M. A. ANDERSON.

WATER WHEEL.

APPLICATION FILED JUNE 22, 1911.

1,067,858.

Patented July 22, 1913.

2 SHEETS—SHEET 1.

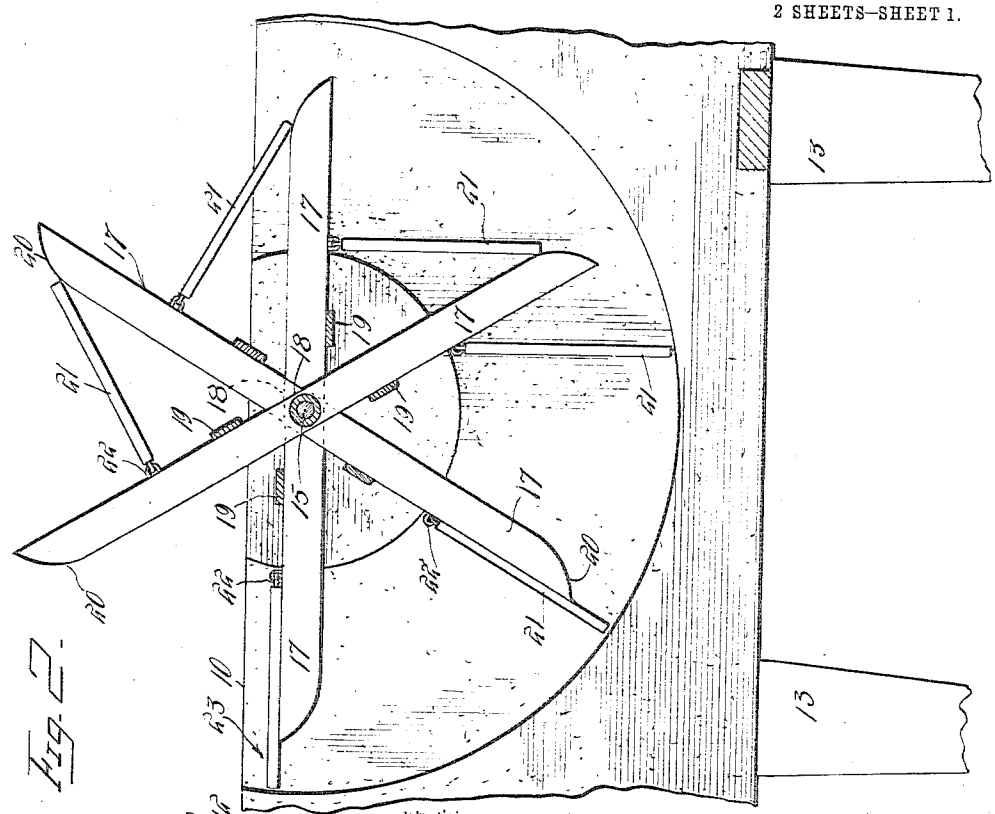


Fig. 2.

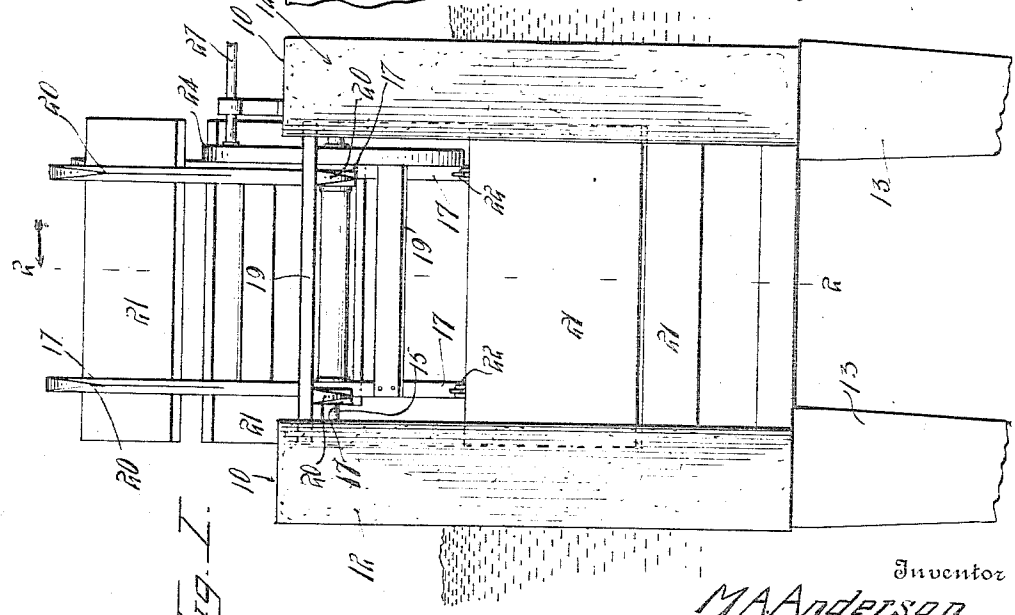


Fig. 1.

