

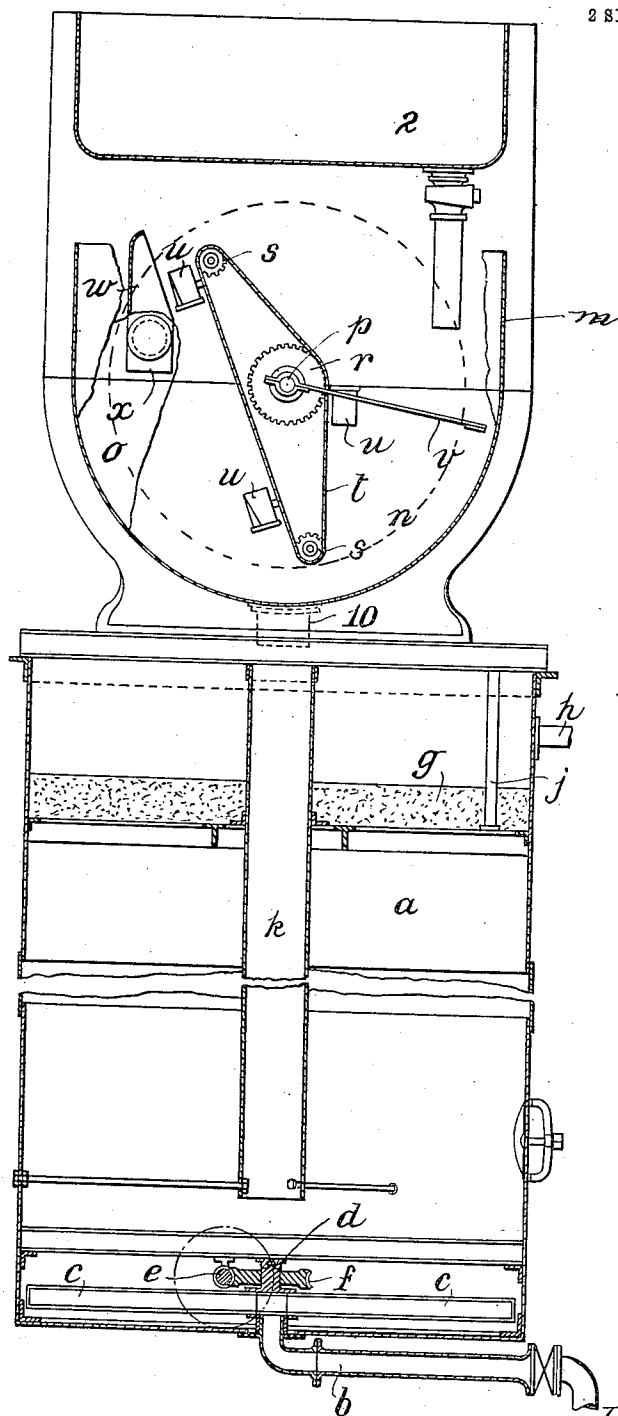
H. J. WHEATON.
WATER MOTOR.
APPLICATION FILED OCT. 2, 1911.

1,064,410.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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Chas. H. Bull.

Inventor:
Harold Joseph Wheaton,
By Dyrenforth, Lee, Christen and Wilson,
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2 SHEETS—SHEET 2.

Fig. 2.

