HEATING COMPANY, OF WHEELING, WEST VIRGINIA.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 525,793, dated September 11, 1894.

Application filed January 16, 1894. Serial No. 497,069. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of a steam wheel or disk, against which the steam or other fluid may be directed by jets or nozzles, and particularly in the construction of the pockets or cavities into which the nozzle discharges centrally, whereby the propelling fluid will be deflected out of the pockets at both sides without intersecting the path of the incoming fluid, and further in the peculiar construction, arrangement and combination of the various parts.

In the drawings, Figure 1 is a vertical, central section in the line of the shaft. Fig. 2 is a section on line *x x* Fig. 1. Fig. 3 is an enlarged section of the steam wheel similar to Fig. 1. Fig. 4 is a section on line *y y*, Fig. 3, and Fig. 5 is an elevation of the steam wheel.

This invention is an improvement upon the construction described in my previous application, Serial No. 489,469.

A is the shell or casing. B is the shaft journaled in suitable bearings therein.

The steam wheel or piston I preferably connect with the shaft through a flexible or elastic connection. In the drawings I have shown this accomplished by means of a disk C secured upon the shaft, and a series of spring arms D secured at one end to the outer edge of the disk and at the other ends to the steam wheel E. The wheel is provided with the central aperture F embracing the shaft, the aperture being sufficiently large to allow of vibration of the spring arms D to any desired extent without danger of the wheel striking the shaft in such vibration.

At the outer edge of the wheel is an overhanging flange G in which I form the pockets or cavities. These pockets consist of two tapering inclined recesses *a a'* arranged as nearly tangential as can be conveniently done and gradually enlarging from the bottom toward the top. The dividing wall between the

cavities forms a division only in the shape of a sharp ridge *c* extending centrally between the two, and having oppositely inclined faces *e*.

H is a steam ring around the wheel provided with a series of inclined discharge nozzles I. This ring is narrower than the mouths of the pockets or cavities and is arranged centrally over the same so as to bring the nozzles directly above the flange *c* between the two pockets and leave free exhaust openings *f* between the sides of the ring and the edges of the pockets at both sides.

The parts being thus constructed steam being admitted to the steam ring will flow through the nozzles and from the nozzles will enter the pockets, striking the ridge and dividing thereon, about half passing to each side and following the curved line of the bottom and sides, finding exit into the chamber J around the wheel, in the casing. I thus obtain the benefit of the impact of the steam upon the wheel and the reaction of the exhaust, and at the same time the velocity of the fluid is not impeded, as the steam is deflected by the shape of the pockets in connection with the dividing flange, so that the exhaust steam never reacts against the incoming steam. Steam entering the chamber J finds an outlet through the exhaust pipe K.

I preferably cut away the wall L between the two pockets, as shown at M, so that all the steam leaving the nozzles will enter the pockets as the dividing wall between the pockets is thus provided with a sharp edge. This construction allows the steam to get out of the way of the inflowing jet and reduces very decidedly the resistance of the flow of the jet.

What I claim as my invention is—

1. In a rotary motor, a wheel comprising a solid metal rim having a series of pairs of inclined pockets therein, the pockets of each pair being divided by a tapering ridge, and a circular steam ring having a circular series of jet nozzles extending therefrom into close proximity to and in line with the tapering dividing wall of the pockets, whereby a free passage for the steam is formed at the sides of the nozzles, substantially as described.

2. In a rotary motor, a wheel having a se-

ries of peripheral pockets therein arranged in  
pairs, a tapering dividing wall between the  
pockets of each pair, and a flat inclined cut-  
away portion M, at the rear of the wall, and  
5 a circular series of protruding jet nozzles ar-  
ranged in proximity to and in line with the  
said wall, substantially as described.

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

JAMES F. McELROY.

Witnesses:

RALPH W. KIRKHAM,  
MARY AGNES BURKE.

It is hereby certified that the residence of the assignee in Letters Patent No. 525,793, granted September 11, 1894, upon the application of James F. McElroy, of Albany, New York, for an improvement in "Rotary Engines," was erroneously written and printed "Wheeling, West Virginia," whereas said residence should have been written and printed *Albany, New York*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 2d day of October, A. D. 1894.

[SEAL.]

JNO. M. REYNOLDS,  
*Assistant Secretary of the Interior.*

Countersigned:

S. T. FISHER,  
*Acting Commissioner of Patents.*