(No Model.)

J. H. DIXON.

FLUID METER OR MOTOR.

No. 602,311. Patented Apr. 12, 1898.

Fig. 1.

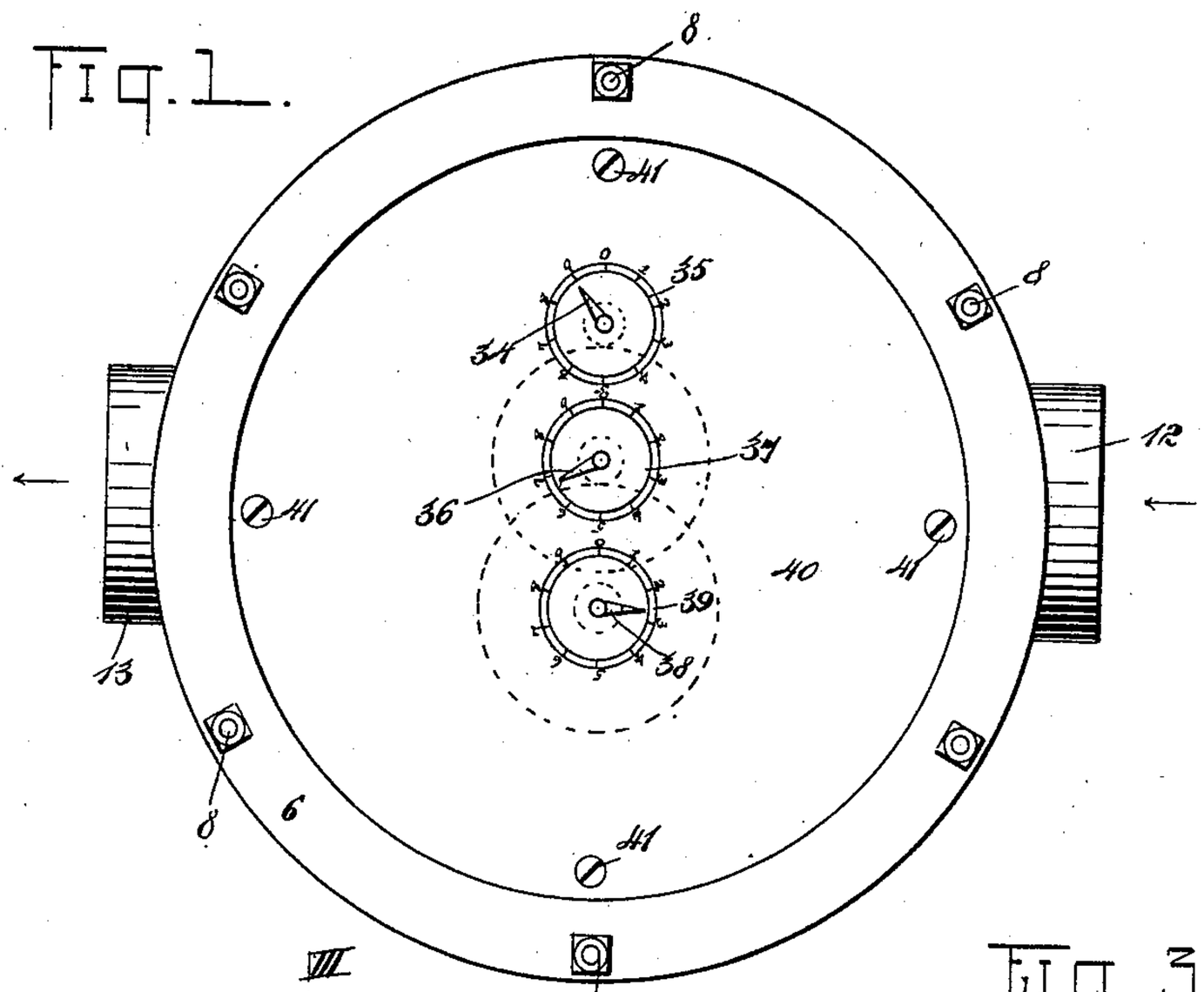


Fig. 2.

