

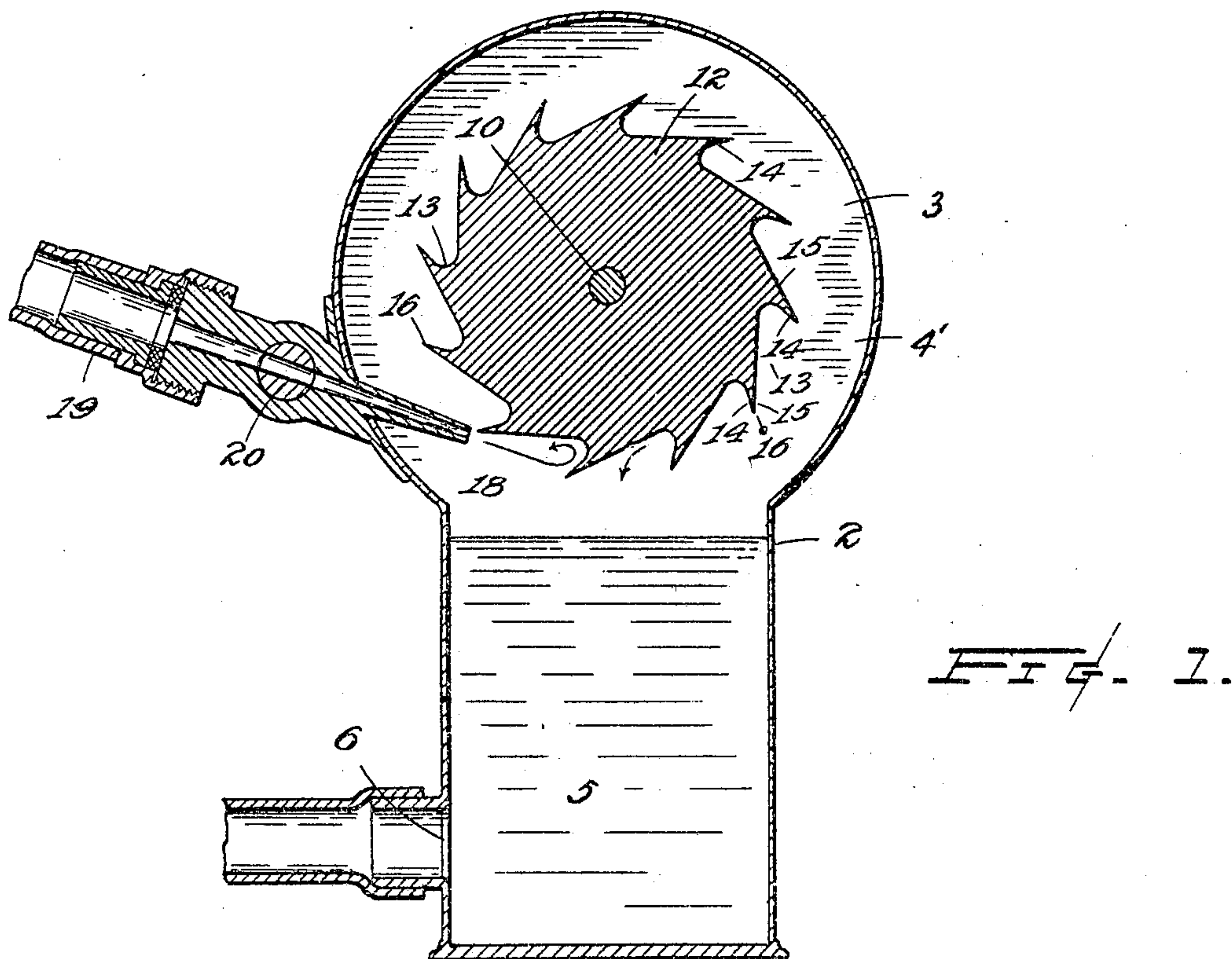
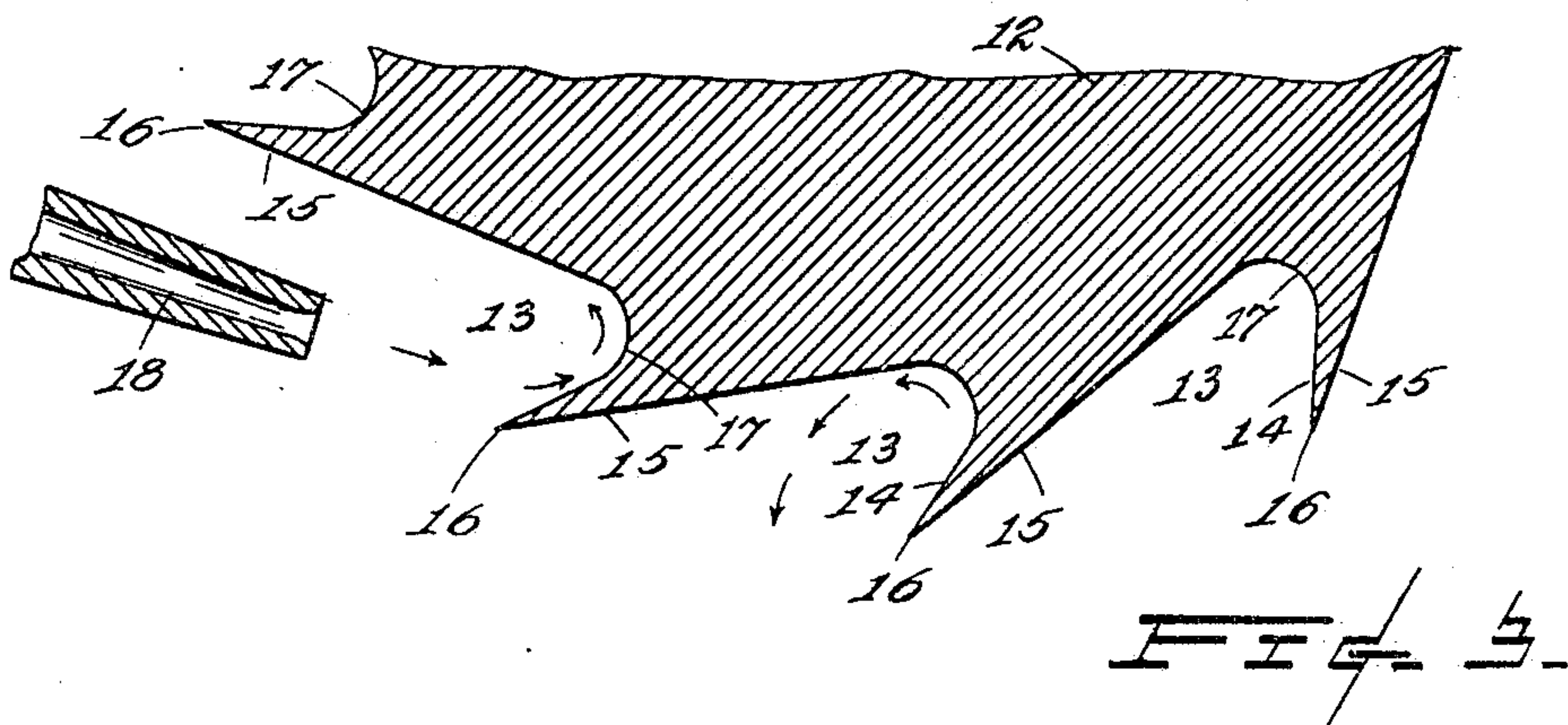
No. 787,979.

