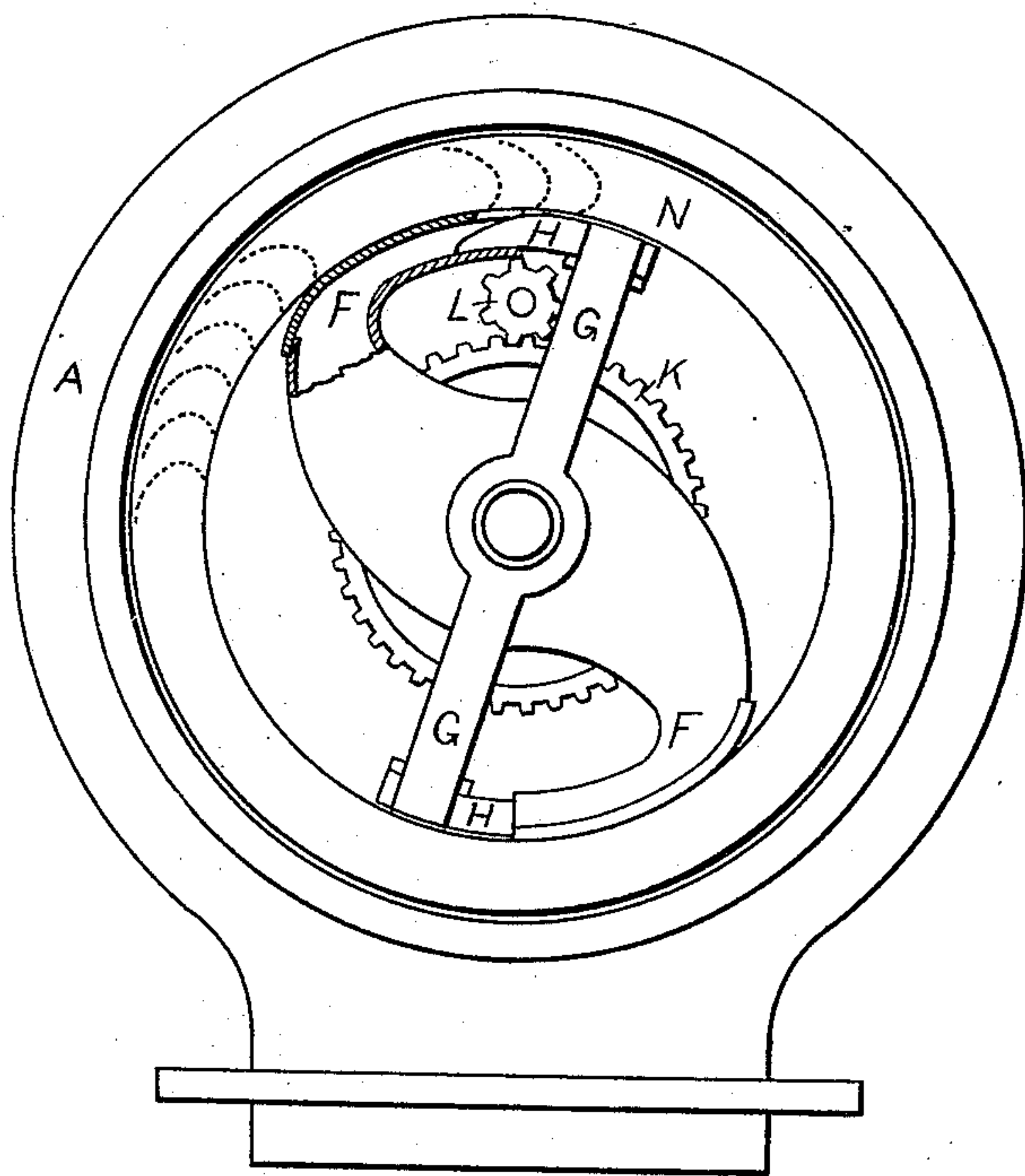


(No Model.)