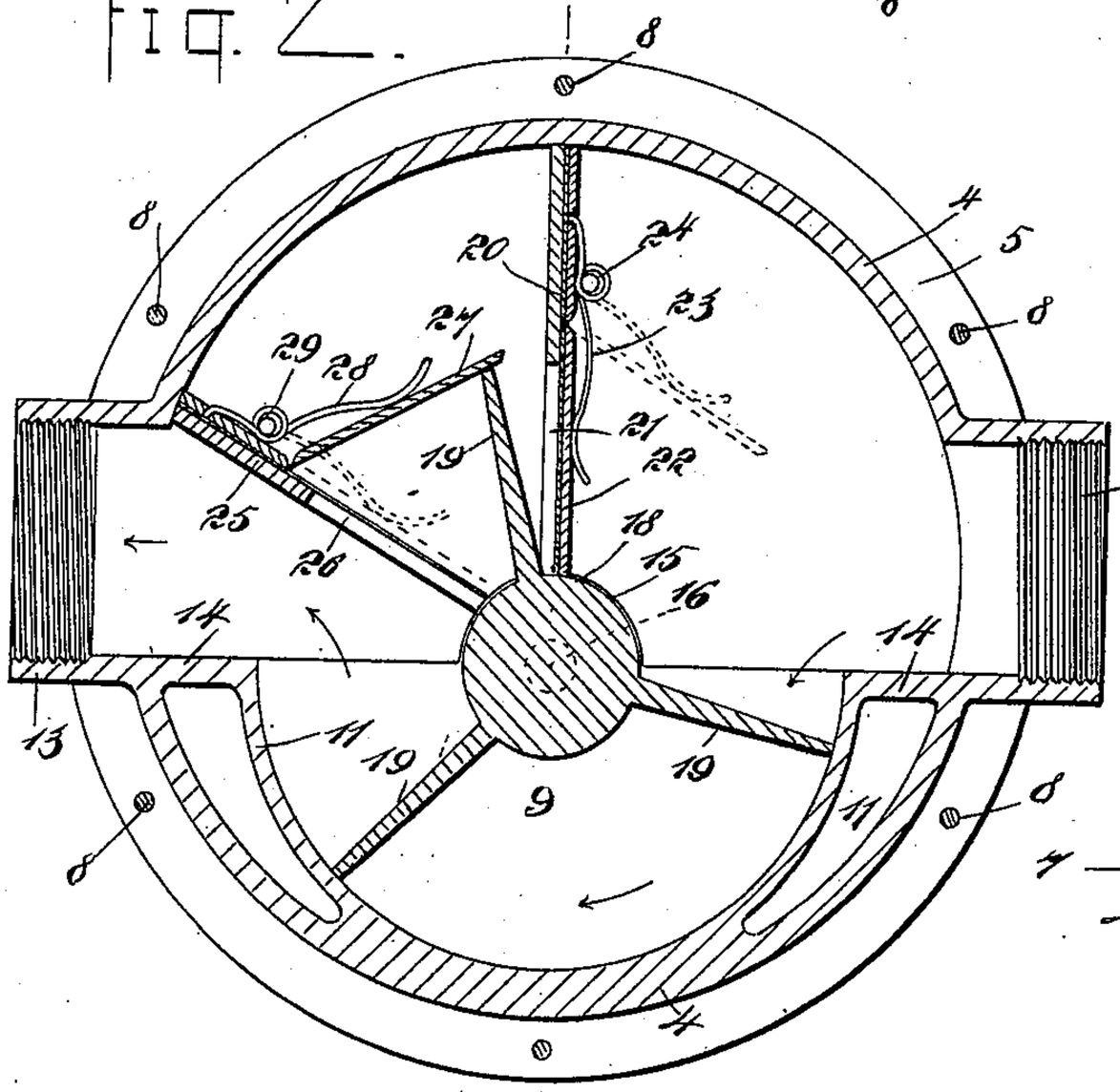
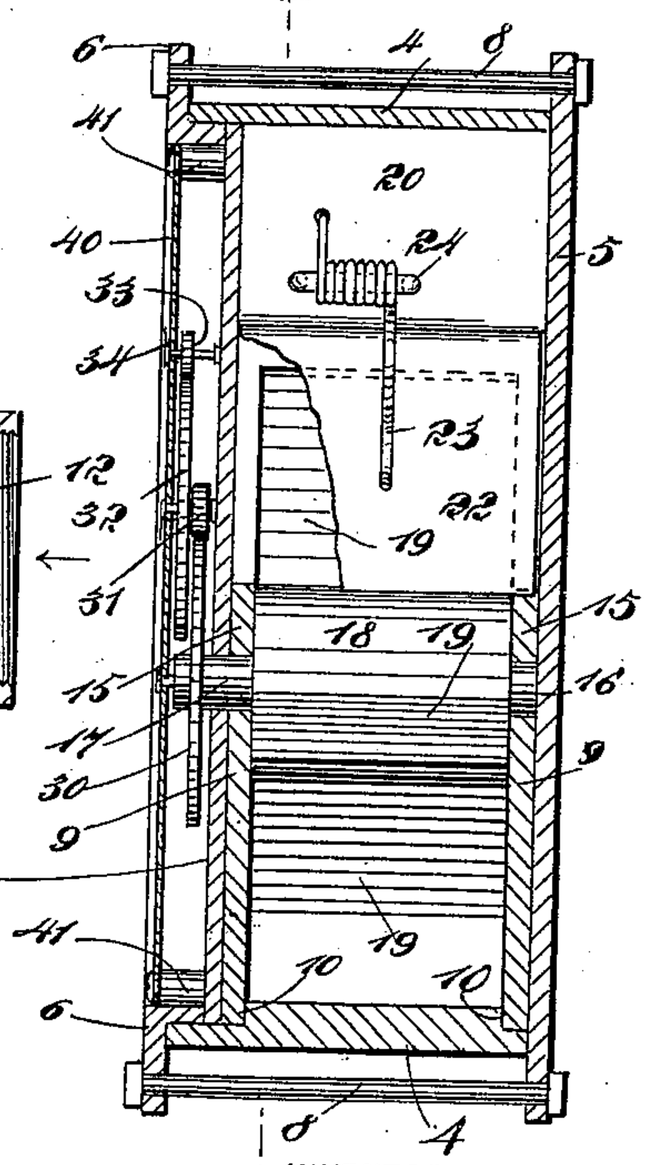


