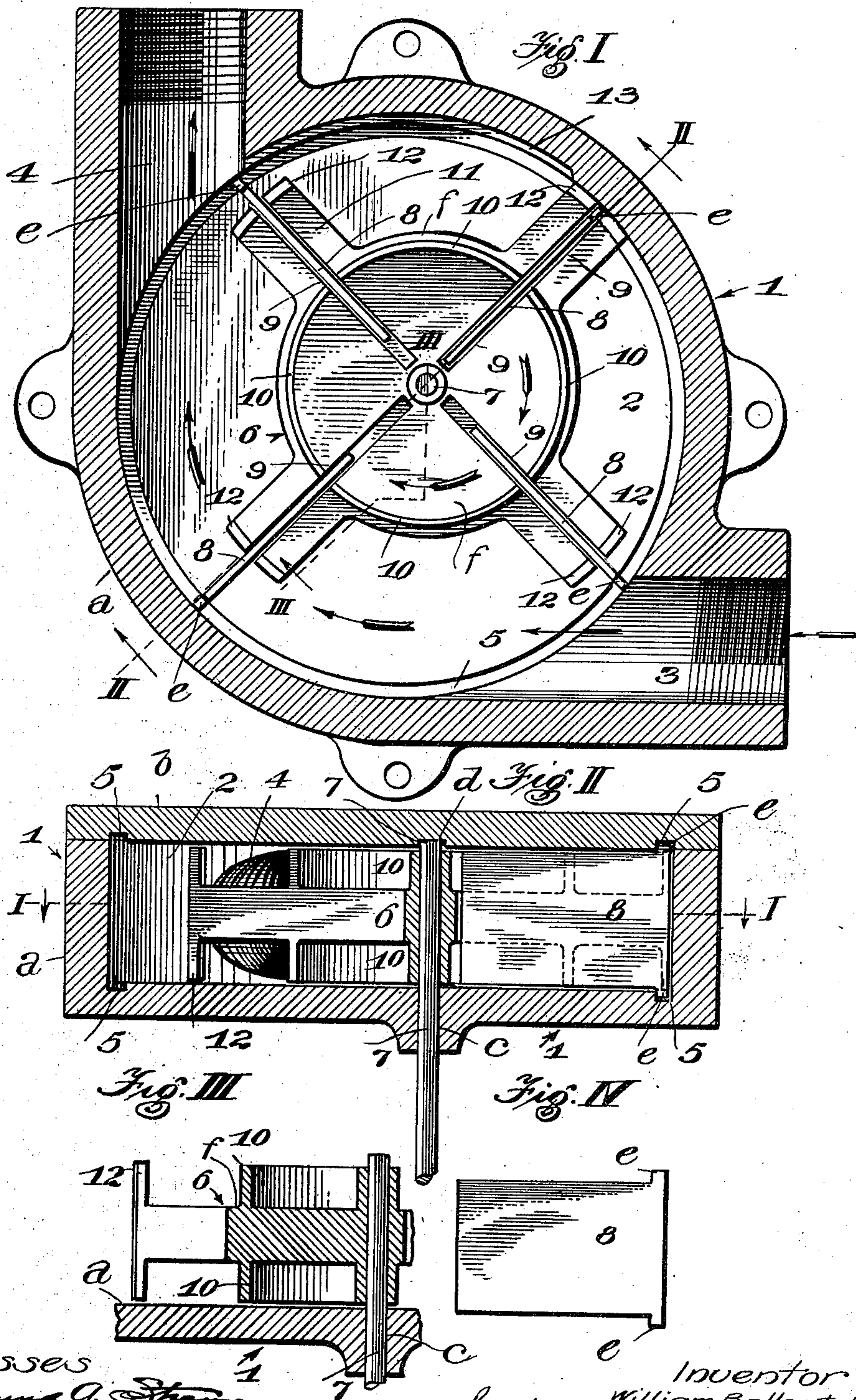


No. 732,818.

PATENTED JULY 7, 1903.

W. BALLERSTEDT.
MOTOR, METER, OR PUMP.
APPLICATION FILED AUG. 11, 1902.

NO MODEL.



Witnesses
Edmund G. Thane,
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his attys.

UNITED STATES PATENT OFFICE.

WILLIAM BALLERSTEDT, OF LOS ANGELES, CALIFORNIA.

MOTOR, METER, OR PUMP.

SPECIFICATION forming part of Letters Patent No. 732,818, dated July 7, 1903.

Application filed August 11, 1902. Serial No. 119,337. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BALLERSTEDT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Motors, Meters, or Pumps, of which the following is a specification.

An object of this invention is to provide a machine which may serve as a motor, meter, or pump to be acted upon by or to act upon water or other liquids.

An object of this invention is to provide a very simple and effective device which is adapted to be used as a motor, meter, or pump and when so used may be most effectually employed with water under a high pressure.

The accompanying drawings illustrate the invention.

Figure I is a plan showing a case in section on line I I of Fig. II. The carrier and reciprocating blades are shown intact. Fig. II is a sectional elevation on irregular line II II, Fig. I, looking toward the outlet-opening, showing one of the sliding blades and omitting another. Fig. III is a fragmental detail showing portions of the case, shaft, and rotary carrier from line III III, Fig. I. Fig. IV is an elevation of one of the blades or wings detached.

This motor, meter, or pump comprises a case 1, which may be formed of two pieces *a* and *b*, fastened together by any suitable means, (not shown,) having a circular chamber 2, an inlet 3, and an outlet 4 therefor, a circular way 5, desirably formed of two grooves, one in the member *a* and the other in the member *b*, and bearings *c* and *d*, concentric with said walls and way.

