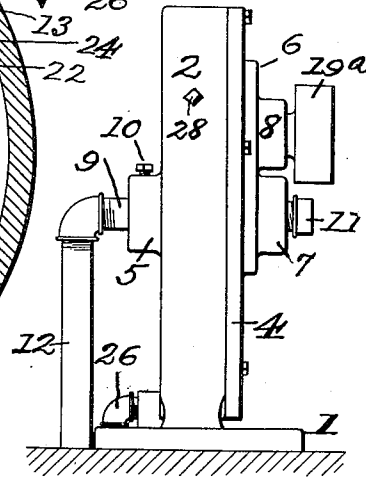
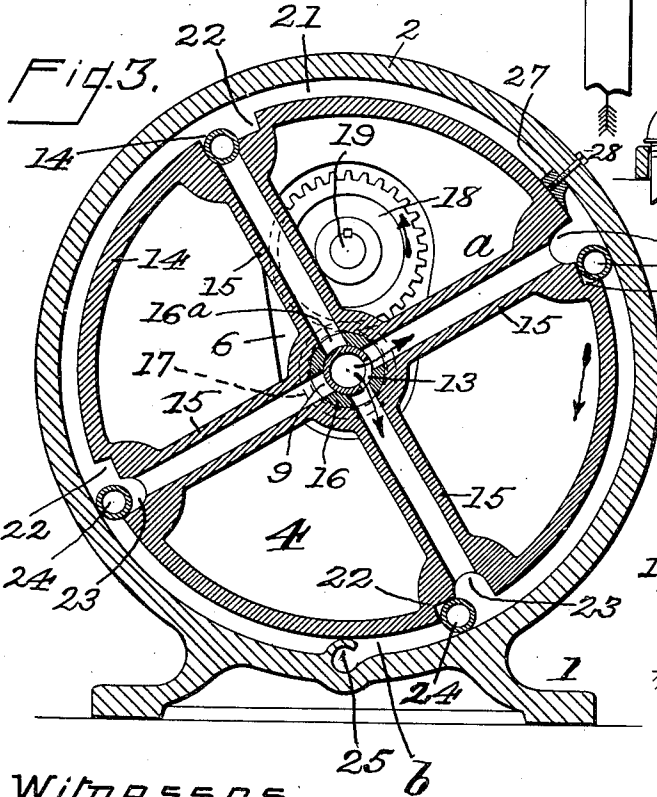
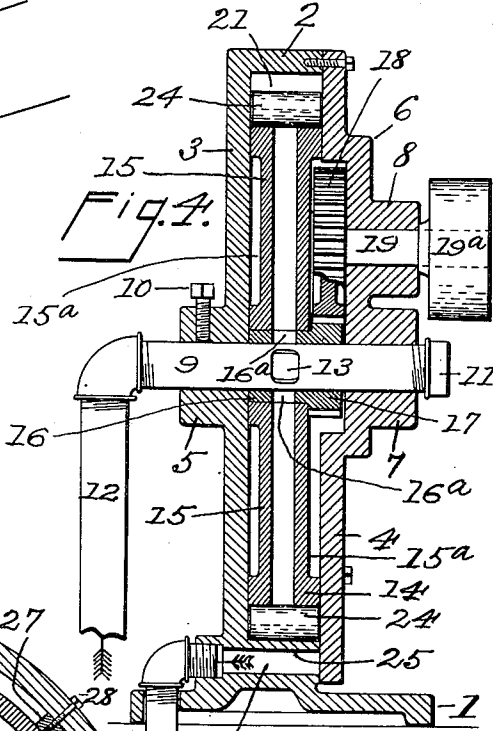
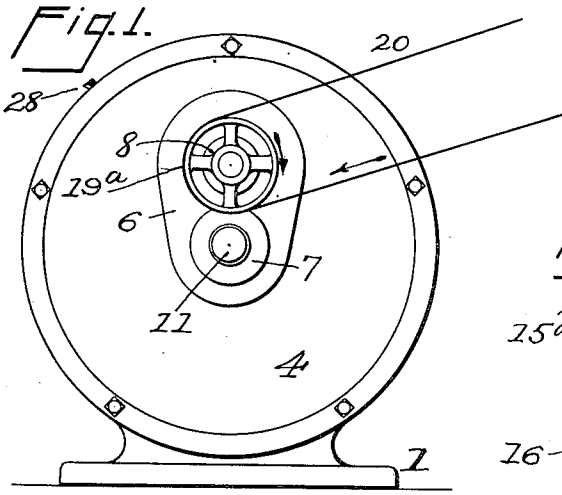


No. 855,590.

