J. H. ATKINS.

CURRENT MOTOR.

APPLICATION FILED JULY 26, 1909.

953,891.

Patented Apr. 5, 1910.

3 SHEETS—SHEET 1.

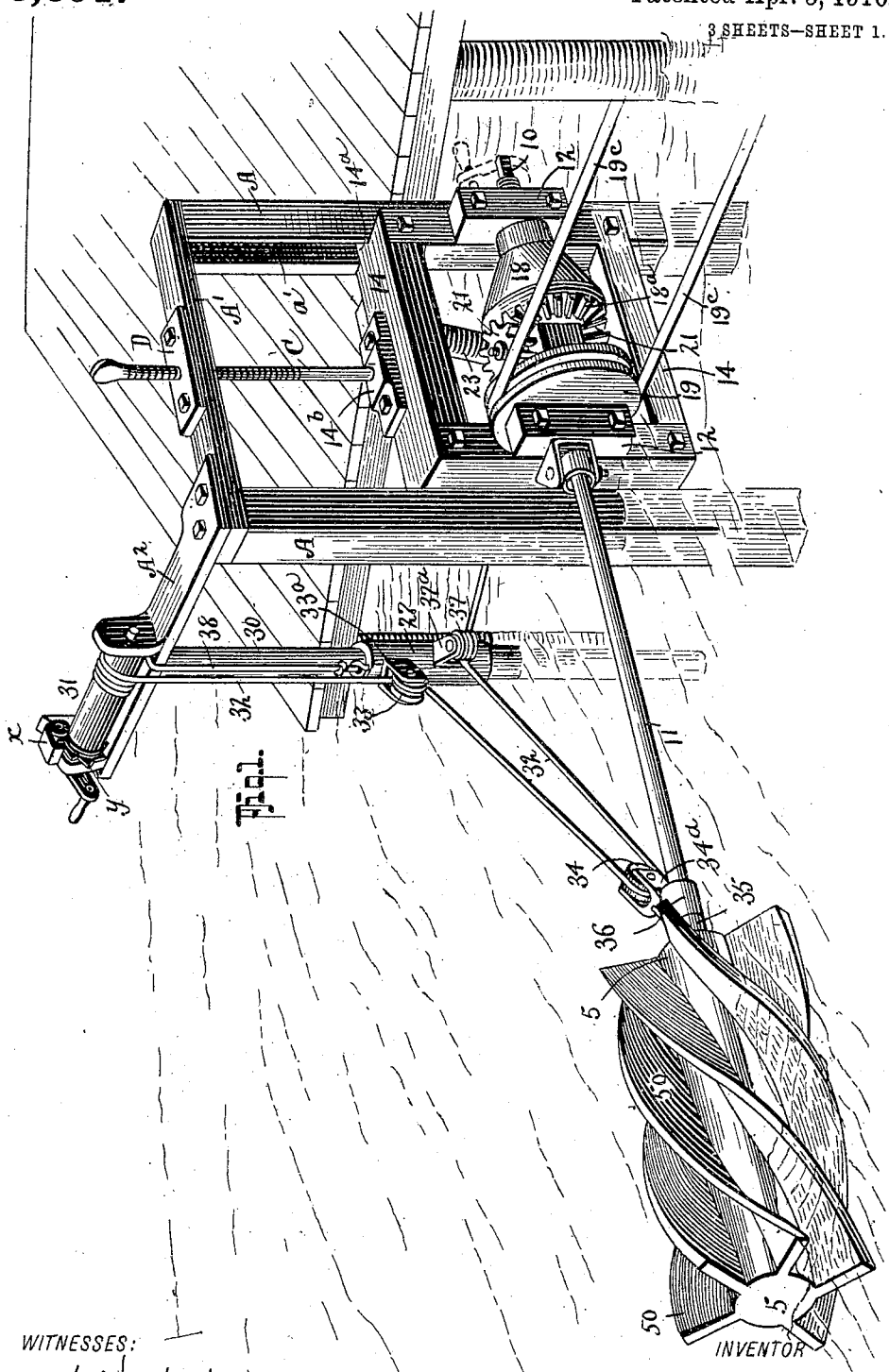

Fig. 1.

