

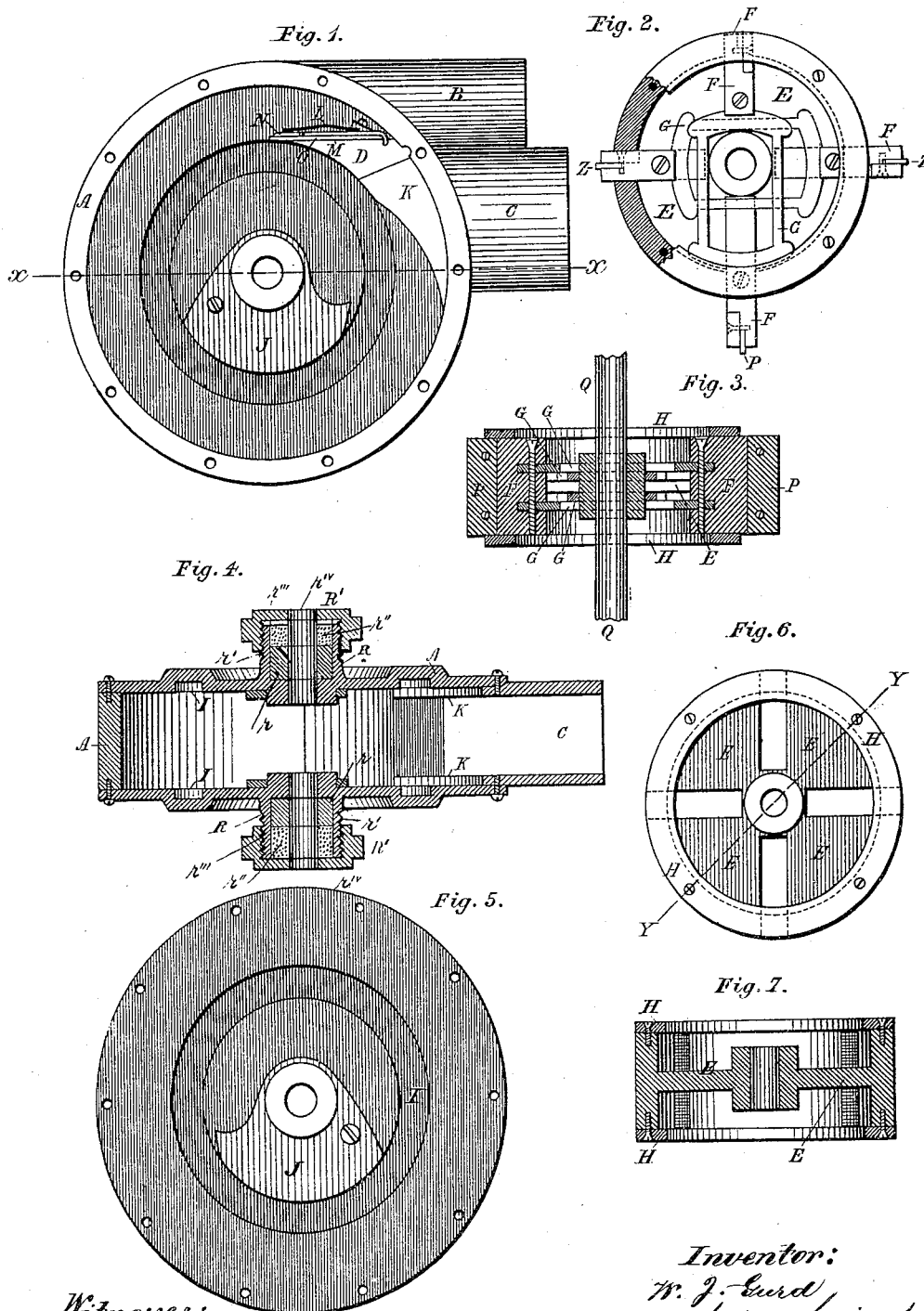
(No Model.)

W. J. GURD.

ROTARY MOTOR.

No. 263,510.

Patented Aug. 29, 1882.



Witnesses:
John Grist,
A. Harvey

Inventor:
W. J. Gurd,
By: Henry Grist
Att'y

UNITED STATES PATENT OFFICE.

WILLIAM J. GURD, OF SARNIA, ONTARIO, CANADA.

ROTARY MOTOR.

SPECIFICATION forming part of Letters Patent No. 263,510, dated August 29, 1882.

Application filed March 23, 1882. (No model.)