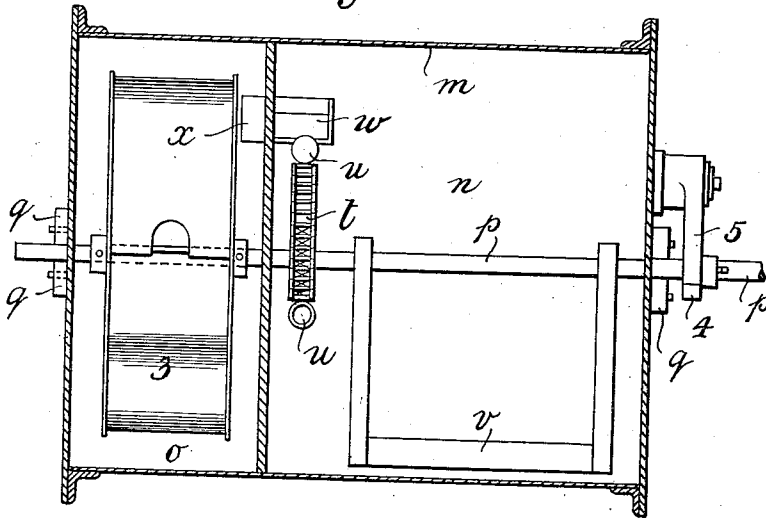
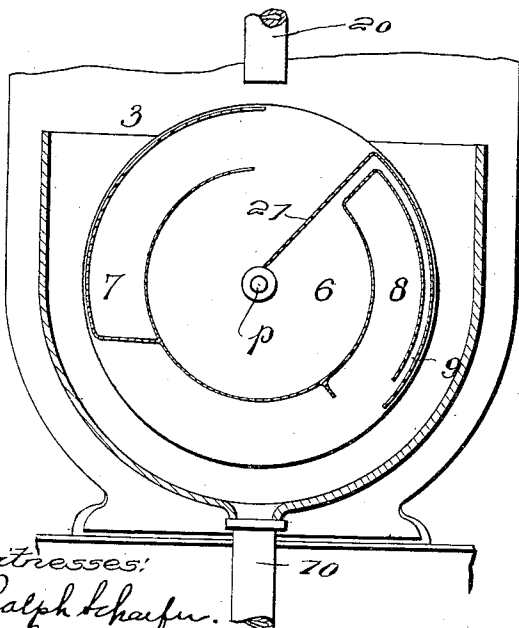
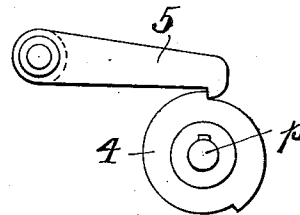


Fig. 3.



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Fig. 4.



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UNITED STATES PATENT OFFICE.

HAROLD JOSEPH WHEATON, OF LONDON, ENGLAND, ASSIGNOR TO CHAUNCEY JUSTUS BLAIR, OF CHICAGO, ILLINOIS.

WATER-MOTOR.

1,064,410.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed October 2, 1911. Serial No. 652,308.

To all whom it may concern:

Be it known that I, HAROLD JOSEPH WHEATON, of 4 Broad Street Place, in the city of London, England, have invented certain new and useful Improvements in and Relating to Water-Motors, of which the following is a specification.

This invention relates primarily to improvements in water motors.

The object of the invention is to provide a motor which will be intermittently partially rotated, the construction being such that the water flowing in one bucket will not overflow into the other, one of the buckets being provided with a vent to permit the free flow of the water from the bucket during the operation of the motor.

The invention also comprehends improvements in the construction and arrangement of parts which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a broken vertical section of one form of apparatus made in accordance with this invention; Fig. 2 is a plan section showing the measuring devices; Fig. 3 is a view in cross-sectional elevation of the tipping bucket; and Fig. 4 is a detail of ratchet and pawl mechanism.

a is a settling tank provided with a sludge pipe *b*; *c c* are rotatable slotted arms mounted on a hub *d*; *e* and *f* are a worm and worm wheel for rotating the arms *c*.

g is a filter, *h* is a discharge pipe, *j* is a vent pipe and *k* is a downtake.

m is a cistern having two chambers *n* and *o*, and *p* is a shaft journaled in bearings *q*. In the compartment *n* and carried by the shaft *p* is a sprocket wheel *r*; *s s* are pulleys, and *t* a sprocket chain carrying adjustable dippers *u*.

v is an agitator mounted on the shaft *p*.

w is a gulley having an outlet *x* in the compartment *o*.

2 is a tank for supplying the compartment *n* with chemical reagent.

In the compartment *o* on the shaft *p* is a tipping bucket 3, adapted to be held in one of two positions by the ratchet 4 and pawl 5.

A water tank provided with an outlet pipe 20 is disposed above the tipping bucket 3. The tipping bucket is provided with three compartments 6, 7, 8, formed between disk-like heads and a vent passage 9. An inclined partition 21, extends from the hub to

the periphery of the tipping bucket 3. This partition divides the compartment 6, and forms with the upper end wall of the compartment 8, a part of an air vent 9. Water is admitted to the compartment 6, overflows into the compartment 7, which causes the bucket to rotate through about 145°, whereupon its contents are discharged into the compartment *o*. The bucket is prevented from swinging back by the pawl 5. The free discharge of water from the tipping bucket is permitted by reason of the air vent 9. The vent 9, communicates with the compartment 6, and extends around the outside of compartment 8, and terminates adjacent the open end of the same, as clearly shown in Fig. 3.

