

No. 755,790.

PATENTED MAR. 29, 1904.

O. S. NOYES.  
WATER MOTOR.

APPLICATION FILED JAN. 8, 1903.

NO MODEL.

Fig. 1.

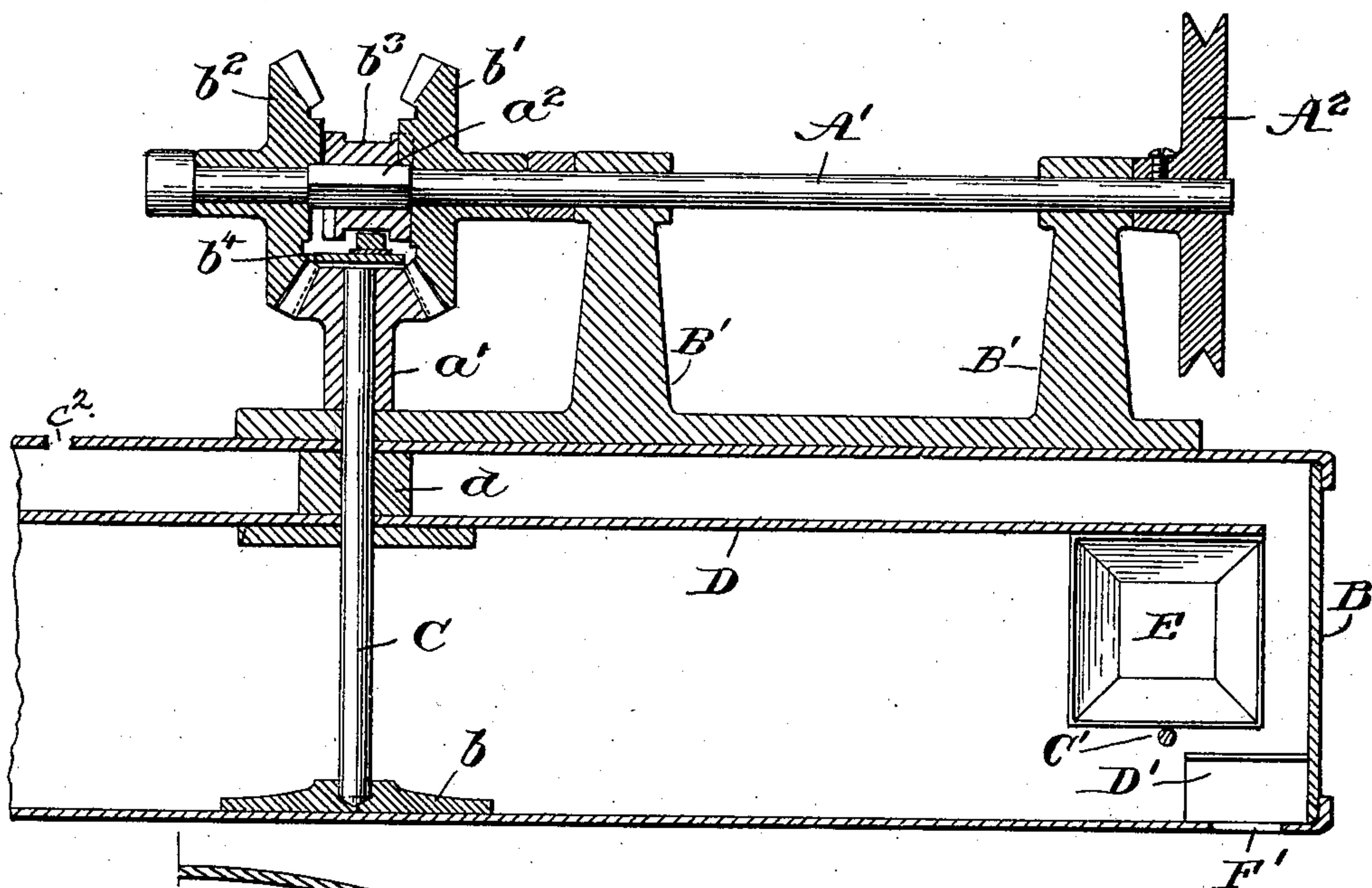
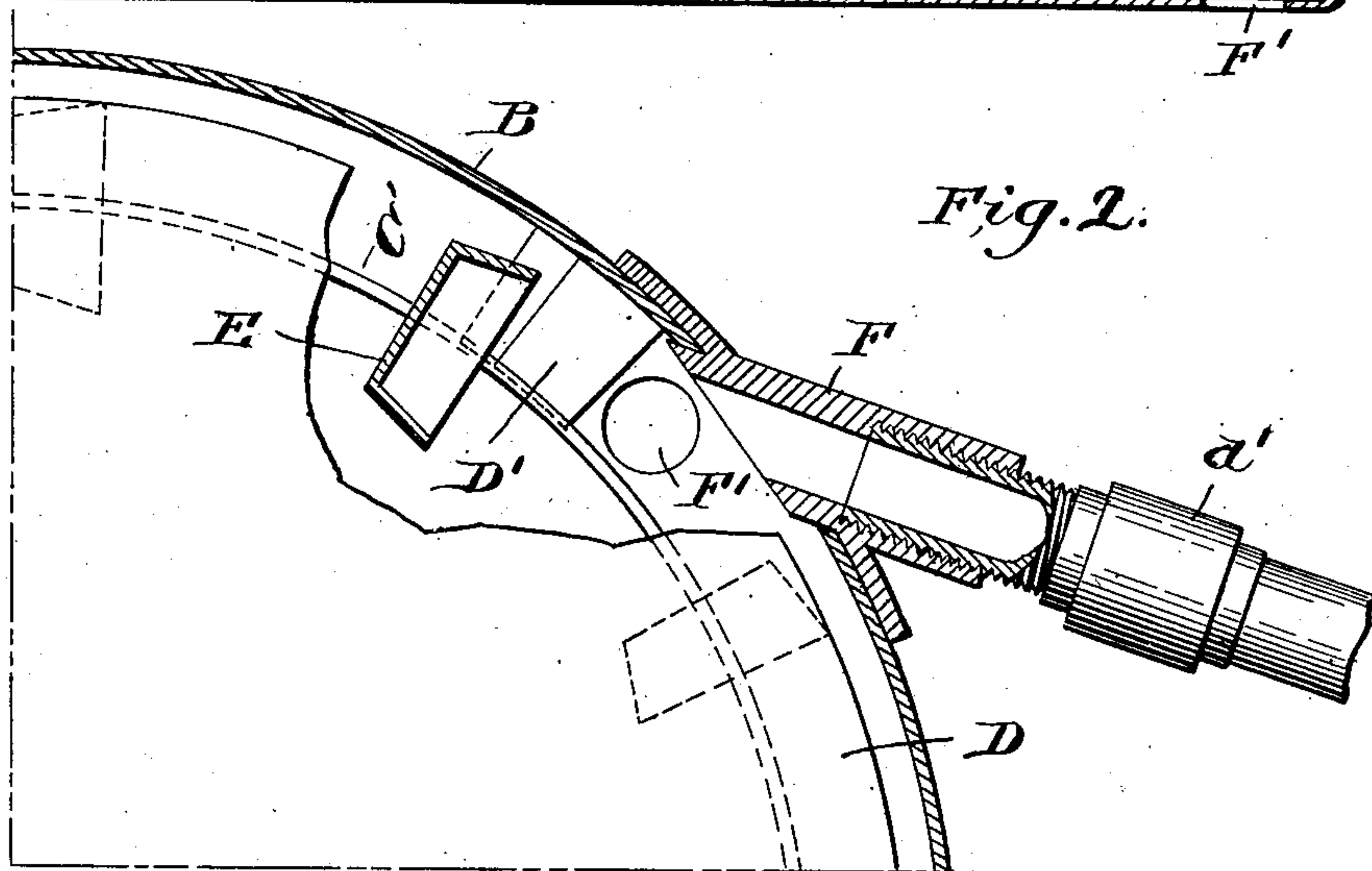


