C. Turner.

Water-Meter or Motor.

No. 76274

Patented Mar. 31, 1868

Fig. 1.

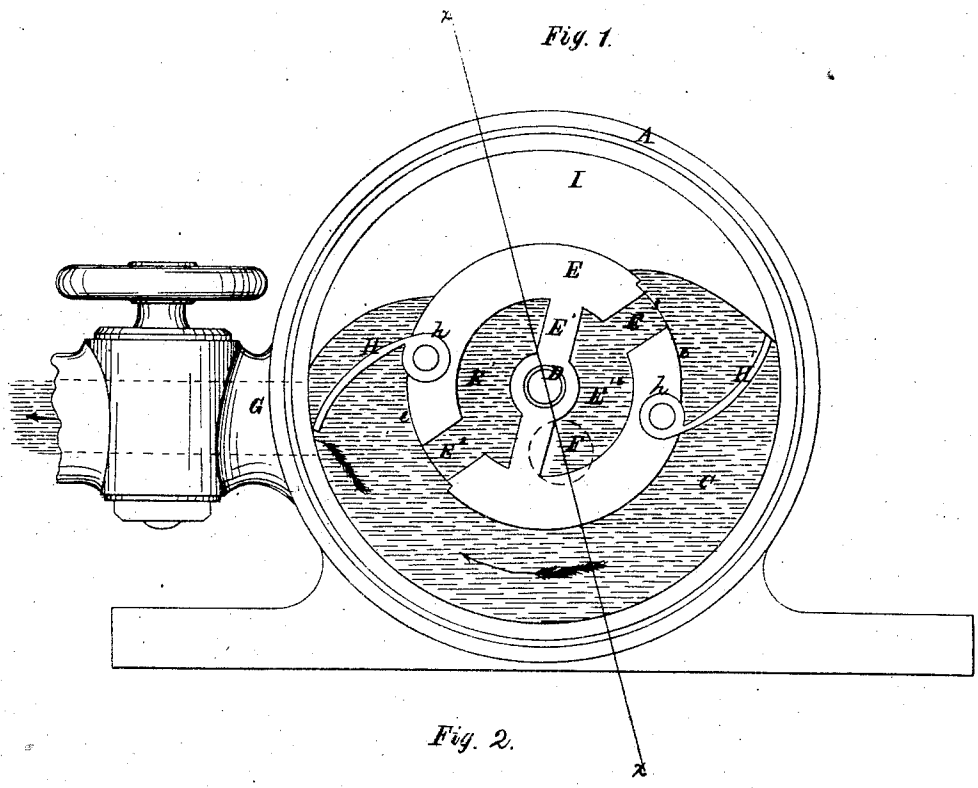
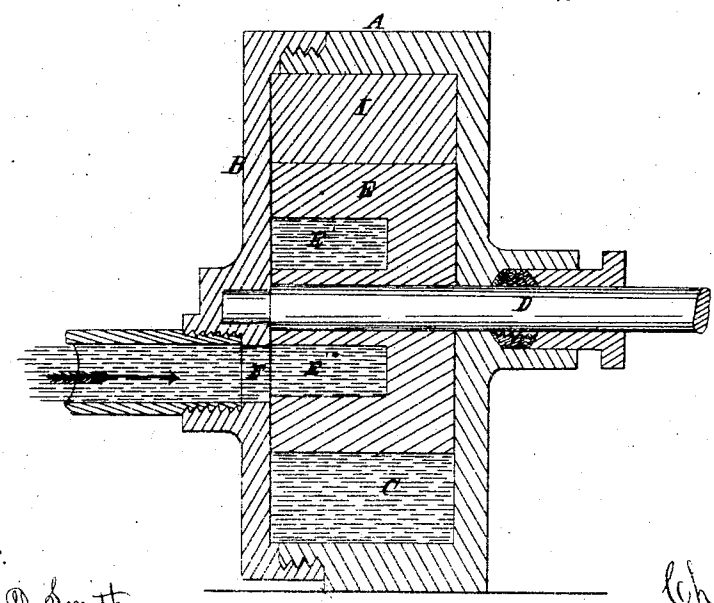


Fig. 2.