PATENTED JUNE 4, 1907.

J. RIPBERGER.
ROTARY MOTOR.
APPLICATION FILED MAR. 14, 1907.



Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB RIPBERGER, OF BELLEVUE, KENTUCKY, ASSIGNOR OF ONE-HALF
TO WILLIAM RAYMOND THIEM, OF NEWPORT, KENTUCKY.

ROTARY MOTOR.

No. 855,590.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed March 14, 1907. Serial No. 362,308.

To all whom it may concern:

Be it known that I, JACOB RIPBERGER, a citizen of the United States of America, and a resident of Bellevue, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Rotary Motors, of which the following is a specification.

This invention has relation to rotary-motors especially adapted for use by means of water-pressure in the ordinary hydrant service, although it will be quite obvious from the following details of description, taken in connection with the accompanying drawings, that the device is capable of use under other water pressure, and also, gas and steam pressure as occasion and convenience may be present.

The invention consists in a cylindrical shell or receptacle, a rotary hollow-armed driving-wheel in the receptacle, but of lesser diameter than the latter, a horizontal hollow shaft having an orifice and carrying said wheel free to turn thereon within said receptacle, seats or notches in the periphery of the wheel communicating with the outer ends of the hollow arms thereof, freely-disposed floats or buckets in the seats or notches of the wheel and adapted to span the annulus between the wheel and shell to receive the impact of the water or other pressure-medium and force the wheel to rotate, a pinion mounted to turn with the wheel and a spur-gear mounted to turn and mesh with said pinion for transmitting motion to the driven devices.

Other novel features of the invention will be fully hereinafter described and particularly pointed out in the claims.

In the drawings forming a part hereof, Figure 1 is a side elevation; Fig. 2, an end elevation; Fig. 3, a central longitudinal section; and Fig. 4, a vertical central section taken at right-angles to Fig. 3, but with the driving-wheel somewhat advanced so that a pair of its hollow arms are perpendicular to its axis and at a point where the pressure discharges and ceases to be effective in further turning the wheel.

1 indicates the base, 2 the circular rim, 3 the closed immovable side integral with the circular rim, and 4 the removable side or plate fitting the open side of the rim, the

whole forming a shell or receptacle adapted to contain the operative parts of my device.

5 is a central outwardly-projecting boss on the rigid side-wall 3, and 6 is an outwardly-projecting housing on the removable side-wall 4, bosses 7 and 8 being provided on outer faces of the latter wall.

9 indicates a hollow horizontal shaft supported in the bossed portions 5 and 7 of the side walls 3 and 4 respectively, and held immovable by means of a set-screw 10 in said boss 5. A cap 11 is fitted to the outer end of shaft 9 and an elbowed inlet-pressure pipe 12 is attached to the opposite end of the said shaft, an outlet-orifice 13 being made in the shaft, intermediate its ends, for the purpose I will now describe.

The driving-wheel of the device is a skeleton one made up of a rim 14 and hollow radial arms or spokes 15, and is provided with an enlarged central orifice in which is keyed or otherwise rigidly secured the hub-extension 16 of a toothed pinion 17, the latter being in turn mounted on the rigid shaft 9 but free to turn thereon and carry said driving-wheel on it as an axis within the shell. The hub-extension 16 is provided with orifices 16^a coinciding with the passage-ways in the hollow arms 15 of the wheel and, also, coinciding with the orifice 13 in the shaft as the wheel turns on the latter, (as best seen in Fig. 3.) The hollow arms 15 are made of lesser outer diameter than the space between the side walls of the shell, as best seen at 15^a in Fig. 4, so as to reduce the frictional resistance of the wheel as much as possible.

18 is a spur-gear forming a back-gear on the inner side of the housing 6 and mounted on a shaft 19 extending outwardly through the boss 8 to receive a pulley 19^a, which in turn is engaged by a belt 20 or other suitable means of transmission to the devices to be driven. The gear 18 meshes with the pinion 17 whereby it is driven.