Fig. 2.



WITNESSES:

A. S. Donaldson  
H. M. Love

INVENTOR

Orlando S. Noyes  
BY  
H. S. Moulds  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

ORLANDO S. NOYES, OF PHILADELPHIA, PENNSYLVANIA.

## WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 755,790, dated March 29, 1904.

Application filed January 8, 1903. Serial No. 138,234. (No model.)

*To all whom it may concern:*

Be it known that I, ORLANDO S. NOYES, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Water-Motors; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 water-motors, especially to that class of water-motors that are used to operate family washing-machines, and the object of my invention is to so construct the motor and connect it to the washing-machine that a small stream of water at a moderate pressure will turn the motor and operate the washing-machine.

Figure 1 is a vertical sectional view through a part of the motor and the mechanism conveying the power to the washing-machine. Fig. 2 is a partial view of the motor having the top case broken away, showing one of the buckets and the water-inlet connected to a hose leading to a water-supply.

B is a closed cylindrical metal case surrounding the water-wheel of the motor.

C is the shaft or axle of the water-wheel supported on a suitable bearing  $b$ , secured on the bottom of cylindrical case B.

D is a metal bucket-carrying disk secured upon the shaft C.

E E are buckets secured to and depending from the under side of the disk D near its outer periphery. The buckets E are made rectangular, with flat bottoms and flaring sides and ends, as shown in the drawings.

C' is a ring-support fastened under the depending buckets E for the double purpose of stiffening the wheel and more securely holding the buckets in position.

$d$  is the hub or central support of the disk D, rigidly attached to the shaft C.

F is the water-inlet pipe connected to the ordinary hydrant or any other convenient water-supply by a screw-nozzle hose  $d'$ . For

small motors this inlet-pipe at the point where the water is discharged should be about one-quarter of an inch in diameter.

F' is the outlet or discharge port directly under the inlet and is connected to a suitable hose  $d^2$  for carrying off the water.

$c^2$  is an air vent or opening made in the top of the cylindrical case B. Through this opening any air entering the case B has free egress and backward air-pressure upon the motor is avoided and the noise greatly reduced.

D' is a deflecting plate or partition secured to the side or bottom of the case B below the buckets E and immediately forward of the discharge-port F', and extending from the bottom of the cylindrical case upwardly and rearwardly, preferably at an angle of about forty-five degrees, away from the discharge-port. This deflecting plate or partition D' is intended to catch the water as it is discharged from the buckets E and prevent it filling the inside of the cylindrical case B, and thus retarding the motor. Any small quantity of water not caught by the deflecting-plate D' will be forced around the bottom of the case in a circular direction and on its return will flow out of the discharge-port F'.

A' is a driving-shaft secured horizontally on top of the case A and revolving in the vertical supports B'.

$a'$  is a bevel cog-wheel secured on the upper end of the axle C.

$b'$  and  $b^2$  are beveled cog-wheels loosely secured on the driving-shaft A' and meshing into the bevel-wheel  $a'$ , as particularly shown in Fig. 1. The inner face of each of these two beveled cog-wheels  $b'$  and  $b^2$  is provided with a clutch that fits into clutch  $b^3$ , movably secured on square section  $a^2$  of the part A'.

$b^4$  is a lever operating the clutch  $b^3$  so as to bring it into engagement with one or the other of beveled wheels  $b'$  or  $b^2$ .

A<sup>2</sup> is a driving-pulley secured on the outer end of the driving-shaft A'.

The buckets E being made with a flat bottom the water entering through the inlet-pipe will strike squarely and with full force thereon, after which it will be deflected outwardly against the flaring sides and ends up and down, imparting to the wheel much more



power than when the buckets are made in any other shape. When it is desired to run the shaft A' in an opposite direction, the clutch  $b^3$  is moved so as to engage with the other one of cog-wheels  $b'$  or  $b^2$ .

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

1. In a water-motor, the combination with  
10 a suitable casing and a vertical shaft journaled therein, of a disk mounted on said shaft, a supporting-ring, and a plurality of rectangular buckets having flat bottoms and flaring sides and ends secured between the disk and  
15 supporting-ring, whereby the water is caused to strike the flat bottoms of said buckets, and, being deflected outwardly against the flaring sides and ends, imparts increased power to the motor.

20 2. In a water-motor, the combination of a suitable casing and a vertical shaft journaled therein, of a disk mounted on said shaft, a supporting-ring located beneath said disk, a plurality of rectangular buckets having flat  
25 bottoms and flaring sides and ends and se-

cured between said disk and supporting-ring, and a deflecting-plate arranged in the casing in such position, adjacent to the discharge-port, that the water falling from the buckets will be directed to said discharge-port. 30

3. In a water-motor, the combination of a casing B, a suitable inlet-port, an outlet-port directly under the inlet, and a deflecting-plate D' secured to the bottom of the casing at the discharge-port and extending upwardly and  
35 rearwardly therefrom, of a disk mounted on a vertical shaft, a supporting-ring, and a plurality of rectangular buckets having flat bottoms and flaring sides and ends, and secured between said disk and supporting-ring, where-  
40 by the water is caused to strike the flat bottoms of said buckets, and, being deflected outwardly against the flaring sides and ends, imparts increased power to the motor.

In testimony whereof I affix my signature in  
45 presence of two witnesses.

ORLANDO S. NOYES.

Witnesses:

THOS. D. MOWLDS,

SAML. H. KIRKPATRICK.