

(No Model.)

F. FENLEY.
WATER MOTOR.

No. 529,524.

Patented Nov. 20, 1894.

Fig. 1.

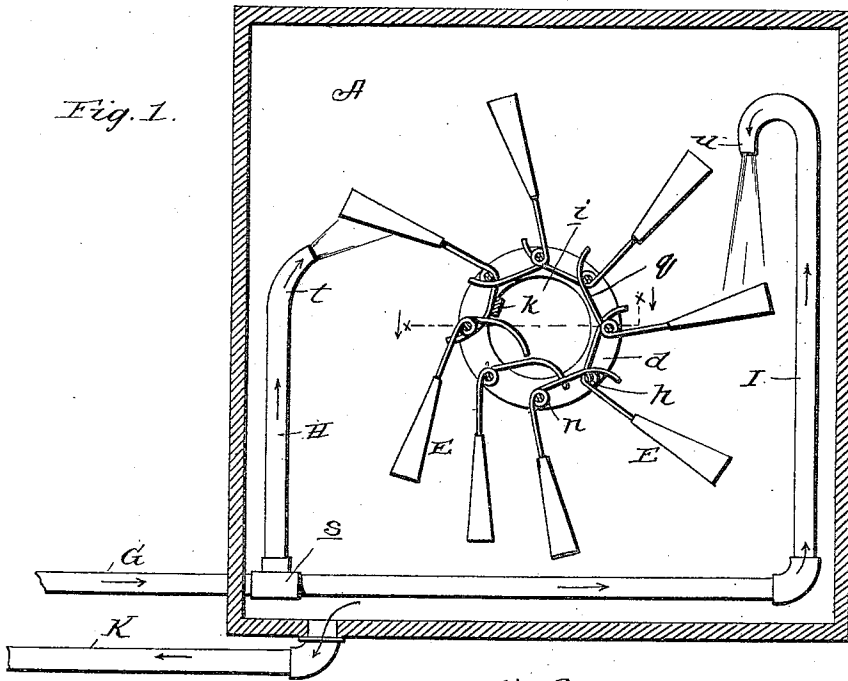


Fig. 2.

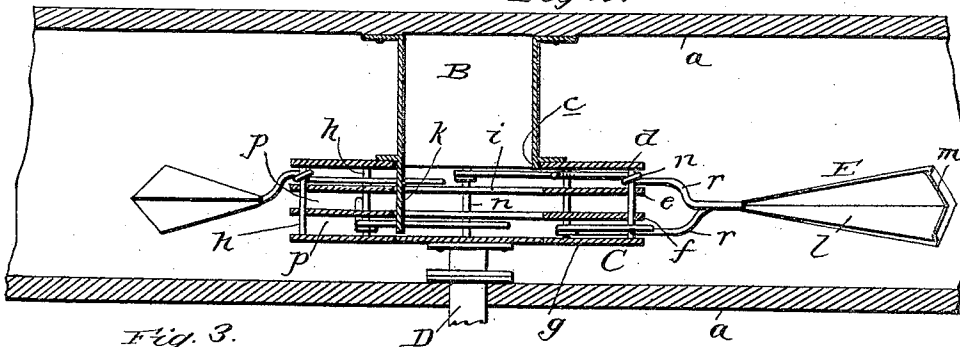


Fig. 3.

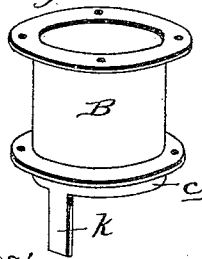
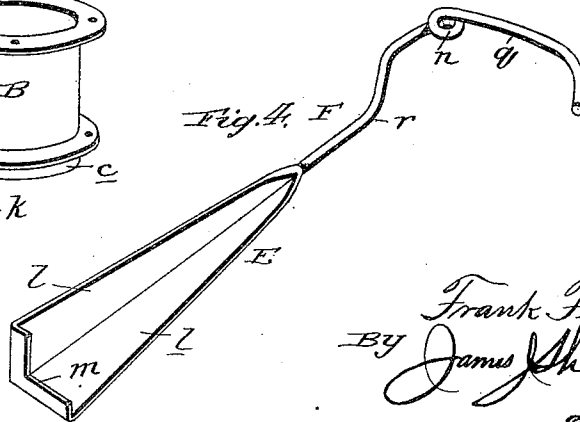


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK FENLEY, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO EDGAR B. KEMP, OF SAME PLACE.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 529,524, dated November 20, 1894.

Application filed January 24, 1894. Serial No. 497,927. (No model.)

To all whom it may concern:

Be it known that I, FRANK FENLEY, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, 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.

This invention has relation to an improvement in water motors, and the novelty will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a vertical, longitudinal sectional view of a casing showing my improvements in side elevation. Fig. 2, is a horizontal sectional view taken at the point indicated by dotted line *x, x*, of Fig. 1, looking in the direction of arrow, and with the casing partly broken away. Fig. 3, is a perspective view of the bearing for the wheel illustrating the lug or projection for throwing out the blades; and Fig. 4, is a perspective view of one of the blades removed from the wheel.