6 is a rotary carrier having radial ways and a journal 7, formed of a shaft extending through the rotary carrier and mounted in the journal-bearings *c* and *d*.

8 designates blades, one for each of the radial ways 9, and each provided with a lug *e* at top and bottom at one end, and arranged to fit in said circular way 5. The blades fit in the radial ways 9, so that when the carrier rotates the blades will be drawn out and be pushed in by reason of the engagement of the lugs *e* with the walls of the circular way 5.

The carrier 6 is desirably provided with a radially-slotted web *f*, a circular slotted wall 10, concentric with the journals 7, and guide extensions 11, having arms or uprights 12 for holding the blades vertical relative to the top and bottom *b* and *a* of the case 1. The inlet 3 and the outlet 4 are desirably oppositely arranged tangentially of the chamber, and the inner wall of the chamber is provided with a recess 13, extending from the outlet 4 about a quadrant to allow liquid to escape from the contracting space between two blades.

The outer ends of the blades 8 desirably form a fairly close joint with the inner wall of the chamber, and in practical operation when water is admitted through the inlet 3 it acts on the blades. The journal-bearings *c* and *d* are located within the angle between the inlet 3 and the outlet 4, so that the greatest radius from the center of the bearing to the wall of the bearing is midway between the inlet 3 and outlet 4 and the shortest radius from bearing center to wall is about midway between the inlet and outlet inside the angle formed between the same.

In practical operation when a considerable force of water under pressure is admitted at 3 the same acts upon the greater area of that one of the wings 8 which is outside of the slotted wall 10 and between the inlet and outlet 3 and 4. The other wings will have less area exposed to the pressure of the water, and therefore the wings and their carrier are rotated in the direction of the arrows. Liquid from between the wing at the outlet 4 and that at the shortest radius escapes back through the recess 13 as the content of the space between said wings lessens, thus allowing the device to rotate freely under direct action of the water-pressure.

The radially-slotted web, with its slotted wall, serves as a light guide for the blades and prevents the free passage of liquid except as the carrier turns.

The lugs *e* may be variously formed and serve to support the blades and allow them to move radially without excessive friction.

The circular way may be located where desired concentric with the walls of the case, and the lugs *e* in any instance are located correspondingly thereto, so as to move therein freely.

By limiting the play of said wings to half their length or less I am enabled to avoid using telescopic or jointed wings, which are more expensive and less satisfactory in operation.

5 Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a motor, meter or pump, in combination, a case having a circular chamber, an inlet and an outlet therefor, a circular way concentric with the walls of the chamber, and bearings eccentric to said walls and way, a rotary carrier having journals in said bearings, said carrier comprising a circular web provided with a wall concentric with said journals and extending to the side wall of the chamber, a guide extension projecting beyond said first-named wall and stationary with relation thereto, there being a radial blade-guiding slot extending through the width of the carrier and its extension, and a blade slidably mounted in said slot.

2. A blade-carrier for a motor, meter or pump having a web, a circular outer wall substantially perpendicular to the web, and suitably-spaced extensions projecting beyond said wall, there being radial guide-slots extending through said extensions and wall and inwardly into the web.

3. A blade-carrier for a motor, meter or pump having journals, a slotted wall and guide extensions, projecting beyond said wall and stationary with relation thereto.

4. A blade-carrier for a motor, meter or pump having journals, a slotted circular wall and guide extension, projecting beyond said wall and stationary with relation thereto.

5. A blade-carrier for a motor, meter or pump having journals, a slotted wall, guide extensions stationary with relation to the wall and furnished with upright arms.

6. A case having a circular chamber, an inlet and an outlet; a blade-carrier journaled eccentrically in the chamber and having a circular slotted wall, radiating guideways, and blade-guide extensions radiating from the wall and stationary with relation thereto, blades in said guides respectively, and

means for holding the ends of the blades nearly in contact with the wall of the chamber as the carrier rotates. 50

7. A case; a carrier journaled eccentrically in the case and having a radially-slotted web, wall, and radial extensions projecting beyond said wall and stationary with relation thereto, blades in the slots, and means for holding the blades nearly in contact with the walls while the carrier turns; an inlet and an outlet being provided for the case. 55

8. In a motor, meter or pump, in combination, a case having a circular chamber, an inlet and an outlet therefor, a circular way concentric with the walls of the chamber, and bearings eccentric to said walls and way, a rotary carrier having journals in said bearings, said carrier comprising a circular web provided with a circular wall extending around the periphery of the web and across the inner width of the case, a guide extension projecting beyond said circular wall and stationary with relation thereto, there being a radial blade-guiding slot extending through said extension and circular wall, and a blade slidably mounted in said slot. 60

9. In a motor, meter or pump, in combination, a blade-carrier having journals, a slotted circular wall and guide extensions stationary with relation to said wall; radial blades in said carrier; and means limiting the play of said blades to less than half the length thereof. 75

10. In a motor, meter or pump, in combination, a blade-carrier having journals, a slotted wall, guide extensions projecting beyond said wall and stationary with relation thereto; blades playing in said guide extensions; and means limiting the play of said blades to less than half the length thereof. 80

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, county of Los Angeles, and State of California, this 5th day of August, 1902. 90

WILLIAM BALLERSTEDT.

Witnesses:

JAMES R. TOWNSEND,
F. M. TOWNSEND.