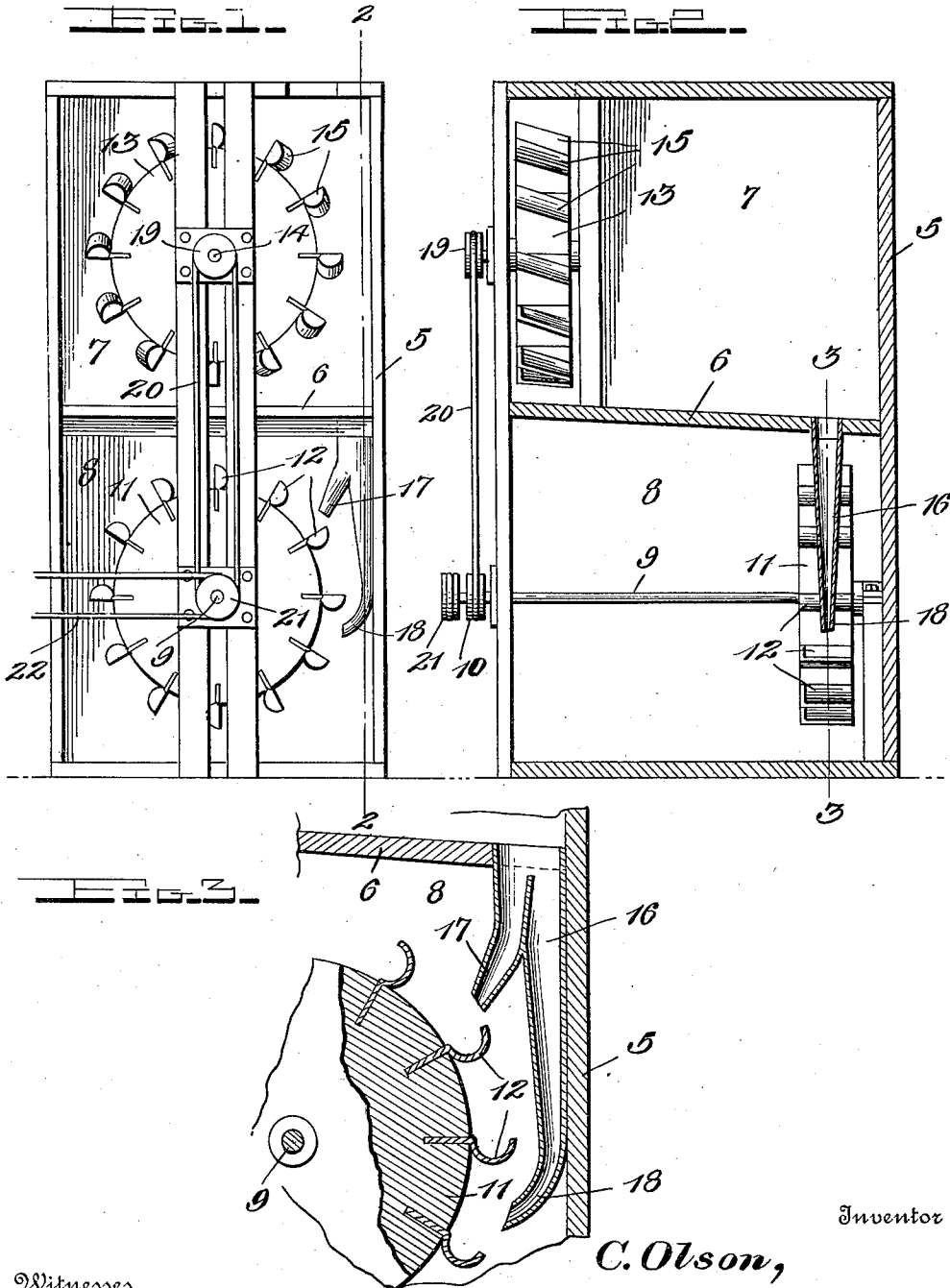


C. OLSON.
WATER MOTOR.

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1,054,710.

Patented Mar. 4, 1913.



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CHARLES OLSON, OF ENCAMPMENT, WYOMING.

• WATER-MOTOR.

1,054,710.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES OLSON, a citizen of the United States, residing at Encampment, in the county of Carbon and State of Wyoming, have invented certain new and useful Improvements in Water-Motors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to water motors and has for its object to provide a device of this character embodying a power wheel provided with buckets upon its periphery to receive the impact of a strong current of water, whereby rotation is transmitted to the power shaft upon which the wheel is mounted.

Another and more specific object of the invention is to provide a casing having upper and lower compartments, a wheel mounted in each of said compartments, an endless belt connecting the wheel shafts, the wheel in one of said compartments being provided with buckets upon its periphery so arranged as to direct the water striking said buckets into the compartment, and a nozzle mounted in the partition wall separating the compartments adapted to discharge the water therefrom upon the buckets of the other wheel.

A further object of the invention resides in the provision of a device of the above character which is of simple, inexpensive and durable construction and from which a maximum of power may be derived.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a side elevation of a water motor embodying the present invention; Fig. 2 is a section taken on the line 2—2 of Fig. 1; and Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Corresponding and like parts are referred to in the following description and design-

ated in the accompanying drawing by like reference characters.

