G. W. STITH.
Water Motor.

No. 201,464. Patented March 19, 1878.

Fig. 1.

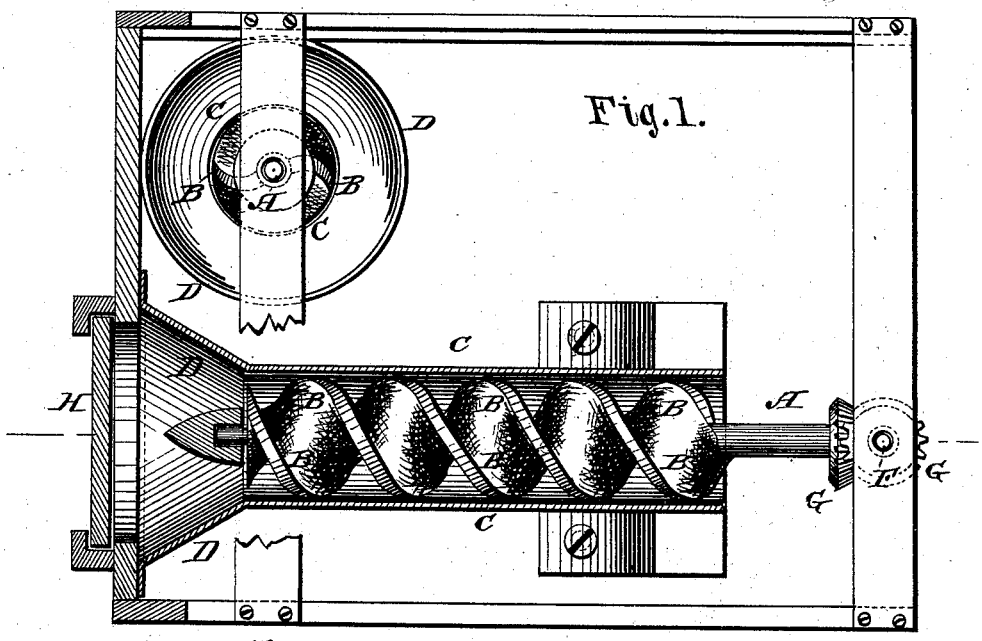
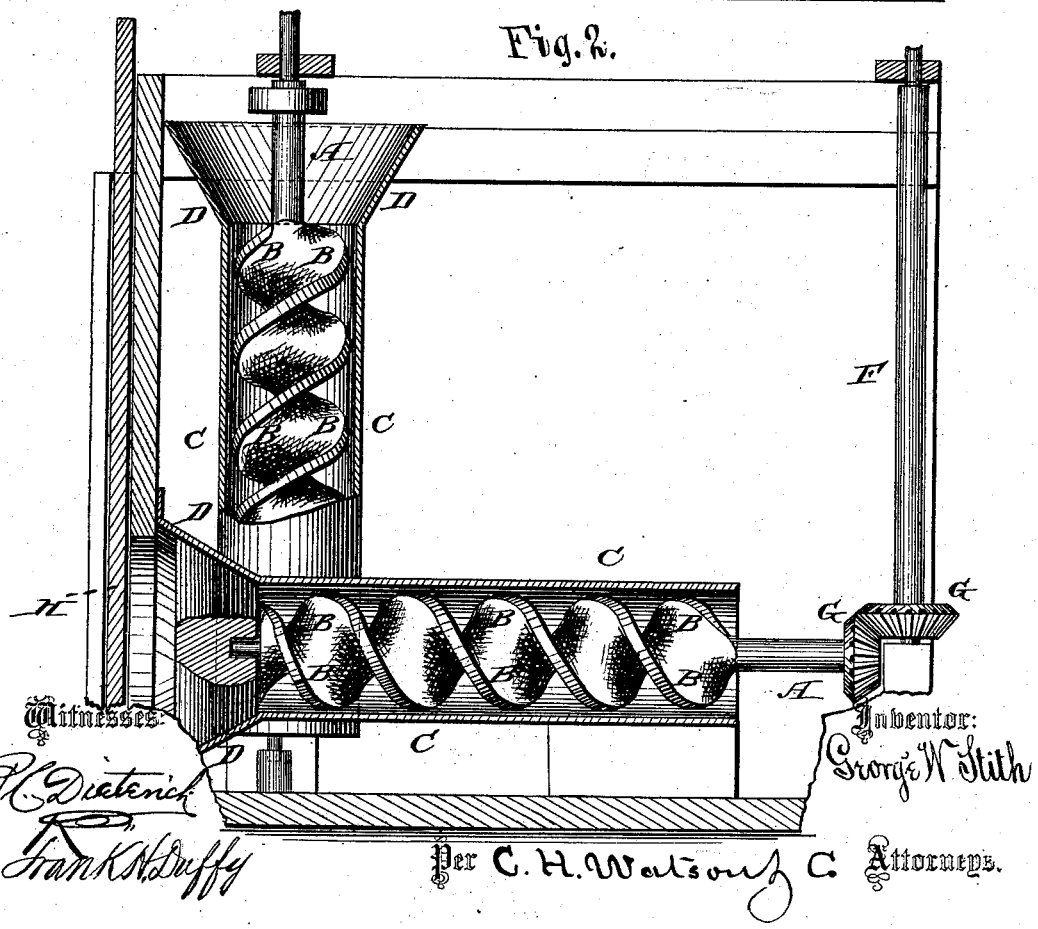


