A. J. & E. E. MEMMEL.

WATER MOTOR.

APPLICATION FILED MAR. 23, 1907.

906,049. Patented Dec. 8, 1908.

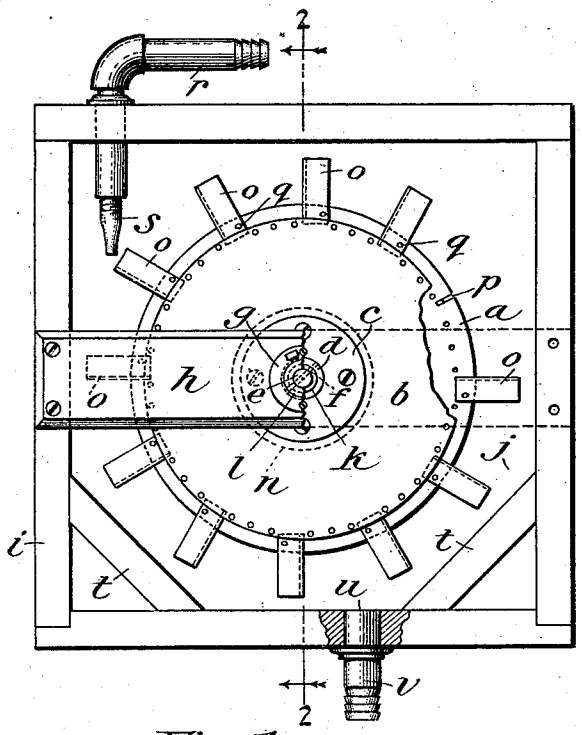


Fig. 1.

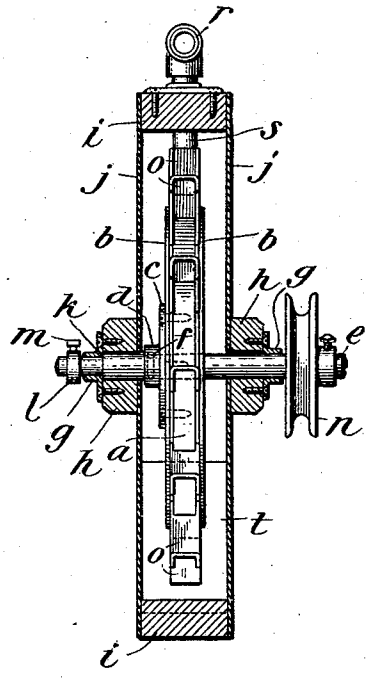


Fig. 2.

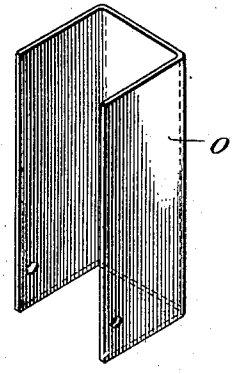


Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

ANDREW J. MEMMEL AND EMIL E. MEMMEL, OF MILWAUKEE, WISCONSIN.

WATER-MOTOR.

No. 906,049. Specification of Letters Patent. Patented Dec. 8, 1908.

Application filed March 23, 1907. Serial No. 364,109.

To all whom it may concern:

Be it known that we, ANDREW J. MEMMEL and EMIL E. MEMMEL, of Milwaukee, Wisconsin, have invented a Water-Motor, of which the following is a specification.

Our invention has for its object to produce a water motor more particularly adapted for household operation and in small shops and the like, to produce sufficient power to run small machines, where cheapness of installation is more esteemed than efficiency.

More particularly we aim to produce a water motor of sufficient power for our purposes at a minimum of expense so that the motor can be manufactured and sold on the market at a price so low as to be within the reach of anyone having use for an apparatus of this sort.

The construction and operation of our motor will best be understood from a consideration of the following description of one specific embodiment thereof, reference being had to the accompanying drawings, wherein

Figure 1 is a front elevation of the motor having the galvanized iron plate which forms the front closure of the casing removed to show the interior, Fig. 2 is a side elevation of the motor showing the casing in central section, Fig. 3 is a perspective view of one of the buckets or vanes of the motor.

In cheap motors as heretofore constructed it has been customary to construct them entirely of metal, which while it makes undoubtedly a more durable construction, is not necessary to accomplish the purposes in view and makes the cost of construction so expensive as to partially defeat its purpose. Our construction on the other hand is so devised that the body of the motor may be made of wood, although we do not limit ourselves to wood as a material or to any special material of manufacture. The body *a* of the water-wheel may, however, conveniently and appropriately be made of wood, and is flanked on either side by a disk-shaped metal sheet *b* which may be of galvanized iron, tin-plate or the like, and the whole is solidly secured by means of screws or other fastenings to a hub-piece *c* which may be appropriately of cast iron and provided with a hub-sleeve *d*, the whole mounted upon the motor-shaft *e* and secured thereto by means of a pin *f* driven as shown through diametral holes bored in the sleeve *d* and shaft *e*. The shaft *e* is mounted to rotate in bearings *g*, which are mounted on cross-bars *h* extending transversely across the center of the rectangular casing *i*, which comprises a rectangular frame, preferably of wood, closed on its opposite faces by galvanized iron sheets *j*, as clearly shown in Fig. 2. The shaft *e* is reduced at one end to form a shoulder *k*, abutting against one side of the bearing-block *g*, while a collar *l* fixed by a set-screw *m* forms an abutment or thrust-bearing on the other side of the bearing-block, thus preventing end motion of the shaft in its bearings. On the opposite end of the shaft *e* is mounted the drive-pulley *n*.