PATENTED APR. 25, 1905.

L. D. FALCONER.
WATER MOTOR.

APPLICATION FILED JUNE 16, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

M. Hanning
L. J. Calver

INVENTOR.
L. D. Falconer
BY *Pierre Barnes*
ATTORNEY.

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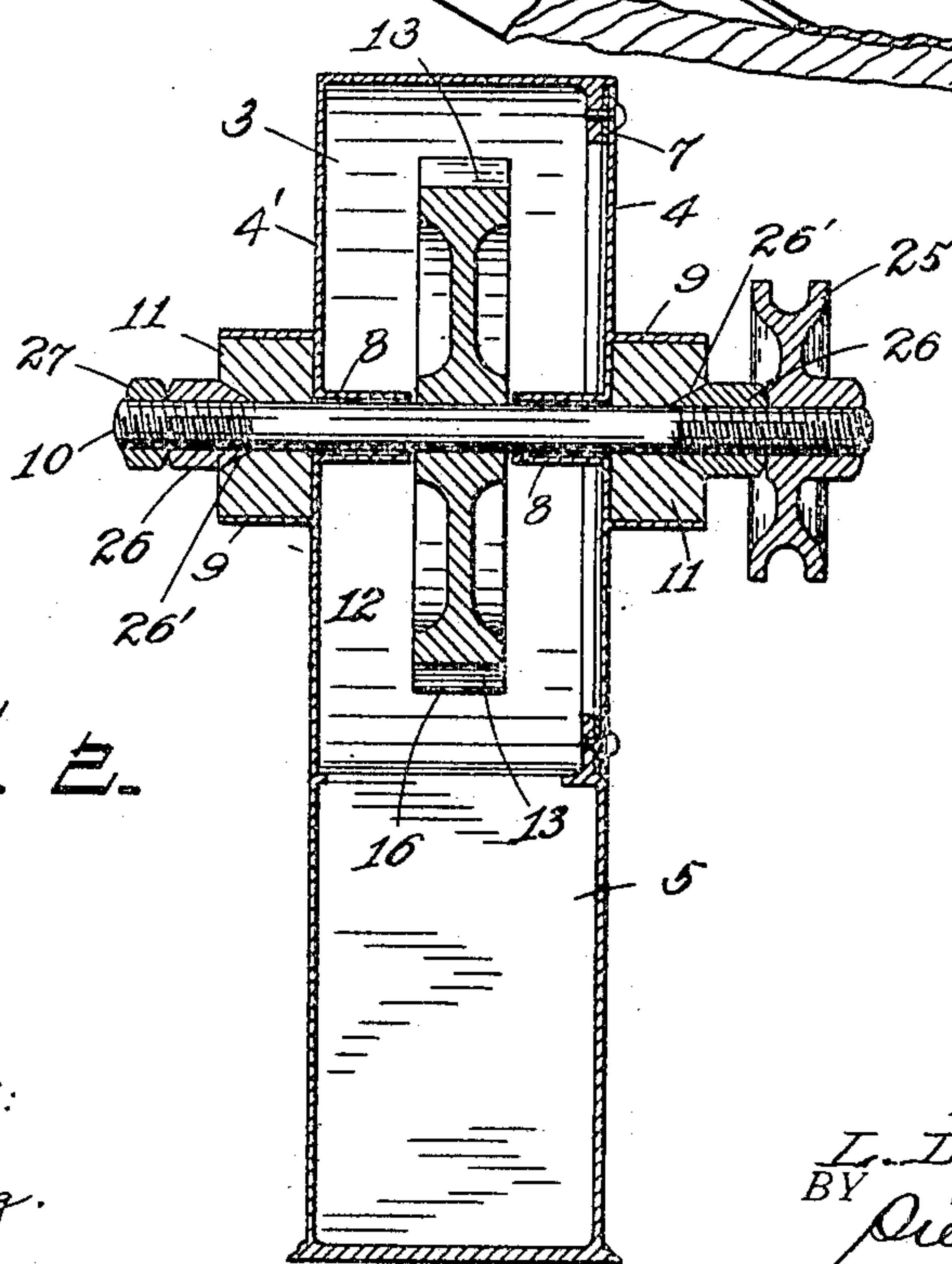
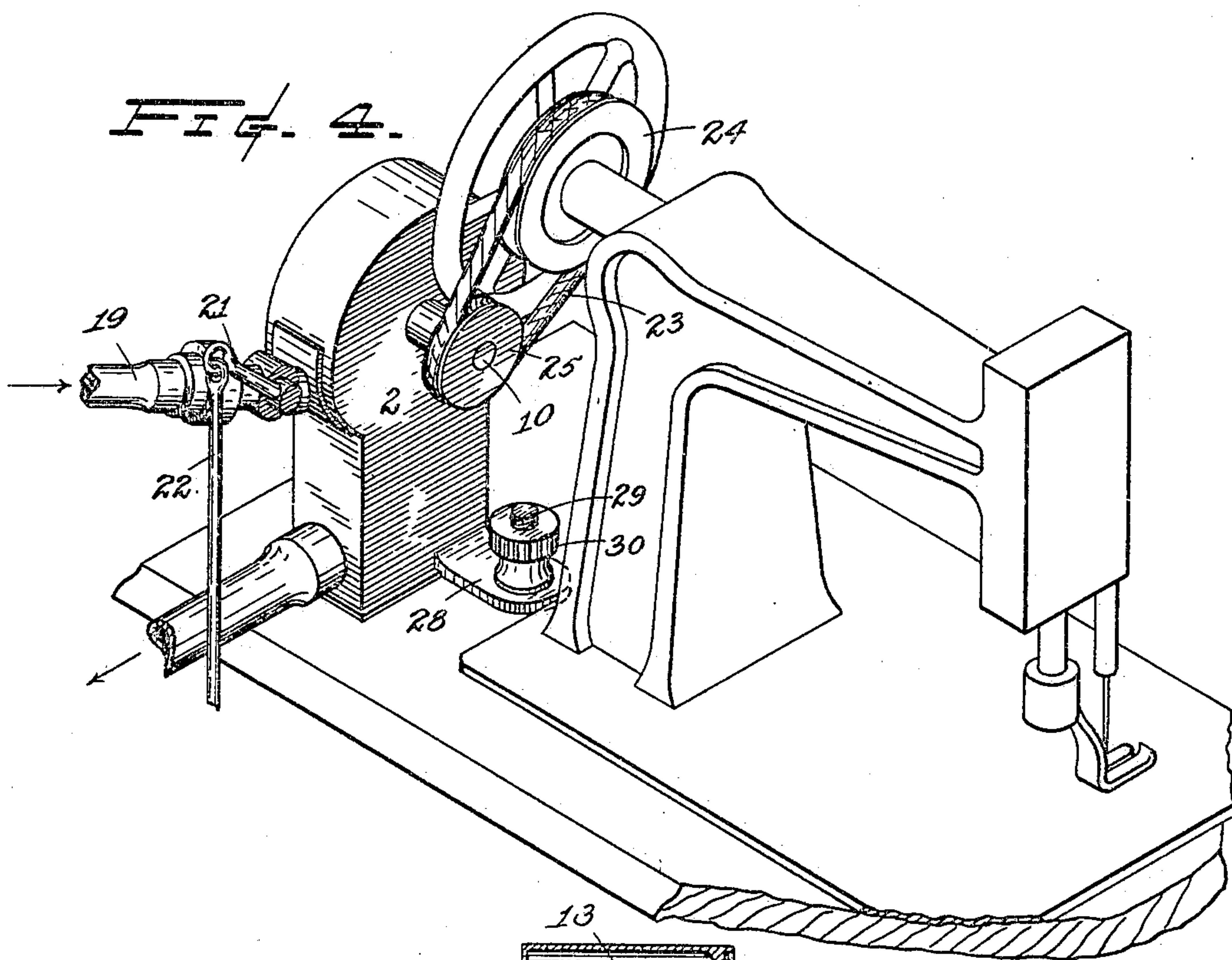
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2 SHEETS—SHEET 2.