The wheel is of lesser diameter than that of the interior of the rim 2 to provide an annulus 21, and notches 22 and 23 of two depths are provided in the rim at the outer ends of the several hollow arms 15, each notch 22 being right-angled and each notch 23 being concaved and the latter located in direct line with the passage-way of the hollow-arm.

24 represents each one of a series of freely-disposed floats or buckets engaging the notches 22 and 23, each set of the notches 22 and 23 having its own float or bucket 24 and each float being preferably made of a short section of tubing that offers as little resistance-weight as possible in the progress of the wheel on its axis.

In the operation of the device, water or other pressure-means enters the pipe 12 and hollow shaft 9, passing from the orifice 13 in the latter to each passage-way in the hollow arms or spokes 15 as they approach the position *a*, (Fig. 3). The float or bucket 24 at this time lies in the angular notch 22 with part of its periphery engaging the inner face of the rim 2 free, however, to roll or turn in contact therewith. The pressure of the water on the said float now impinges on the latter, to such a degree of force as to cause the wheel to turn on its axis, such impinging-force maintaining until the float reaches a diverting-projection 25 in the lowermost portion *b* of the annulus, when such float is caused to retreat into the seat or notch 23 and the pressure discharging or spending its force into the outlet-passage 26. The float then continues with the wheel, dropping outward into the annulus by gravity (as seen to the left, Fig. 3) and then dropping by gravity into its seat 23 (at the upper portion of Fig. 3) maintaining the latter position until it rolls outward with the water-pressure against it into the annulus again (as seen at right in Fig. 3) ready for its turn again in the driving-operation. A block 27 is secured in the annulus by means of a screw 28, (at upper right side Fig. 3) at a point just ahead of the time that the water is designed to flow through the hollow arm for the forward propelling-motion of the wheel, and prevents any backward flow of the water in the annulus or consequent backward-pressure on the wheel. The orifice 13 in the shaft is of such length that the flow of water ceases at about the time the diverting-projection 25 is reached by the float and the water is ready for discharge into the outlet-passage 26, such water having spent its force and not to be used further than the diverting-projection 25 to retard the wheel.

I claim:—

1. A rotary motor comprising a cylindrical shell having a removable side, an internal driving-wheel having hollow spokes or arms and recesses or notches in its rim at the outer end of each hollow spoke, a horizontal tubular shaft rigidly mounted in the shell-walls and supporting the driving-wheel, a rotary pinion mounted on the rigid shaft

and having a hub-extension on which the driving-wheel is rigidly mounted, suitably registering inlet and exit orifices in the shaft and hub-extension and leading through the hollow wheel-arms to the respective notches in the rim, an internal spur-gear mounted on one side of the shell and meshing with said pinion, a pulley mounted on the outer end of the spur-gear shaft and freely-disposed floats or buckets alternately engaging the several seats of recesses or notches made in the driving-wheel rim for receiving the impact of the water or other pressure-medium.

2. A rotary motor comprising a shell, a hollow shaft having an inlet and an outlet water or pressure-medium passage and rigidly mounted in the side-walls of the shell, a driving-wheel having hollow arms leading to the water passage in said shaft and mounted to turn on the rigid shaft within the shell, notches or recesses in the rim of said wheel at the outer ends of its hollow arms, a pinion mounted on the shaft concentric to and connected with the driving-wheel, a housing construction on one side-wall of the shell, a spur-gear in the housing and meshing with the pinion and having a shaft provided with an outer driving-pulley, a discharge opening or water outlet at the bottom of the shell, and freely-disposed hollow floats or buckets engaging said notches in the periphery of the driving-wheel for carrying or rotating the latter on the rigid shaft by the impact of the water or pressure-medium passing through the hollow arms or spokes into an annulus between the respective rims of the wheel and shell.

3. In a device of the character described, a shell, a driving-wheel within the shell, a shaft supporting said driving-wheel and provided with water inlet and outlet passages, passage-ways in said wheel, two-part notches or recesses in the periphery or rim of said wheel, short tubes comprising floats or buckets gravitating in the notches of the wheel-rim and engaging the inner face of the shell-rim for receiving the impact of the pressure-medium, a float or bucket diverter in the shell, a discharge-outlet for the pressure-medium adjacent the diverter, and a back-stop in the annulus provided between the rims of the wheel and shell.

Signed at Cincinnati, Ohio, this 2d. day of March, 1907.

JACOB RIPBERGER.

Witnesses:

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NORMA KEISER.