Referring by letter to said drawings: A, indicates a box or casing, which is preferably of a rectangular form in outline, and should be made water-tight, and may be ornamented, as desired. Fixed to one of the vertical side walls *a*, of the casing, is a horizontal support B, which may be of a tubular form and composed of metal, or other suitable material. This support is designed to receive the wheel on one end, and is provided with an annular flange *c*, and a projection beyond said flange which forms a rest for the wheel as will be presently described.

C, indicates the wheel. This wheel is here shown as comprising three similar rings *d, e*, and *f*, and a head *g*, all of which are secured together adjacent to the peripheries by means of transverse bolts *h*. Fixed centrally to the head *g*, of the wheel by any suitable means is a shaft D, which has its bearing in the opposite side wall *a*, of the casing and receives rotary motion from the wheel to which it is fixed. It is obvious that power can be taken from this shaft to operate any suitable machinery. The wheel is provided with piv-

oted blades, which are designed to be presented to a stream of water, both in their upward and downward movements during rotation. It will be observed that the rings *d, e*, and *f*, have circular openings *i*, in their centers and the bearing B, has a stud or projection *k*, which extends into said rings and is designed to contact with the curved or bent branches of the arms of the blades, as will be presently described.

E, indicates the blades. These blades are of a construction substantially as shown, being preferably composed of sheet metal, having two approximately rectangular wings *l*, and they taper from their outer to their inner ends, longitudinally, and the outer end of each wing is turned angularly as shown at *m*, so as to more effectively resist the action of the stream of water thrown against them and offer the greatest resistance at their outer ends whereby an increased leverage will be obtained to turn the wheel. These blades are provided with stems F, and have a journal aperture *n*, which is received on the cross rods or bolts *h*, of the wheel. The rings of the wheel are arranged with respect to each other so as to form spaces *p*, between them and the stems of the blades are journaled within the spaces. In placing the blades upon the wheel, I arrange them alternately within the space at the inner and outer side of the wheel, respectively. The free ends of the stems are curved, as shown at *q*, so that they may be struck by the stud or projection *k*, of the bearing B, when they reach a certain point in the rotation of the wheel, and be presented properly to the stream of water, as will presently appear. By arranging these blades alternately as described, the curved branches of the stems will be prevented from interfering with each other during operation, as the intermediate rings, will prevent them from striking one another, and these curved branches are so long that when the blade has been thrown out to its fullest extent from the wheel, the said curved branches will strike the rods or bolts *h*, adjacent or in advance of their pivotal points; thereby holding the blade firmly against the action of the water. As the blades have their stems alternating in the spaces of the wheel, it is obvious that they

would present themselves in different planes, but to overcome this objection, I form a bend r , in the stems so as to bring each and every blade in the same central plane of the wheel, during operation.

G, indicates a water pipe which passes into the box and may lead from any suitable source of supply. Connected to this pipe by means of a T-coupling s, is a nozzle H, which has its discharge end curved, as shown at t , so that it may direct a current of water or other liquid upwardly oblique. Leading from the inner end of this supply pipe G, is another nozzle I, which has its upper end curved, so as to direct its discharge mouth u , downwardly. These discharge mouths are arranged on opposite sides of the wheel and in the plane of rotation of the blades so that one nozzle will discharge upwardly at an angle against the blades, and the opposite nozzle will throw the current downwardly upon the blades, so that each blade is subjected to the action of two continuous currents during rotation.

K, indicates a carry-off or discharge pipe, which taps the box in its bottom and at its lowest point so that the water falling from the wheel and into the box, will be quickly carried off, but whatever water should remain or be retarded in its discharge, will not interfere with the action of the wheel inasmuch as the blades swing loosely when they reach their lowest point of rotation and would simply pass without interruption through any water that might be in the lower portion of the box.

While I have described very specifically and in detail, the apparatus in its construction, shown and described, yet I do not wish to be understood as confining myself to the exact construction of parts, nor to the precise manner of combining them, as shown, as I am

aware that many modifications might be made in the construction and combinations of devices, without departing from the spirit of my invention, and I therefore reserve the right to make such changes or alterations as may fall within the scope of my claims.

Having described my invention, what I claim is—

1. The combination with a box or casing having a draw off or discharge pipe, and the supply pipe leading into the casing and having the discharge nozzles H, and I; of the wheel comprising the rings arranged at intervals and connected by the cross pins or rods, the blades having their stems curved so as to bring each blade in the same rotatable plane and journaled upon the cross pins or rods alternately in the outer spaces between the rings; said stems being also provided with projected and curved arms, and a support having the stop extending into the wheel and adapted to engage said curved arms, substantially as specified.

2. The wheel comprising the rings arranged at intervals and connected by the cross pins or rods, in combination with the blades having their stems curved so as to bring each blade in the same rotatable plane, and journaled upon the cross pins or rods alternately in the outer spaces between the rings, said stems being also provided with projected and curved arms, and a support having the stop extending into the wheel and adapted to engage said curved arms, the whole adapted to operate in a box or casing, substantially as specified.

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

FRANK FENLEY.

Witnesses:

ANTHONY SAMBOLA,
L. DE POORTER.