Witnesses

J. C. Simpson.

Edwin Burch.

Inventor

M. A. Anderson.

By Fitzgerald & Brandenburg.

Attorneys.

M. A. ANDERSON.

WATER WHEEL.

APPLICATION FILED JUNE 22, 1911.

1,067,858.

Patented July 22, 1913.

2 SHEETS—SHEET 2.

Fig. 3

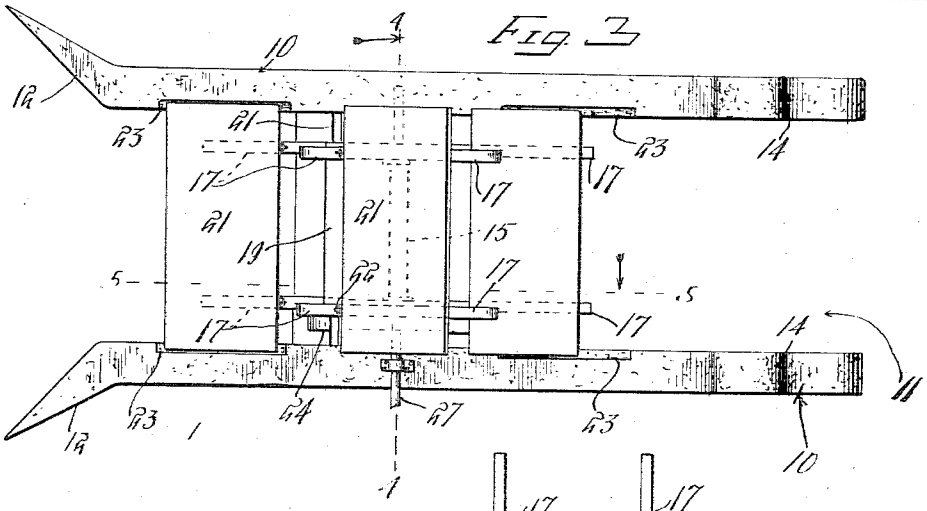


Fig. 4

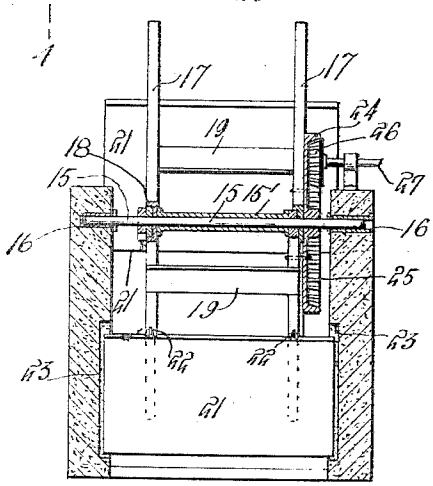
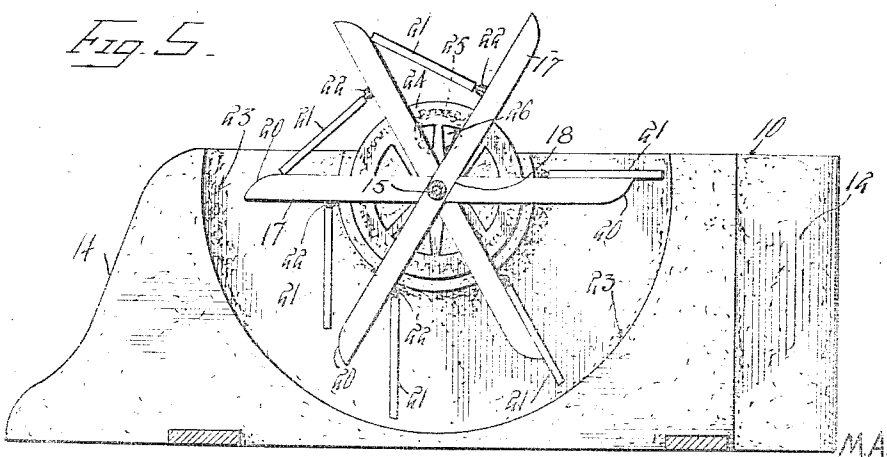


Fig. 5.



Witnesses

J. C. Simpson.

Edwin Bench.

Inventor

M. A. Anderson

By Church & Church

Attorneys

UNITED STATES PATENT OFFICE.

MATTHEW A. ANDERSON, OF DALLAS, WISCONSIN.

WATER-WHEEL.

1,067,858. Specification of Letters Patent. Patented July 22, 1913.

Application filed June 22, 1911. Serial No. 634,697.

To all whom it may concern:

Be it known that I, MATTHEW A. ANDERSON, a citizen of the United States, residing at Dallas, in the county of Barron, State of Wisconsin, have invented certain new and useful Improvements in Water-Wheels; and I do hereby 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 relates to water wheels and more especially to an improved device of this character for generating power without the necessity of employing dams or mills and which may be placed in the bed of a river or stream upon suitable supports and to be operated by the flow of current.