One of the special features of our invention, which while giving the motor a fair degree of efficiency enables it to be cheaply manufactured, consists of the channel-shaped wheel-bucket *o* formed of sheet metal (as for example, of galvanized iron) as shown in perspective in Fig. 3. One of these buckets or vanes is removed from the water-wheel in Fig. 1 to illustrate its mode of setting. A series of radial saw-cuts *p* are made at regular intervals around the periphery of disk *a*, these being of just sufficient width to receive the edge of the bucket as shown, and after the latter is set therein it is secured in place by a couple of nails or tacks *q* on each side.

To drive the motor we provide a water supply-pipe *r* at the upper corner of the casing, this pipe ending in a nozzle *s* which directs a forcible jet of water upon the buckets *o*. The bottom of the casing is braced by means of diagonal pieces *t*, which also serve to direct the exhaust or waste water into the orifice *u* which is connected to the waste-pipe *v* from which the water may be conducted to a sink or other waste-duct by means of a hose. The nozzle *s* is made removable so that the size may be adjusted to the pressure of water and power desired.

We recognize the fact that certain alterations which will readily occur to those skilled in the art may be made in the construction of our motor without departing from the spirit of our invention, and we wish it understood that all such modifications are included in our invention so far as they lie within the reasonable scope of our claims.

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

1. In a water motor, a water-wheel comprising a disk of soft material such as wood,

a metal hub-piece to which said disk is secured, a pair of metallic plates or disks secured to opposite faces of said disk, and a plurality of buckets secured to the edge of said disk.

2. In a water-motor, a wheel-disk of soft fibrous parallel grained material and having a plurality of narrow slots in the periphery thereof, a plurality of channel-shaped wheel-buckets of thin sheet metal having the same opening as the width of said disk and the center member of the channel of each bucket set in one of said slots, and fastenings such as nails securing the flanks of said buckets directly to the sides of said disk.

3. In a water-motor, a wheel-disk of soft fibrous parallel grained material and having a plurality of narrow slots in the periphery thereof, a plurality of channel-shaped wheel-buckets of thin sheet metal having the same opening as the width of said disk and the center member of the channel of each bucket set in one of said slots, and fastenings such as nails securing the flanks of said buckets directly to the sides of said disk; in combination with a pair of sheet metal disks secured by fastenings to the opposite faces of said disk.

4. In a water-motor, a wheel-disk of soft fibrous parallel grained material and having a plurality of narrow slots in the periphery thereof, a plurality of channel-shaped wheel-buckets of thin sheet metal having the same opening as the width of said disk and the center member of the channel of each bucket set in one of said slots, and fastenings such as nails securing the flanks of said buckets directly to the sides of said disk; in combination with a pair of sheet metal disks secured by a fastening to the opposite faces of said disk, a hub-member upon which said disk is centered and secured, and a working-shaft upon which said hub-member is centered and secured.

5. A water-motor comprising in combination a rectangular frame of soft fibrous parallel grained material such as wood, a pair of sheet metal plates closing the sides thereof, a pair of central cross-bars at the sides of said sheet metal plates, bearing-blocks carried by said cross-bars, a shaft rotating in said bearing-blocks, a disk-wheel mounted on said shaft inside said frame, water-vanes or buckets carried on the periphery of said disk, a water-nozzle directed against said vanes or buckets, and a waste-pipe adapted to withdraw the exhaust water from the lower end or side of said frame, substantially as described.

6. A water-motor comprising in combination a disk-wheel having peripheral buckets, a frame surrounding the periphery of the disk only and in the plane thereof and open at both sides; a pair of removable plates flanking the respective faces of the disk and closing the sides of said frame, said wheel being mounted on a shaft passing through openings in said plates, and a water-nozzle adapted to direct the water against said buckets.

7. In combination with a disk-wheel having peripheral buckets, a rectangular frame surrounding the periphery of the disk in the plane thereof and comprising four wooden strips secured together end to end; rectangular side-plates of sheet-metal covering the respective sides of said frame and completely inclosing the wheel; and means independent of said side-plates for supporting the shaft of said wheel which passes through holes in the center of said plates.

In witness whereof, we have hereunto set our hands this twenty-first day of March, 1907.

ANDREW J. MEMMEL.
EMIL E. MEMMEL.

In presence of—
OTTO B. KLAUS,
G. F. MEMMEL.