

H. F. BLACKWELL.
WATER MOTOR.
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977,264.

Patented Nov. 29, 1910.

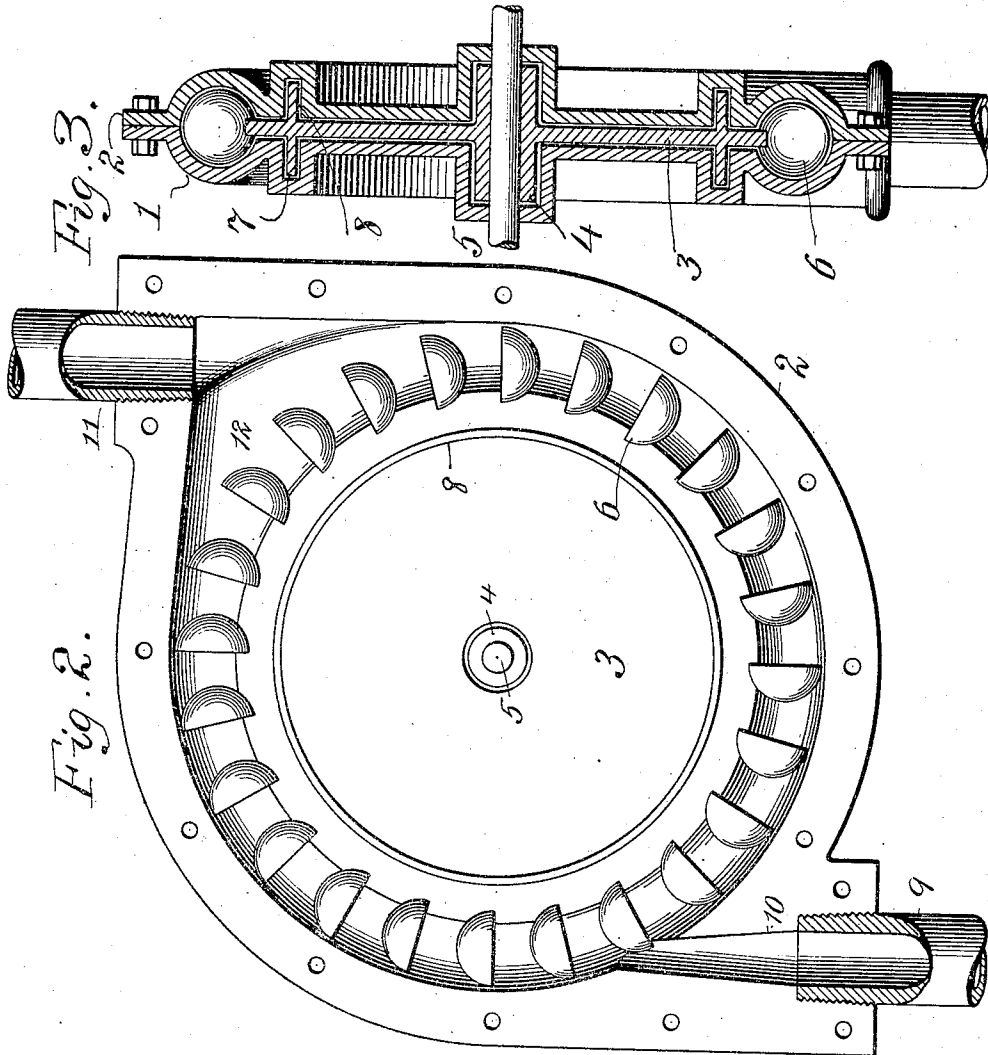


Fig. 2.

Fig. 2.

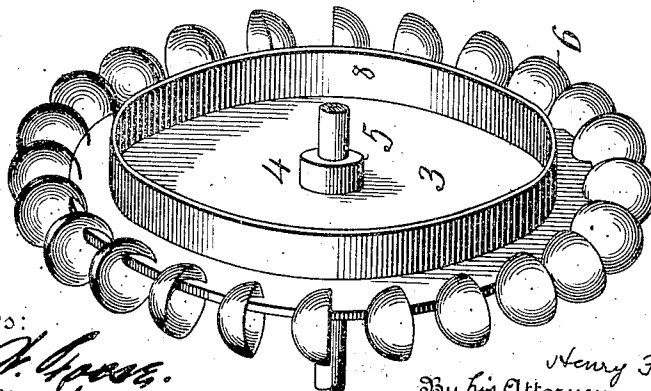


Fig. 1.

Witnesses:
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By his Attorney
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UNITED STATES PATENT OFFICE.

HENRY F. BLACKWELL, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL ELECTRIC PROTECTION COMPANY, A CORPORATION OF NEW YORK.