Another object of the invention is to provide a novel wheel construction and a novel form of channelway forming the support in which the wheel is rotatably mounted.

With these and other objects in view the invention consists of certain other combinations and arrangements of parts as will be hereinafter more fully described and claimed, it being a still further object to provide a device which will not be likely to get out of working order.

In the drawings:—Figure 1 is a vertical sectional view of a portion of a river bed with my improved channelway and water wheel mounted therein for operation. Fig. 2 is a longitudinal sectional view thereof on the line 2—2 of Fig. 1, and looking in the direction indicated by the arrows. Fig. 3 is a top plan view of the device. Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 3. Fig. 5 is a sectional view on the line 5—5 of Fig. 3.

Referring to the drawings in detail, there is shown my improved water wheel which is mounted between the vertical sides 10 of a channelway 11 which is provided with tapered flaring ends 12 at the entrance for the water which passes therethrough and said channelway is adapted to be supported in any suitable manner such as by vertical pillars 13 from the bed of the river or stream and preferably has its sides 10 inclined at its discharge and as shown at 14 whereby the water may have free exit from the channel after passing the wheel. A shaft 15 is rotatably mounted in suitable bearings 16 in the sides of the channelway and in a longitudinal position, said shaft being adapted to be longitudinally displaced from the bearings and to operatively support my improved water wheel now to be described.

Mounted upon the shaft 15 is the improved water wheel which embodies a hub 15′ mounted on the shaft to rotate therewith, while contacting with the ends of said hub are a series of crossed arms 17 which provide oppositely extended spokes and which are arranged in opposite pairs and spaced apart according to the width of the wheel, said arms where crossed being diagonally recessed as shown at 18 whereby the parts are on a common vertical plane. Each pair of opposite spokes are connected by transverse braces 19 which hold the arms against the hub and are secured upon common edges of the spokes and preferably toward the entrance of the channel when in a lowered position and the opposite edges of the spokes are tapered toward their outer ends as shown at 20 so as to offer little resistance in passing through the water. The paddles 21 are secured outwardly of the braces 19 and upon common edges of the spokes by means of double link joints 22, which serve to permit pivotal movement of the blades so as to feather in their passage through the water, to engage the outer ends of the spokes when in an operative position and to fall by gravity to be placed edgewise to the water in their inoperative positions, said paddles being adapted to extend beyond the ends of the spokes when engaged in operative position and to fall in contact with the succeeding spokes and in a horizontal position when raised. As will also be seen in the drawings, the paddles 21 extend beyond the sides of the wheel or the arms 17 and are adapted to operate in circular recesses 23 in the sides 10 of the channelway so as to prevent displacement of the paddles by the force of the water which passes therethrough. A flanged rim 24 is secured upon one side of the wheel and to the spokes thereof, said flanged rim having an internal gear 25 which is adapted to be engaged by a smaller pinion 26 which is rotatably mounted upon one of the sides 10 and in operative connection with the flanged portion forming the internal gear of the rim 24, whereby rotation of the wheel will drive the power shaft 27 which may be extended to any suitable point for driving machinery for other purposes.

From the foregoing description it will be

readily seen that I have efficiently utilized the current power of a stream for running machinery or other purposes and by reason of employing a particular form of channelway, a clear passage of water therethrough in order to obtain the fullest amount of power, is made possible and my improved wheel construction and drive mechanism greatly facilitates the transmission of power for the working operation.

I claim:—

1. In a water wheel, the combination with a channelway having side portions and means for supporting the same upon a river bed, said sides being flared outwardly and tapered to a point at the entrance end of the channelway and inclined downwardly at its discharge end; of bearings mounted horizontally in the opposed sides, a shaft rotatably supported therein and adapted to be horizontally displaced from the bearings at one side, a wheeled structure having a hub mounted on the shaft, paddles carried by the wheel and adapted for feathering action in their travel, said sides having curved recesses adapted to receive the extremities of the blades and retain the same from displacement and means for conveying power from rotation of the wheel.

2. In a water wheel, the combination with a channelway having side portions; of a shaft journaled in said sides, a paddle wheel mounted on the shaft and comprising a hub, a plurality of oppositely positioned cross arms forming spokes and having coacting recesses disposed toward each other for securing the cross arms in crossed relation on a common plane, braces connecting said spokes adjacent to the hub, said spokes having their edges disposed in the direction of travel of the wheel curved at their free ends and tapered in thickness to reduce friction, paddles connected to the spokes intermediate their lengths for pivotal action and feathering movement and means at one side of the wheel within the area of the paddles for deriving power from rotation of the wheel.

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

MATTHEW A. ANDERSON.

Witnesses:
O. I. ANDERSON,
E. ENGH.