

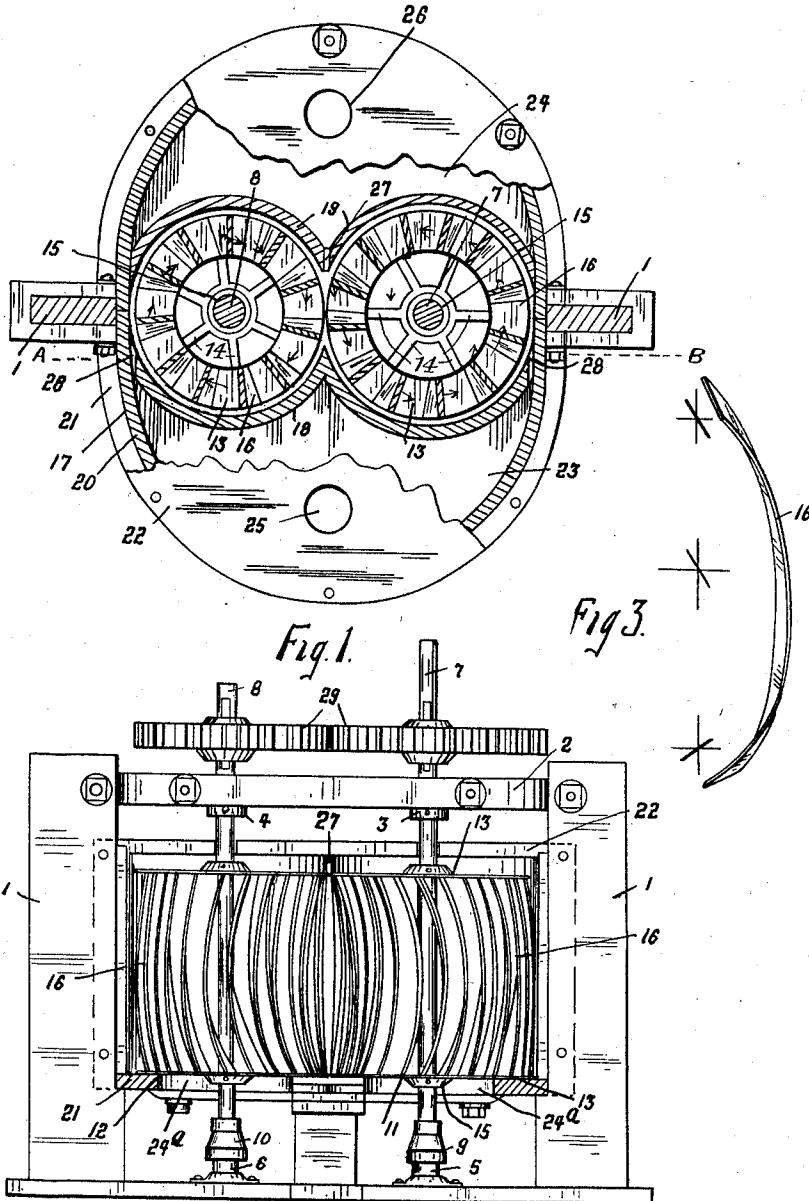
E. OLIVIER.

WATER WHEEL.

APPLICATION FILED SEPT. 22, 1911.

1,038,189.

Patented Sept. 10, 1912.



Witnesses.

Chas. Eckstein

R. F. Meyer

Fig. 2.

Inventor.

Edmond Olivier

by

Lloyd Blackmore Atty

UNITED STATES PATENT OFFICE.

EDMOND OLIVIER, OF OTTAWA, ONTARIO, CANADA.

WATER-WHEEL.

1,038,189.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed September 22, 1911. Serial No. 650,776.

To all whom it may concern:

Be it known that I, EDMOND OLIVIER, a subject of the King of Great Britain, and resident of 95 St. Andrew street, Ottawa, Canada, have invented certain new and useful Improvements in Water-Wheels, of which the following is a specification.

The invention relates to improvements in water wheels, as described in the present specification, and illustrated in the accompanying drawings, that form part of the same.

The invention consists essentially of the novel arrangement and construction of parts, whereby a pair of water wheels having radially arranged blades extending longitudinally of the shaft, and inclined toward the upper end thereof in the direction of the flow of water, are vertically mounted side by side in a housing having a plurality of vertical openings therethrough for admitting water against the blades of said wheels in equal quantities at opposing sides of said wheels.

The objects of the invention are to devise an efficient water wheel of simple construction, which shall be balanced in operation, exert a minimum pressure on the shaft and step bearings, and readily clear the water therefrom.

