

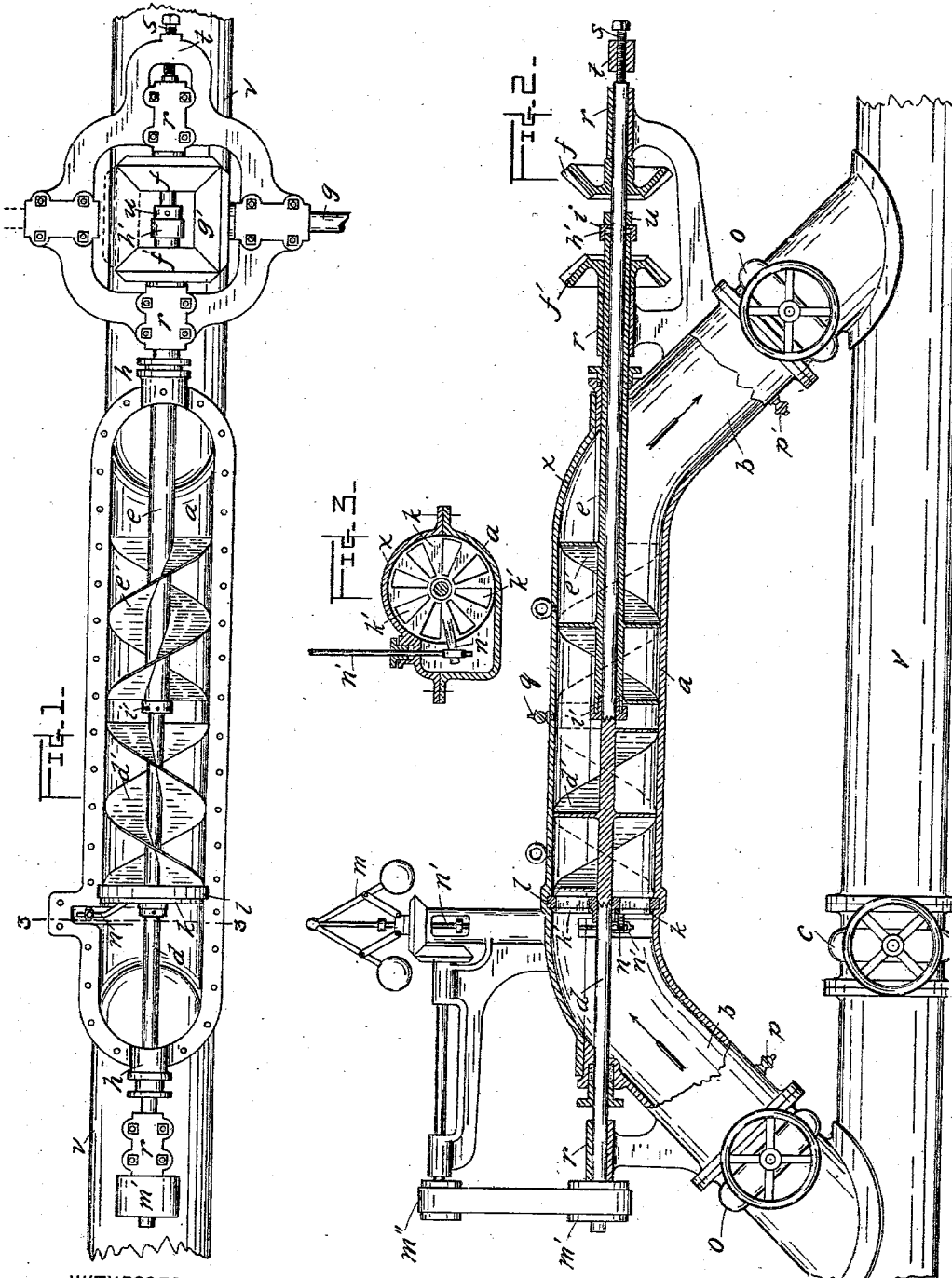
No. 716,650.

Patented Dec. 23, 1902.

M. L. G. WHEELER & D. D. BESSE.
WATER MOTOR.

(Application filed Jan. 15, 1902.)

(No Model.)



WITNESSES:

Wm. J. Dick
John N. Perkins

INVENTORS

Milo L. G. Wheeler
Daniel D. Besse

BY

Pierre Barnes

ATTORNEY

UNITED STATES PATENT OFFICE.