Fig. 2.



Witnesses:
P. Dieterich
Frank N. Duffy

Inventor:
George W. Stith
Per C. H. Watson & C. Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. STITH, OF CLINTON, NORTH CAROLINA.

IMPROVEMENT IN WATER-MOTORS.

Specification forming part of Letters Patent No. **201,464**, dated March 19, 1878; application filed February 20, 1878.

To all whom it may concern:

Be it known that I, GEORGE W. STITH, of Clinton, in the county of Sampson and State of North Carolina, have invented certain new and useful Improvements in Water-Motors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of water-motors in which the force of the water acts upon a screw or worm to rotate the same; and the nature of my invention consists in the construction of such screw or worm, and in the combination of parts, as will be hereinafter more fully set forth.

In the annexed drawing, to which reference is made, and which fully illustrates my invention, Figure 1 is a plan view, partly in horizontal section, showing my invention applied both in a vertical and a horizontal position. Fig. 2 is a vertical section of both ways of applying the invention.

In water-motors of the class to which my invention appertains a single screw or worm has heretofore generally been employed, which is objectionable on account of the water striking on one side only at the commencement, and the tendency is to throw the shaft to one side and create friction and bind in the bearings. This continues until the water has filled the casing, and the water can operate on all sides. This difficulty I overcome by constructing the shaft A with two separate screws or worms, B B, passing alternately around, as shown, and their upper ends standing on opposite sides and in opposite directions from the shaft. Now, as the water strikes this it acts with equal pressure on opposite sides at the same time and at the very commencement. Hence the shaft will not be thrown in any way to either side, but will commence its rotation at once, without any binding or unnecessary friction in its bearings.

The double screw or worm is arranged within a cylindrical casing, C, which confines the water to the double worm. The casing C is, at the inlet end, provided with a flaring mouth, D, and it may be arranged either in a vertical or horizontal position, according to the water-source where it is applied. If it is to be applied where the water has a great fall it will be arranged in a vertical position, the same as any ordinary overshot wheel, and the upper end of the shaft A will be provided with a pulley or gear-wheel, to communicate motion to the machinery to be driven.

If the motor is to be applied in a running stream, it will be arranged horizontally, and, by gears G G, communicate motion to an upright shaft, F, which, in turn, connects with the machinery to be driven. In either case a suitable gate, H, will be provided for shutting off and letting on the water.

I can so arrange the worm B and casing C that they will turn together in suitable bearings, which will allow the device to operate as well as by the manner hereinbefore described.

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

1. The combination of the central shaft A, double screw or worm B B, and exterior casing C, with flaring mouth D, substantially as and for the purposes herein set forth.

2. In combination with the central shaft A and double screw or worm B B, the exterior casing C, with flaring mouth D and gate H, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEO. W. STITH.

Witnesses:
WM. P. UPPERMAN,
FRANK H. DUFFY.