Balance weights not shown on the drawing may be connected to the shaft *p* to assist in adjusting the bucket in performing its function.

In operation water is allowed to run into the compartment 6 of the tipping bucket. When the water reaches a certain height it overflows into the compartment 7 until the weight of the water rotates the bucket about its axis through an angle of 145° and discharges itself into the chamber *o*. Because of the location of the partition 21, the water will, upon the overbalancing of the bucket, flow around the shaft *p*, in a circuitous path and thereby direct the weight of its overflow against the side of the bucket having the compartment 7, thereby quickly throwing the bucket to its emptying position and completely evacuating it. It is because of the construction and arrangement of the inclined partition 21, that the air vent is necessary. For as the bucket starts to turn on its axis, the air above the water in compartment 6, between the inner wall of compartment 8, and the partition, would form an air lock, but by providing the vent 9, the formation of such an air lock is avoided and the water flows freely into compartment 7. The mouth of the compartment 8 being thus brought uppermost the water then flows into the compartment 8 until its equilibrium is again upset, and thereupon the completion of the revolution of the bucket is effected. It is during the second half revolution of the bucket the partition 21, again performs a very important function. That is to say, the partition acts against the water in the compartment *o*, and serves to absorb the

shock when the bucket is rotated. When the bucket rotates it also moves the dippers *u* by the aid of the shaft *p*, sprocket wheel *r* and chain *t*. These dippers are so timed and arranged that one discharge takes place for every partial revolution of the tipping buckets. The contents of the dippers are discharged into the gulley *w* and find their way through the discharge 10, down pipe *z* to the settling tank *a*. The sludge is deposited in the tank *a* and the water is filtered by upward filtration through the filter bed of any suitable filtering material *g*.

The sludge is drawn off by the arms *c* and pipe *b*. The vent pipe *j* is to permit of air entering the settling tank *a* when the tank is being emptied for cleaning purposes.

I realize that considerable variation is possible in the details of the construction, without departing from the spirit of my invention; therefore I do not intend to limit myself to the specific form herein shown and described.

What I claim and desire to secure by Letters Patent is:—

1. A rotating bucket of the class described comprising a central chamber, auxiliary chambers arranged to one side of the central chamber, only one of said auxiliary chambers communicating with the central chamber, means for causing the water in the central chamber to follow a circuitous path and throw the weight against the auxiliary chamber which communicates with the central chamber when the bucket rotates, and means for venting the central chamber to permit free flowing of the water to the auxiliary chamber.

2. In an apparatus of the class described, a bucket rotatably supported in the course of the flow of the water, said bucket having a central open chamber and a partition, a peripheral auxiliary bucket communicating with the open end of the central bucket, one wall of the said auxiliary bucket ter-

minating in a plane with the open portion of the central chamber to form a passage for water to said central chamber, a second peripheral auxiliary chamber on the opposite side of the central chamber, said second auxiliary peripheral chamber being independent of the central chamber and the first mentioned peripheral auxiliary chamber, there being a vent opening formed between the partition and the second mentioned peripheral auxiliary chamber whereby to permit the escape of air when the water flows from the central chamber.

3. In a water-softening apparatus, a water-measuring tipping bucket rotatably supported in the course of the flow to the apparatus of water to be treated therein, said bucket having a central compartment open to said flow in one position of the bucket, a second compartment communicating with and extending partway about said central compartment to one side thereof, and a third compartment open to said flow in the other position of the bucket and closed to and extending partway about said central compartment to the opposite side thereof, and means for holding the bucket against backward turning from either of its discharging positions.

4. In water softening apparatus a tipping bucket having a central cylindrical main chamber and two peripheral auxiliary chambers the main chamber being in communication with only one of the peripheral auxiliary chambers whereby on the feeding in of the liquid the bucket makes a complete revolution for each discharge of the main chamber.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HAROLD JOSEPH WHEATON.

Witnesses:

ROBERT MILTON SPEARPOINT,
H. D. JAMESON.