(No Model.)

E. B. BENHAM & H. E. BARLOW.

WATER MOTOR.

No. 522,958. Patented July 17, 1894.

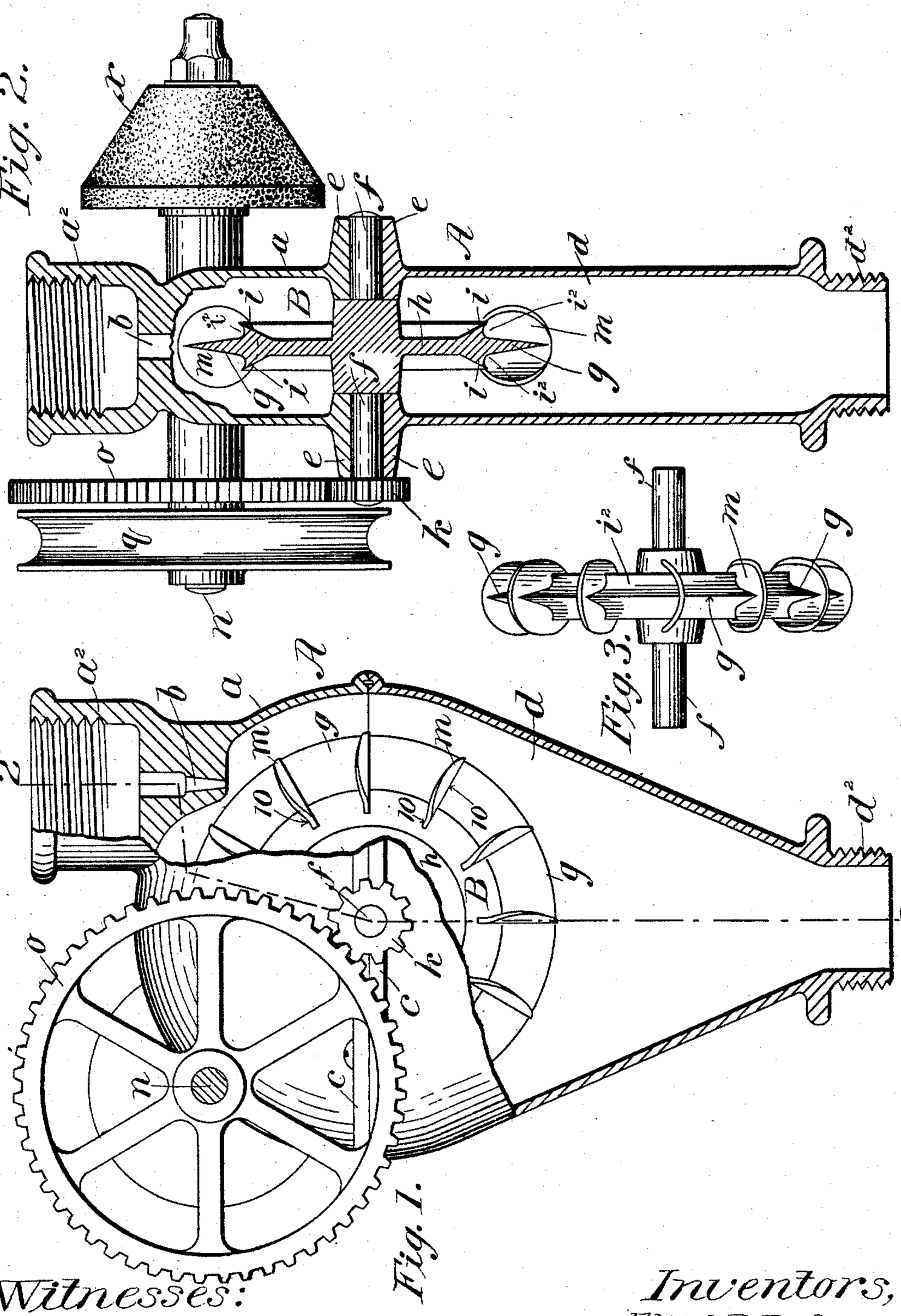

Fig. 2.