WATER-MOTOR.

977,264.

Specification of Letters Patent.

Patented Nov. 29, 1910.

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To all whom it may concern:

Be it known that I, HENRY F. BLACKWELL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Water-Motors, of which the following is a specification.

The invention relates to water motors of the type in which concave buckets are disposed around the circumference of the wheel. Such wheels are commonly not submerged. In my device the wheel is submerged in the water which fills its casing, and is rotated by the flow passing through said casing.

This construction is particularly adapted to cases where the water power is very small, and where the object is to make the motor sensitive to any flow which may be established, in order that, through the rotation of the wheel, suitable mechanism may be actuated which will indicate the fact of said establishment and thus reveal the conditions causing the same, concerning which prompt warning is desired. Thus, for example, in sprinkler systems for the automatic supply of water for the fire protection of buildings, after the sprinklers have been set in operation by the melting of their fuses, or in any other way, the water continues to escape from them and may go on drenching the building and its contents after the fire which has set them in operation has been extinguished. In this way, damage to property by water often in excess of that due to the fire, may easily be caused. If, however, an alarm is set in operation by the flow in the sprinkler system supply pipe, warning of this escape will be given. So also it is very important that warning should be given of leakage from sprinklers due to chance injuries. The present invention is constructed to be operated by such a water flow. It not only furnishes a means of causing an alarm when a large escape of water is taking place—as, for example, from a considerable number of sprinklers simultaneously—but even when the flow is due to leakage in the sprinkler system, or even to the escape of water from a single injured sprinkler.

In the accompanying drawings—Figure 1 shows my motor wheel in perspective and out of its casing. Fig. 2 shows the wheel in its casing, one half of the casing being re-

moved. Fig. 3 is a diametral section of the wheel and casing.

Similar numbers of reference indicate like parts.

The casing is formed in two parts 1, 2 bolted together. The wheel 3 is a metal disk, provided with a hub 4 which is fast on the shaft 5. On the circumferential periphery of the disk are secured the concave buckets 6. On opposite sides of the disk are ring flanges 7, 8, which enter suitable recesses in the casing. Between buckets, disk, ring flanges and the casing, the clearance is made as small as possible.

The supply pipe 9 communicates with a conical nozzle 10 formed in the material of the casing and suitably placed to deliver the water tangentially to the wheel. The outlet pipe 11 enters a threaded opening formed in the casing parts and communicates with a chamber 12. The entire space within the casing becomes filled with water which rotating, carries the wheel with it, so that the wheel is turned not only by the impulse of the stream delivered from the nozzle acting upon the buckets successively, but by the inertia of the whole body of water acting simultaneously on all the buckets. It is important, however, to prevent the short-circuiting of the flow across the wheel from inlet to outlet, since any loss, where but little power may be available, must be guarded against. For this purpose, I provide the ring flanges 7, 8, which act as dams and effectually stop any cross flow. The consequence is, that the wheel is rendered extremely sensitive, and will turn under very small current pressure.

I claim:

1. A water motor comprising a casing, a shaft, a disk on said shaft and in said casing, buckets on the disk periphery, and inlet and outlet ducts communicating with the space within said casing, the said ducts being disposed relatively parallel and tangential to said disk and on opposite sides of a wheel diameter parallel to their longitudinal axes.

2. A water motor comprising a casing, a shaft, a disk on said shaft and in said casing, buckets on the disk periphery, inlet and outlet ducts communicating with the space within said casing, the said ducts being disposed relatively parallel and tangential to said disk and on opposite sides of a wheel diameter parallel to their longitudinal axes,

and means for preventing direct flow from said inlet to said outlet duct across said disk.

3. A water motor comprising a casing, a shaft, a disk on said shaft and in said casing, 5 buckets on the disk periphery, inlet and outlet ducts communicating with the space within said casing, the said ducts being disposed relatively parallel and tangential to said disk and on opposite sides of a wheel 10 diameter parallel to their longitudinal axes, and means on said disk for preventing direct flow from said inlet to said outlet duct across said disk.

4. A water motor comprising a casing, a 15 shaft, a disk on said shaft and in said casing,

buckets on the disk periphery, inlet and outlet ducts communicating with the space within said casing, the said ducts being disposed relatively parallel and tangential to said disk and on opposite sides of a wheel 20 diameter parallel to their longitudinal axes, and ring flanges on opposite sides of said disk entering recesses in said casing.

In testimony whereof I have affixed my signature in presence of two witnesses. 25

HENRY F. BLACKWELL.

Witnesses:

MAY T. MCGARRY,
GERTRUDE T. PORTER.