In the drawings, Figure 1 is a plan view of a water wheel and housing, partly in section. Fig. 2 is a cross sectional view on the line A—B in Fig. 1. Fig. 3 is a perspective detail view of one of the blades.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 are the up-rights of the wheel house frame, supporting the cross piece 2, said cross piece having the bearings 3 and 4 vertically arranged therein.

5 and 6 are step bearings arranged directly beneath the bearings 3 and 4.

7 and 8 are the wheel shafts, having the step shoes 9 and 10 secured to the lower end thereof, and running on the step bearings 5 and 6 respectively, the upper ends of said shafts being journaled in the bearings 3 and 4 respectively.

11 and 12 are the water wheels, each wheel comprising the rings 13 supported by the arms 14 from the hubs 15, said hubs being firmly secured to the shafts 7 and 8.

16 are the blades secured between the

rings 13 in radial arrangement around the wheels.

In Fig. 3 a detail of the blade is shown, which would be in the position marked 16^a in Fig. 1, the flow of water being in the direction of the arrows as shown in the said Fig. 1.

17 is the wheel house built about the wheels, and comprising the semi-circular walls 18 and 19, inclosing the wheels 11 and 12 on opposite sides, and the outer wall 20, forming with the bottom 21 and top 22, the reservoirs 23 and 24 between said outer wall 20 and the inner semi-circular walls 18 and 19. The top 22 completely covers the reservoirs 23 and 24, and the upper side of the water wheels, while the bottom 21 is cut away immediately beneath each water wheel at 24^a.

25 and 26 are water inlets through the cover 22 leading to the reservoirs 23 and 24 respectively.

27 is a vertical opening through the semi-circular walls 19 where they curve inwardly between the water wheels 11 and 12.

28 are vertical openings between the extremities of the semi-circular walls 18 and the outer wall 20.

In the operation of the water wheel, the inlet openings 25 and 26 are connected by suitable piping with the flume or supply of water, the water passing through the opening 26 filling the reservoir 24, whereby a head of water is maintained in said reservoir, the water passing therefrom through the opening 27, which directs the same onto the opposing blades of the wheels 11 and 12, as indicated by the arrows in Fig. 1. The water admitted through the inlet 25 completely fills the reservoir 23, and from there is fed through the openings 28, as indicated by the arrows in Fig. 1, to the blades on the outer sides of the wheels 11 and 12, the opening 27 being equal in width to the width of both the openings 28, whereby the water flowing against the blades on the opposite sides of the wheel is equal and in opposite directions. The water as it strikes the blades 16 of the wheels will have a tendency to raise the wheel, owing to the inclined upper portion of the blades, which, as hereinbefore described, are inclined against the direction of the flow of water, and thereby minimize the friction on the step bearings, and as the wheel rotates, the water after it

has performed its work, will fall to the lower end of the blades, where the peculiar inward curve formed thereon will direct the water to the center of the wheel, so that it
5 may be readily cleared through the openings between the arms 14, and fall completely clear of the under side of the wheel.

The combined blades on the adjoining sides of the wheels where they pass one another form pockets upon which the full
10 force and action of the water acts, thereby giving full measure of efficiency, and the water flowing on the outer sides of the wheels will be equal to the pressure on the
15 adjoining blades of the wheels, and thereby minimize the friction on the shaft bearings.

The shafts 7 and 8 at the upper ends thereof have the spur gears 29 fixedly secured thereto, and intermeshing one with
20 the other, whereby the water wheels turn together, the shaft 7 having a suitable drive gearing mounted thereon to connect the same to the machinery desired to be operated.

25 The wheels 11 and 12 may if desired be of equal size, or the wheel 11 may be larger than the wheel 12, the said wheel 12 acting as a booster to augment the power of the wheel 11, whereby full efficiency is obtained
30 from the water used.

What I claim as my invention is:

1. A pair of water wheels having blades extending longitudinally of the shafts and arranged parallelly and alongside one another, means operatively connecting the
35 shafts of said wheels and means for supplying water in equal quantities to opposing sides of said wheels.

2. A pair of water wheels having blades extending longitudinally of the shafts and
40 arranged parallelly and alongside one another, means operatively connecting the shafts of said wheels, a housing encompassing said wheels and forming water reservoirs on each side thereof, semi-circular
45 partitions encompassing said wheels in close proximity thereto on each side thereof, a water feed opening through said semi-circular partitions at one side of said wheels and directing the flow of water in one direction
50 therebetween and openings through said semi-circular partitions directing the flow of water at each side of said wheels.

Signed at the city of Ottawa, Canada, this eighth day of August, 1911.

EDMOND OLIVIER.

Witnesses:

K. F. MACGIBBON,
THOMAS R. BALMER.