MILO L. G. WHEELER AND DANIEL D. BESSE, OF SEATTLE, WASHINGTON.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 716,650, dated December 23, 1902.

Application filed January 15, 1902. Serial No. 89,896. (No model.)

To all whom it may concern:

Be it known that we, MILO L. G. WHEELER and DANIEL D. BESSE, citizens of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Water-Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to water-motors. Its object is generally to utilize in a simple manner the power of water passing through pipes under pressure and to provide compensating devices whereby the power-shaft shall be rotated at a uniform speed.

More particularly, the invention is intended for use where it is advantageous to utilize all available water for a specific purpose, as in hydraulic mining, and where at the same time auxiliary power is essential for generating electricity for lighting and other purposes, which we provide directly from the water in transit by "switching" the same, so to speak, through a by-pass upon the main pipe-line, abstracting the said power therefrom, and returning in an unbroken state to the main line the entire quantity of water.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

30 Figure 1 is a plan view of a motor constructed according to our invention, the cover x of the casing being removed. Fig. 2 is a substantially central vertical longitudinal section of the same, and Fig. 3 is a cross-section through line 3 3 of Fig. 1.

In the said drawings the letter a indicates a cylindrical casing or pipe terminating in bends b , which are secured to a water-main v in a proper manner, so as to make watertight joints therebetween. Positioned between the said openings of the main is a gate-valve c . Consequently the casing a forms a by-pass through which all or a portion of the water may be directed. Extending through the said casing is an axial shaft d , provided with a continuous helical flange or flanges d' , integral therewith, of one or more convolutions. An extended hub or hollow shaft e , mounted upon the aforesaid shaft, also has a continuous helical flange e' , but of opposite hand—that is, if the flange d' upon the first-

mentioned shaft is a right-hand thread the other, e' , will be a left-hand one, or vice versa, and in consequence are rotated in opposite 55 directions by the water passing therethrough. Oppositely-arranged bevel gear-wheels f and f' , fixedly secured to shafts d and e , respectively, rotate a counter-shaft g through gear-wheel g' . Stuffing-boxes h and h' are provided where the driving-shafts d and e project through the casing and also upon the outer extremity of the hollow shaft e . The gland i of the latter box h' and a bushing i' at the inner end of shaft e form bearings 60 for the same, the intermediate distance being preferably bored to form a loose fit upon the internal shaft, minimizing the friction therebetween. A rotary cut-off valve k , having a plurality of radial apertures k' , 65 which register with corresponding apertures in a seat l , is actuated by a governor m , controlled by pulleys m' and belt m'' from shaft d , regulating the inflow of the water, and consequently the speed of the motor. 75 n is an arm secured to the said valve, which engages with the lifting-rod n' of the governor. Gate-valves o are positioned in the ducts connecting the motor-casing with the main.

$p p'$ are drain-cocks. 80

q is an air-vent.

r indicates the main bearings.

A compensating screw s , passing through a threaded bracket t of the frame, and a collar u , rigidly secured to the shaft d , are provided to take up the thrust of the main shafts. 85

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a water-motor, the combination with the 90 water-main, of a by-pass having its inlet and outlet communicating with the main, a horizontally-disposed drive-shaft extending through the by-pass, bearings r extending outwardly from the ends of the by-pass for supporting said shaft, a helical flange integral with the drive-shaft, a hollow shaft 95 mounted on said drive-shaft, a bushing at the inner end of the hollow shaft, said hollow shaft terminating adjacent the inner end of the helical flange of the drive-shaft, said bushing forming a bearing for the hollow shaft, a helical flange of opposite pitch to the flange of the drive-shaft formed integral with 100

the hollow shaft, a seat in the by-pass having radial apertures, with the drive-shaft extending centrally through the seat, a rotary cut-off valve mounted within the by-pass and
5 having radial apertures therein to register with those of the seat, an arm secured to the said valve, a pulley on the drive-shaft, a governor on the by-pass with a connection between said governor and the pulley of the
10 drive-shaft, said arm of the rotary valve being connected directly to the lifting-rod of the governor, and gears on one end of the

hollow shaft and the drive-shaft, with a common gear meshing with said gears of the hollow and drive shaft, substantially as described. 15

In testimony whereof we affix our signatures in presence of two witnesses.

MILO L. G. WHEELER.
DANIEL D. BESSE.

Witnesses:

PIERRE BARNES,
JOHN N. PERKINS.