Fig. 3.

Fig. 1.

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UNITED STATES PATENT OFFICE.

ELIJAH B. BENHAM AND HOWARD E. BARLOW, OF PROVIDENCE, RHODE ISLAND.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 522,958, dated July 17, 1894.

Application filed November 4, 1893. Serial No. 490,050. (No model.)

To all whom it may concern:

Be it known that we, ELIJAH B. BENHAM and HOWARD E. BARLOW, citizens of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Water-Motors, of which the following is a specification.

This invention relates to improvements in water motors principally designed for domestic use, and which are adapted for attachment to a faucet to be driven by the water jet or stream thereof.

The improvements more particularly pertain to the construction of the bucket wheel which is embodied in the motor, and the invention consists in the construction hereinafter fully set forth and pointed out in the claim.

The invention is fully illustrated in the accompanying drawings,—Figure 1 being a side elevation, with parts of the casing broken out and in central vertical section to more clearly show the internal constructions. Fig. 2 is a vertical cross section taken about on the line 2—2, Fig. 1. Fig. 3 is a plan view of the bucket wheel.

In the drawings, A represents the motor casing, and B the bucket wheel. The casing comprises two sections, the upper one, *a*, of which is of a generally semi-cylindrical form with a hollow, upwardly opening, internally screw-threaded hub, a^2, at its top, off to one side from its center, for attachment to the screw-nozzle of the faucet; a web or partition separates the passage through this hollow hub from the space within the casing section proper, it having, however, the contracted and downwardly directed communicating passage, *b*. The lower section, *d*, of the casing is of a sidewise flattened funnel shape with the externally screw-threaded nozzle, d^2, at its lower end. Both of these casing sections have suitable outwardly extended flanges, *c*, at their meeting edges whereby the two sections are held together by screws, or bolts, suitably interposed packing effectually preventing leakage. Both casing sections, *a*, *d*, have semi-cylindrical transversely extended bosses, *e*, *e*, which together form the journal bearings for the shaft, *f*, of the bucket wheel.

The bucket wheel is constructed, as clearly seen in the drawings, viz: The wheel is preferably formed by casting and turning, its body comprising the web, *h*, outside of the hub, which near its outer edge is widened at each side in the annular flanges, *i*, *i*, the surfaces of which farthest from the axis, are of annular trough form, as seen at i^2, while the outer part of the wheel is constituted by the surrounding beveled or comparatively sharp fin, *g*, in the middle plane of the wheel. The wheel has a series of transverse, radial saw-kerfs, 10, extending from the outer edge to the base of the flanged portion, into which kerfs are inserted and secured, the disks, *m*, *m*, forming the buckets. These disks, after having been driven and fastened into place, have their two lateral portions which project at the sides of the fin-bent back, toward or against the path of the jet, as indicated.

It will be perceived that the jet is directed properly and approximately tangential to the bucket-wheel, and that the jet, after coming through the contracted passage, *b*, will be divided by the said sharp annular fin and operate upon the hollowed bucket members, at either side of the wheel.

The shaft or journal-stud, *f*, is suitably extended at one side of the motor, receiving the pinion, *k*, while the motor casing has formed thereon the journal bearings for the counter-shaft, *n*. This counter-shaft has the spur gear, *o*, which meshes with the aforesaid pinion, and it is also provided, at one end, with the grooved pulley, *q*, while at its other end is seen, at *x*, an emery wheel,—the latter being shown merely to indicate one manner of the utilization of the motive power derived in the manner hereinbefore rendered manifest.

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

In a water wheel, in combination with a case, a wheel on a shaft having bearings in the sides of said case, said wheel consisting of a central web with a series of buckets attached thereto, and a circular flange on each side of the central web at, or near the inner end of the buckets, said circular flanges being re-curved or made concave on their outer sides, in cross section, forming channels around the wheel, substantially as described.

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