Fig. 3.



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JOHN H. DIXON, OF MARIETTA, OHIO.

FLUID METER OR MOTOR.

SPECIFICATION forming part of Letters Patent No. 602,311, dated April 12, 1898.

Application filed February 4, 1897. Serial No. 622,017. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DIXON, of Marietta, in the county of Washington and State of Ohio, have invented a new and Improved Fluid Meter or Motor, of which the following is a full, clear, and exact description.

The object of this invention is to provide a superior fluid-motor of the class in which a casing incloses a rotary shaft having paddles or blades against which the incoming fluid may act.

It is also an object of the invention to constuct the apparatus so that it may be used in connection with a meter for recording the amount of fluid passing through the machine.

The invention will be fully described hereinafter and defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my invention. Fig. 2 is a sectional view on the line II II of Fig. 3, and Fig. 3 is a sectional view on the line III III of Fig. 2.

The apparatus has a circular casing consisting of cylindrical sides 4, at the rear end of which is a circular head 5 and at the front end of which is a circular head 6, having an annular dish-shaped portion 7 projecting into the space inclosed by the sides 4 and engaging the inner face of said sides. Transverse tie-rods 8 extend between the heads 5 and 6 and serve to hold the parts of the body or casing in rigid adjustment. Lying against the inner sides of the heads 5 and 6 are the semicircular plates 9, the lower edges of which rest in rabbet-grooves 10, formed in the lower portions of the sides 4. The sides 4 are provided with interior walls 11, conforming to the shape of the plates 9 and producing a semicircular cavity at the lower portion of the casing, such cavity being eccentric to the circle of the sides 4 and having its upper edge located in a plane with the lowermost portion of the inlet 12 and outlet 13. The upper ends of the walls 11 are provided with horizontal continuations 14, extending outward from the walls and into connection with the sides 4 at the inlet 12 and outlet 13.

Each plate 9 is provided at the middle of its upper edge with a semicircular projection 15, extending upwardly and carrying the trunnions 16 and 17 of the shaft or drum 18, to which three radial blades 19 are fixed and arranged equidistant around the periphery of the shaft or drum 18. Extending vertically from the upper extremities of the projections 15 to the uppermost portion of the sides 4 and within the casing is a partition 20, the lower portion of which is provided with an orifice 21, through which the blades 19 may pass, the relative sizes of the blades 19 and opening 21 being such that barely sufficient space is provided between the two for clearance. The opening 21 is normally closed by a valve-plate 22, pressed to the closed position by a spring 23, the coil of which is held in a staple 24, carried at the upper portion of the partition 20. The blades 19, passing through the opening 21, will swing the valve-plate 22 to the position shown by dotted lines in Fig. 2, so that the blades may pass, and after the blades have passed the partition 20 the spring 23 returns the valve-plate 22 to its normal or closed position. Extending from the upper side of the outlet 13 diagonally downward and inward in a line radially with the axis of the shaft or drum 18 and projecting to the shaft or drum is a partition 25, similar to the partition 20 and having an opening 26, through which the blades 19 may move. The opening 26 is normally closed by a valve-plate 27, pressed by a spring 28, held by a staple 29, all of which is similar to the appurtenant parts of the partition 20.