To all whom it may concern :

Be it known that I, WILLIAM JOHN GURD, of Sarnia, in the county of Lambton, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful improvements in Rotary Motors; and I hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to a rotary motor of that class wherein the inflow-pressure acts upon diametrically-reciprocated buckets of the driving-wheel, and the object of the invention is to obtain uniformity of motion.

The invention consists of a cylindrical wheel-case having inlet and outlet apertures in close proximity, an intervening abutment in frictional contact with a driving-wheel concentrically journaled within the case, said wheel having radially-sliding buckets which are re-
ceded and projected by cams in front of the abutment, and locked after being projected until again re-
ceded by cams on the heads of the wheel-case.

Figure 1 is a plan of the interior of the cylindrical wheel-case, the wheel removed. Fig. 2 is an end view of the wheel removed from the case. Fig. 3 is a section of the wheel on line Z Z, Fig. 2. Fig. 4 is a section of the case on line X X, Fig. 1. Fig. 5 is a plan of the inner side of the heads of the case with cam. Fig. 6 is an end view of the wheel, the buckets and yokes removed. Fig. 7 is a section of the same on line Y Y, Fig. 6.

A is the cylindrical wheel-case, having inlet B and outlet C in close proximity, separated by a fixed abutment, D, having an inclined face in frictional contact with the driving-wheel, which is journaled concentrically in the case by shaft Q, thus forming an annular water-way between the wall of the case and the face of the wheel of uniform area throughout its entire length, from the induction to the education orifices, the abutment diverting the outflow and dividing it from the inflow, which passes nearly around the wheel. The face of the wheel and plate E, connecting it to the hub, are radially slotted cruciformly up to the hub, and said slots are occupied by sliding buckets F, which are diametrically connected by yokes G G, arranged crosswise, the shaft Q passing through the slots in the yokes.

The driving-wheel has flat rims H H, which

run in annular grooves I I in the heads of the case, and fit therein to run without leakage.

K K are cams affixed at the discharge-outlet in advance of the abutment D, and against which cams the buckets successively impinge and are thereby forced inward, thus permitting the buckets to pass the abutment, and at the same time project diametrically, the opposite bucket to receive impulse from the inflow through passage B to drive the wheel. The buckets are connected so that a projected bucket is yoked to a re-
ceded one, and when projected are held intermittently locked by
cams J J on the heads of the case, which cams have contact by the rotation of the wheel with the inner end of the projected bucket, and on approaching cams K K the bucket passes from engagement with cams J J, and is free to be acted upon by cams K to pass the abutment after discharging the water.

L is a flat spring, one end fixed to a plate, M, or to abutment D, and to the opposite free end is attached a plate, N.

O is a sheet of packing or leather underlying plate M, with a flap extending under plate N, to prevent leakage by covering the joint between the wheel and the abutment, the packing or leather flap being held frictionally against the wheel by the tension of the spring exerted upon plate N asserted by pressure of the inflow.

P is a strip of packing or other flexible material secured to the ends of the buckets to sweep the wall of the case, and thereby prevent leakage while the buckets are locked by the cams J J.

The shaft Q is journaled in boxes R on the heads of the case A. These boxes R are each formed with an internal cavity, r , and also with an external screw-thread, r' . Within the cavities r suitable packing-rings or materials, r'' , are placed. Upon each box R is screwed a cap, R', formed with an internal screw-thread, and a hole, r''' , in the top of said cap, through which the shaft Q passes. When the nuts or caps R' are screwed upon the boxes R, the packings r'' being in proper position, water-tight bearings are formed for the shaft Q.

When the motor is in operation the inflow passes by the end of a closed bucket at a quarter-section from the inlet before striking a bucket fully projected at the half-section, the

pressure remaining in said open or projected bucket during the next quarter-rotation of the wheel, and discharges the water through the outlet during the fourth quarter-rotation, two
5 buckets momentarily taking the inflow until one is cut off by the full projection of the other intercepting the inflow.

I have herein specified the motor as applicable for operation by water; but I do not confine myself to the use of any particular pressure, as steam and gaseous fluids may be used with good results.

I claim as my invention—

1. In a rotary motor, the cylindrical case A,
15 provided with induction and eduction apertures B and C, cam K, and abutment D, said abutment being provided with plates M and N, packing O, and spring L, in combination

with a concentric wheel mounted centrally upon a shaft within the casing, and provided with buckets F and yokes G, substantially as
20 and for the purposes described.

2. In a rotary motor, the cylindrical case A, provided with the induction and eduction apertures B and C, cam K, abutment D, said abutment being provided with plates M and N,
25 packing O, and spring L, and the cam J, in combination with a concentric wheel mounted centrally upon a shaft within the casing, and provided with buckets F and yokes G, substantially as and for the purposes set forth.
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