Referring in detail to the drawing 5 designates a casing preferably of rectangular form in cross section which is provided with a central horizontal division wall 6 forming the upper and lower compartments 7 and 8, respectively. A shaft 9 is rotatably mounted in suitable bearings provided upon opposite walls of the lower compartment 8 of the casing. Upon one end of this shaft which projects exteriorly of the compartment a pulley or belt wheel 10 is secured. A water wheel 11 is fixed upon said shaft adjacent to its other end within the casing compartment 8. This wheel is provided upon its periphery with a plurality of spaced buckets 12. A water wheel 13 is also mounted upon a shaft 14 which is journaled in a suitable bearing provided in one of the side walls of the upper compartment 7 of the casing. This wheel is disposed adjacent to the opposite side wall of the casing with respect to the lower wheel 11. This side of the casing adjacent to which the wheel 13 is mounted is open so as to permit a falling stream of water to enter the same and strike upon the buckets 15 which are fixed upon the periphery of the wheel 13. It will be observed from reference to Fig. 2 that these latter buckets are obliquely inclined across the peripheral face of the wheel so that the water striking upon the buckets will be directed inwardly by the same into the upper compartment or chamber 7 of the casing.

In the partition wall 6 of the casing adjacent to the lower water wheel 11 one end of a pipe 16 is arranged and is adapted to receive the water which is directed into the upper compartment 7 by the buckets upon the wheel 13. This pipe extends downwardly into the lower compartment 8 and gradually tapers, the smaller end thereof being bent or curved to provide an ejecting nozzle 18. The end of this nozzle is disposed closely adjacent to the buckets upon the lower water wheel 11 and discharges a stream of water under considerable pressure upon said buckets whereby said wheel is rotated and power transmitted to the shaft 9. The pipe 16 is further provided with

a branch discharge nozzle 17, and it will be observed from reference to Fig. 1 that this nozzle is disposed above the plane of the shaft 9 while the nozzle 18 has its open end disposed below said shaft. Thus a maximum of pressure upon the wheel buckets by the discharge of the water from said pipe into the lower compartment of the casing may be obtained. Upon the shaft 14 of the upper water wheel 13 a band wheel or pulley 19 is fixed and is connected by means of the endless belt 20 with the wheel 10 on the shaft 9. Thus an initial momentum will be imparted to the lower water wheel 11 as soon as the upper wheel 13 is rotated by the impact of the falling water against the buckets of said wheel.

My improved water motor may be used in two different ways. The same may be placed at the base of a water fall, the casing being supported and mounted in any preferred manner, so that the falling stream of water will engage the buckets of the upper wheel 13 and cause the same to rotate. As before stated, this water is directed into the upper compartment and is discharged by the nozzles 17 and 18 upon the buckets of the lower water wheel 11, thereby causing said lower wheel to revolve at a high speed. A band wheel 21 is fixed upon the lower shaft 9 and is traversed by a power belt 22, for the operation of a churn, milling machinery, or similar mechanisms. If a water fall having the desired pressure for the operation of the motor is not available, the casing may be arranged in an irrigation ditch. In this latter use of the invention, the upper water wheel 13 is not of service. The top of the casing is removed, and by damming the ditch, the water will flow over the top of said casing and into the upper compartment 7 of the casing from which it is discharged through the nozzles 17 and 18 upon the buckets of the lower wheel 11 in the manner above described.

From the foregoing it is believed that the construction and manner of operation of my improved water motor will be clearly understood.

The device is simple in construction, efficient and durable in operation, and may be manufactured at comparatively small cost.

While I have shown and described the preferred construction and arrangement of the various parts, it will be understood that the invention is susceptible of considerable

modification without departing from the essential features or sacrificing any of the advantages thereof.

Having thus described the invention, 60 what is claimed is:

1. In a water motor, the combination of spaced water wheels each provided upon its periphery with a plurality of spaced buckets, the buckets upon one wheel being obliquely inclined across the peripheral face thereof to direct the water striking said buckets to one side of the wheel, means to receive the water discharged by the buckets of said latter wheel and direct the same upon the buckets of the other wheel, and a driving connection between the wheel shafts. 65

2. In a water motor, the combination of a casing having upper and lower compartments, a water wheel mounted in the upper compartment, a second wheel mounted in the lower compartment, each of said wheels being provided upon its periphery with a plurality of spaced buckets, the buckets on the upper wheel being obliquely inclined across the face of the wheel and adapted to discharge water into said compartment, an ejecting nozzle to receive the water from the upper compartment and discharge the same upon the buckets of the lower wheel, and a driving connection between the wheel shafts. 70 80 85

3. In a water motor, the combination with a casing open upon one side and having upper and lower compartments, of a water wheel mounted in the upper compartment adjacent to the open side of said casing, said wheel having a plurality of buckets arranged upon its periphery obliquely disposed across the face thereof to direct the water into the upper compartment, a water wheel mounted in the lower compartment adjacent the opposite closed side of the casing, said latter wheel being also provided with a plurality of buckets upon its periphery, and an ejecting nozzle mounted in the partition wall to receive the water from the upper compartment and discharge the same upon the buckets of the lower water wheel, and a flexible driving connection between the shafts of said wheels. 90 95 100 105

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

CHARLES OLSON.

Witnesses:

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R. A. SWABES.