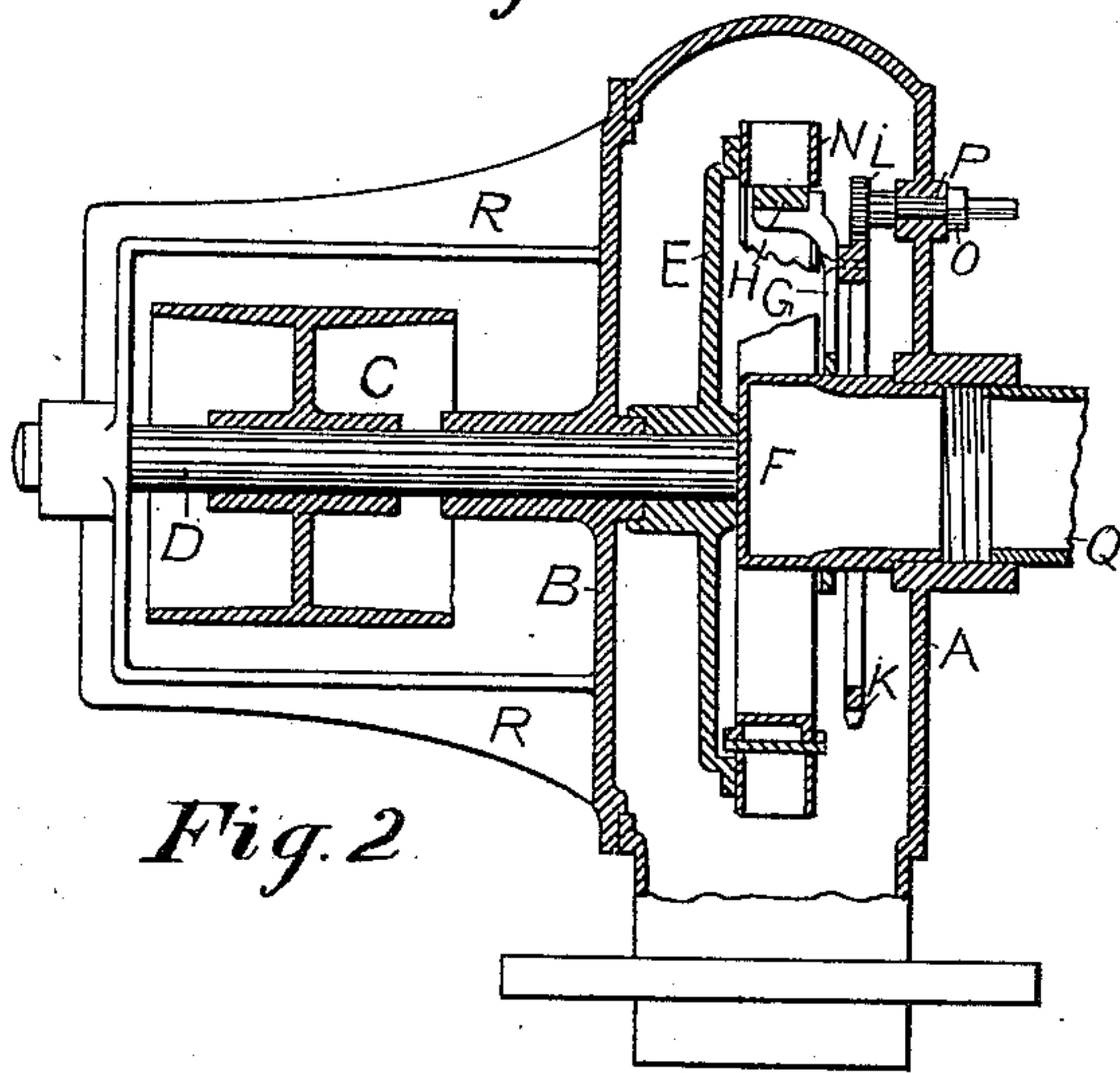
G. W. BROWN.  
WATER MOTOR.