The water or other fluid forced through the inlet 12 enters the casing and, pressing downwardly upon the adjacent blade 19, turns the shaft or drum 18 in the direction of the arrows shown in Fig. 2. The drum revolving throws the blades 19 successively through the openings 26 and 21, so that a continuous stream of fluid is maintained from the inlet 12 downward between the plates 9 and out at the exit 13. This drives the shaft or drum 18, from the trunnions of which motive power may be taken by any approved means.

The trunnion 17 of the shaft or drum 18 is extended through the plates 9 and through the dish-shaped portion 7 of the head 6. The outer end of the trunnion 17 has a spur-gear 30 fixed thereon, which meshes with a pinion 31, carried by a counter-shaft, also carrying a

spur-gear 32, in turn driving a pinion 33, carried on a stub-shaft, which further carries an indicator 34, working around a dial 35. The counter-shaft, whereon the gears 31 and 32 are mounted, carries an indicator 36, running around a dial 37, and the trunnion 17 has an indicator 38 mounted on its front end and coacting with a dial 39. The indicators 34, 36, and 38 are located outside of a face-plate 40, which is held by screws 41 within the dish-shaped portion 7 of the head 6, and on which plate the dials 35, 37, and 39 are produced. The fluid passing between the plates 9 and between the arms 19 of the shaft or drum 18 may be measured by this system of gears and dials, which composes a meter and which may readily be adjusted with reference to the known quantity of fluid passing through the casing. It is by these means that I provide a water or other fluid motor and a meter for the fluid in connection with which the device is used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A fluid meter or motor having a circular casing, the lower portions of the sides of which are provided with curved interior walls joined to horizontally-extending walls, forming a semicircular cavity eccentric to the circle of the casing, two semicircular plates respectively lying against the heads of the casing and at the inner sides thereof, each plate having an upwardly-extending lug at its middle portion, a drum located between the upwardly-extending lugs and having trunnions respectively mounted therein, blades secured to the drum and projecting radially therefrom, the blades being movable through the semicircular cavity of the casing, a partition radially extending upwardly from the drum and dividing the casing into two compartments, and a spring-pressed valve-plate closing an opening in the partition and permitting the passage of the blades through the opening when the blades move in one direction, substantially as described.

2. A device of the class described having a casing with circular sides, a head at one end of the casing, a head at the other end of the casing, the said second head having a dish-shaped portion projecting into the casing, a radial apertured partition in the casing, a spring-pressed valve for closing the opening in the partition, a series of blades turning with each other and mounted within the casing to be actuated by the fluid, said blades passing through the aperture of the partition and a meter in connection with the blades and located within the dish-shaped portion of the said second head, substantially as described.

3. A fluid meter or motor having a cylindrical casing, a drum mounted within the casing, a series of radial blades carried by the drum, a partition running radially between the sides of the casing and the drum and having an orifice adjacent to the drum and through which the blades pass as they move with the drum, and a spring-pressed valve-plate normally closing the orifice, the casing having inlet and outlet openings respectively on opposite sides of the partition, substantially as described.

4. A fluid meter or motor having a cylindrical casing with inlet and outlet orifices, a shaft mounted within the casing, a series of blades carried by the shaft, a partition extending radially between the shaft and the sides of the casing and having an orifice therein adjacent to the shaft and through which the blades pass as they move with the shaft, and a spring-pressed valve-plate normally closing said orifice, substantially as described.

5. A fluid meter or motor having a circular casing with inlet and outlet orifices, a shaft revolubly mounted within the casing and held eccentrically therein, a series of blades carried by the shaft, a partition located within the casing and having an orifice adjacent to the shaft and through which the blades pass as they move with the shaft, and a spring-pressed valve-plate normally closing the orifice of the partition, substantially as described.

6. A fluid meter or motor having a cylindrical casing having an inlet and outlet on opposite sides, a shaft eccentrically and revolubly mounted within the casing, a series of blades carried by the shaft, a vertical partition running between the shaft and the inner side of the casing and located in the half of the casing having the longest radius from the shaft, a diagonal partition extending inwardly from the upper side of the outlet, the partitions having openings through which the blades pass, and valve-plates normally closing said openings, substantially as described.

7. A fluid meter or motor having a circular casing the lower portions of the sides of which have two curved walls forming a true semicircle, and having horizontal continuations at their upper ends at the inlet and outlet of the casing, a shaft mounted within the casing, a series of blades carried by the shaft and fitting snugly within and movable through said semicircle formed by the walls, and a partition extending radially between the shaft and the casing and located above the curved walls, the partition having an orifice through which the blades pass, and a spring-pressed plate normally closing the orifice, substantially as described.

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Witnesses:
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