F I G 2

WITNESSES:

M. Hamming.
H. Collins

INVENTOR.

L. D. Falconer.
BY *Pierre Barnes*
ATTORNEY.

UNITED STATES PATENT OFFICE.

LEROY D. FALCONER, OF SEATTLE, WASHINGTON.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 787,979, dated April 25, 1905.

Application filed June 16, 1904. Serial No. 212,781.

To all whom it may concern:

Be it known that I, LEROY D. FALCONER, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Water-Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in water-motors, more particularly to motors of small size for use in driving sewing-machines or the like; and the object of the invention is to provide a simple motor of this character wherein the parts are so constructed and combined as to obtain the best results with an economic use of water.

To this end my invention consists in certain novel features and combinations thereof, which will be hereinafter described and claimed.

In the said drawings, Figure 1 is a vertical longitudinal section of a motor embodying my invention. Fig. 2 is a cross-section of the same. Fig. 3 is an enlarged detail view of parts of wheel and nozzle. Fig. 4 is a perspective view of the motor shown connected to the top of a sewing-machine.

2 is the motor-casing, having a cylindrical-shaped upper portion 3, provided with heads 4 and 4' and a chambered pedestal 5, having an outlet 6. The head 4 is removably secured to the casing, and to provide a tight marginal joint an elastic gasket 7 is interposed therebetween.