WITNESSES.

Chas. D. Smith

J. E. McBowen

Chester Turner

By Knight Bros

Attorneys

United States Patent Office.

CHESTER TURNER, OF GRAND RAPIDS, MICHIGAN.

Letters Patent No. 76,274, *dated March* 31, 1868.

IMPROVEMENT IN WATER-METER OR MOTOR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHESTER TURNER, of Grand Rapids, in the county of Kent, and State of Michigan, have invented a new and useful Water-Meter or Motor; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification.

This invention is designed chiefly to furnish a cheap and accurate device for measuring water; yet it affords, at the same time, a means for imparting to machinery the power which is due to the motion of the water, as will be hereinafter explained.

Figure 1 is a side elevation of my improved meter, with the cap-plate B, fig. 2, removed, to expose the enclosed parts.

Figure 2 is a vertically-oblique section of the same, the plane of section being indicated by the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

In the drawings, A is a cylindrical shell or casing, and B a screw-cap, which, when screwed upon the end of the casing A, forms, in conjunction with the latter, a close chamber, C. D is a central shaft, mounted to rotate in suitable bearings in the casing A and cap B, and having keyed, or otherwise fastened to it, a circular rotary hub or block, E. This hub is formed with a central annular chamber or cavity, E^1 E^{1*}, from which two openings, E^2 E^3, are adapted to discharge water into the main chamber C. F is the inlet-port, and G the outlet-port. As the inlet-port is not shown in fig. 1, it being in the cap-plate B, its position is indicated by the dotted circle at F. H H′ are wings or valves, whose pivotal extremities *h h* are fitted in sockets cast in the opposite sides of the hub E. Depressions, at *e e*, are formed in the periphery of the hub E, so that when the wings H H′ are closed upon said hub they shall be flush with the surface of the latter, and thereby insure a close joint between the hub and the packing I while the said wings are moving in contact with the said packing, as well as during the other periods of the hub's rotation. The chamber E^1 E^{1*} is divided into two equal apartments by the partition E^4, whose plane intersects and is parallel with the axis of the hub E.

In operation, water in transit enters the chambered hub E through the port F; and if the parts be in the position, as shown in fig. 1, the water is first received into the apartment E^{1*}, in which it rises till it has egress at the opening E^3, and the valve or wing H′, being then free to open, assumes the position in which it is represented in fig. 1, its free end bearing against the inner periphery of the shell A. The wing H, being projected in the manner shown in fig. 1, receives the pressure of the water, and, being carried around in the chamber C in advance of the water by which it is actuated, (as indicated by the red arrows,) imparts rotation to the hub E and shaft D. When the wing H′ has passed the outlet-port H, the water, having egress through the latter, of course ceases to act upon it; but the wing H will have then reached the position in which H′ is shown, and being acted upon by water passing through the apartment E^1 of the chambered hub, said wing H imparts rotation to the hub. The action of the water (in its passage through the meter) upon the wings H H′ alternately, imparts continuous rotation to the hub E and shaft D; and a suitable register, connected to the shaft D, may be employed to record every complete rotation thereof, and consequently the amount of liquid passing through the meter. When the water is under pressure, or has sufficient "head," the above-described device is capable of transmitting power to machinery through the medium of the shaft D.

I have described an apparatus which is simple and cheap in construction, accurate as a meter, and effective as a motor.

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

1. The pivoted wings H H′, adapted to operate both as valves and pistons, substantially as herein described and represented.

2. The combination of the shell or casing A B, packing I, ports F G, rotary hub E, having chambers or apartments E^1 E^{1*} and openings E^2 E^3, with the valves or wings H H′, all constructed and arranged to operate in the manner and for the purpose set forth.

CHESTER TURNER.

Witnesses:

L. BEMENT,

THOMAS CONNORS.