No. 424,918.

Patented Apr. 1, 1890.



*Fig. 1.*



*Fig. 2.*

Witnesses  
Wm. H. Lowry  
Edwin A. Leighton

Inventor

G. W. Brown

# UNITED STATES PATENT OFFICE.

GEORGE W. BROWN, OF DEERING, ASSIGNOR TO THE BELKNAP WATER MOTOR COMPANY, OF PORTLAND, MAINE.

## WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 424,918, dated April 1, 1890.

Application filed March 14, 1889. Serial No. 303,358. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. BROWN, a citizen of the United States, residing at Deering, in the county of Cumberland and State of Maine, have invented a new and useful Improvement in Water-Motors, of which the following is a specification.

My invention relates to improvements in rotary water-motors in which a bucket-bearing wheel is operated by the admission of a jet or jets of water under pressure.

The objects of my invention are, first, to provide for increasing or diminishing at will, at the point of admission, the volume of water admitted; second, to provide facilities for regulating the admission of water in such manner as to obtain the best result upon the wheel with the most economic use of water; third, to provide for the economical operation of a rotary motor by use of water under any desired pressure. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical transverse section of motor, and Fig. 2 is a vertical longitudinal section of motor.

Similar letters refer to similar parts in both views.

A is the case and frame-work of the machine.

D is a shaft carrying pulley C, supported by bearings in the arms R R and cover or head B, and operated by the bucket-bearing wheel N, with which it is connected by the disk E.

F is chute tapped into the case A, conducting the water from the supply-pipe Q and discharging it against the buckets of the wheel N.

H H are wedges slightly curved to conform to the arc in which they are designed to move, and are of such form as to close, wholly or in part to any degree the orifices of the chute F by a slight movement toward or away from the orifices. These wedges are fastened to the levers G G, which are arms projecting from a ring or collar which encircles the chute near where it is secured to the case A, and revolves around it. The gear K K is fastened

to the levers G G and the whole (wedges, levers, and gear) is operated by the pinion L, which is secured to the shaft P, which projects without the case for application of wrench or governor. A nut O upon the pinion-shaft P, turned hard against the case A, holds the shaft P in any position desired. By turning the pinion L the gear K K and levers G G move the wedges H H toward or away from the orifices of the chute F. The wedges may be advanced toward the orifices so as to wholly close them, or may be withdrawn so as to leave an orifice of any desired size from the thickness of a wafer to the full capacity of the chute. This enables each motor to be tested at its work for the best result with the greatest economy of water, and also makes the same motor economically adjustable to the varied pressures of water under which it may be desirable to operate it.

The wedges H H are so constructed as to closely fit the orifices of the chute on all sides, except the side toward the wheel and along which the water passes in its discharge.

I have used in carrying out my idea a chute with two orifices diametrically opposite to each other; but it is not necessary that the chute should be of the particular form described or that the number of orifices should be limited to two. There may be one or more orifices, as is deemed desirable, it being only necessary that the number of wedges and levers equal and conform to the number, shape, and position of the orifices.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A chute for rotary water-motors, having discharge-orifices arranged around a common center and so formed as to discharge jets of water tangentially, in combination with slightly-curved close-fitting wedges operated by levers radiating from the chute-center, which are designed to be introduced from without into the orifices for the purpose of reducing to any required extent the area of the orifices, all substantially as set forth.

2. The combination, in a water-motor, of the bucket-bearing wheel N, secured to the shaft



D, and operated by jets of water discharged centripetally upon it, the chute F, having discharge-orifices arranged around a common center and so formed that the area of the  
5 same may be increased or diminished at will by the introduction from without of close-fitting wedges, and the wedges H H, operated by levers radiating from the chute-center, all substantially as set forth.

GEORGE W. BROWN.

Witnesses:

FRANK W. ROBINSON,  
HARRY R. VIRGIN.