Axially-disposed sleeves 8 and 9, respectively, project interiorly and exteriorly of each head, of which the former are used to shroud the wheel-shaft 10 and the others to provide housings for the shaft bush-pieces 11. Fixedly mounted upon said shaft is an impact-wheel 12, having in its periphery a plurality of notches or indents 13, formed between converging surfaces 14 and 15 of intermediate triangular-shaped buckets, which are inclined from radial planes projected through the wheel, and these surfaces comprising the bucket-walls terminate at their outer edges in acute-angular ridges 16 and inwardly in circular gullets 17.

Extending through the circular wall of the

casing somewhat below its axis is a water-inlet nozzle 18, with its orifice directed so as to discharge tangentially of and to the wheel and within a circumferential line passing about the apices 16 of the several buckets, as shown in Figs. 2 and 3. The said nozzle is communicatively connected with the source of water-supply, preferably by a flexible pipe 19, and a suitable regulating-valve 20 is included in said connection. This valve is provided with controlling means, such as an arm 21, which in the application of the motor to sewing-machines may advantageously be connected by a link 22 with a pedal device (not shown) within easy reach of the operator's foot, thereby permitting her to use both hands for manipulating the work.

The sewing-machine is driven by an endless belt 23, passing around the usual machine-driven sheave 24 and a driving-sheave 25, carried by the motor-shaft.

Set-collars 26 are provided to prevent the displacement of the shaft and are each made, preferably, with a tapering end 26', which seat in corresponding conical annular recesses provided in the outer ends of said bush-pieces, thus furnishing means for taking up the wear and also for centering the rotating parts. In practice I screw-thread the shaft and the said collars, which allows of a very nice adjustment being given to the collars and which are further secured in place by the usual lock-nuts, such as 27; but in order to make the motor compact I screw-thread the hub of the sheave 25 and let that act instead of one lock-nut.

For securing the motor in place a laterally-projecting lug 28 is provided at the base of the pedestal and having an aperture (not shown) situated in the same vertical plane with the groove of sheave 25. This enables the motor to be conveniently attached to any sewing-machine by utilizing an aperture made in the machine-top for the passage of the driving-belt as commonly used, and the motor is directly secured by a screw-threaded bolt 29, passed through both the said apertures of the machine-top and of the motor-lug aforesaid, and a fastening-nut 30, and positions the motor to have its driving-sheave

in the same plane with the driven sheave on the sewing-machine.

By the peculiar form of the wheel-buckets and the disposition of the nozzle the stream
5 of water emitted from the latter strikes the opposing faces of the revolving buckets at relatively inclined angles and is deflected and reversed in its direction, as indicated by arrows in Figs. 2 and 3, thence, after impart-
10 ing its kinetic force or impulse to rotate the wheel, falls in unbroken liquid sections into the waste-water chamber below. This action is accelerated by the combined effects of gravity and centrifugal force, and the ve-
15 locity of the revolving buckets is such when at normal speed that the discharge water is carried, before dropping, beyond the range of the propelling-stream, thus in no manner interfering nor intercepting the driving-
20 stream.

The casing being made tight, as before mentioned, keeps out the air, which if admitted would have a tendency to mix with the water to cause it to foam and lessening the efficiency
25 of the motor and also making disturbing noises.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A water-motor comprising a casing having
30 an upper cylindrical portion and a chambered pedestal therebeneath provided with a discharge-opening and fastening-lug, shaft-openings in the upper cylindrical portion, interior
35 and exterior tubular projections on opposite sides of the shaft-openings, shaft bush-pieces in said exterior tubular projections and provided at their outer extremities with conical-shaped annular recesses, set-collars having
40 conical inner ends to register with the said annular recesses of the bush-pieces, a shaft passing through the openings of upper portion of casing and resting in the bush-pieces,
45 a water-wheel attached to the shaft in the casing and between the two interior tubular projections, buckets on said water-wheel, a driving-sleeve attached to the shaft, a nozzle connected with a water-supply and projecting
50 interiorly of the casing, said nozzle being directed so as to deliver a stream of water tangentially of the wheel and at inclined angles to the opposite faces of its buckets.

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

LEROY D. FALCONER.

Witnesses:

PIERRE BARNES,
HENRY S. NOON.