WITNESSES:

Hayward Woodard

John T. Schrott

INVENTOR

John H. Atkins

BY

Fred G. Dieterich & Co

ATTORNEYS

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C

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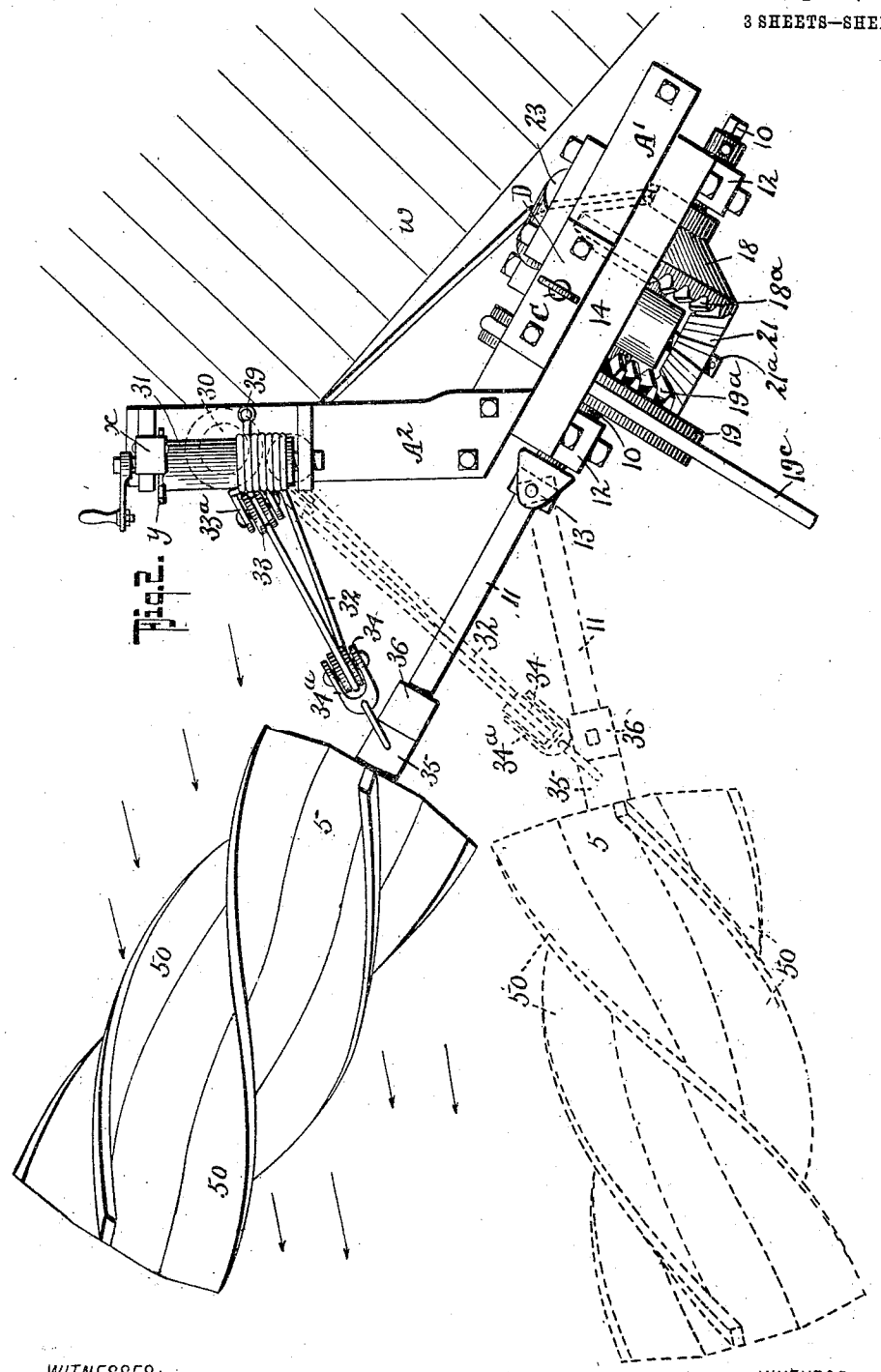

Fig. 2.

WITNESSES:

Hayward Woodard

John T Schrott

INVENTOR

John H. Atkins

BY

Fred G Dieterich & Co

ATTORNEYS

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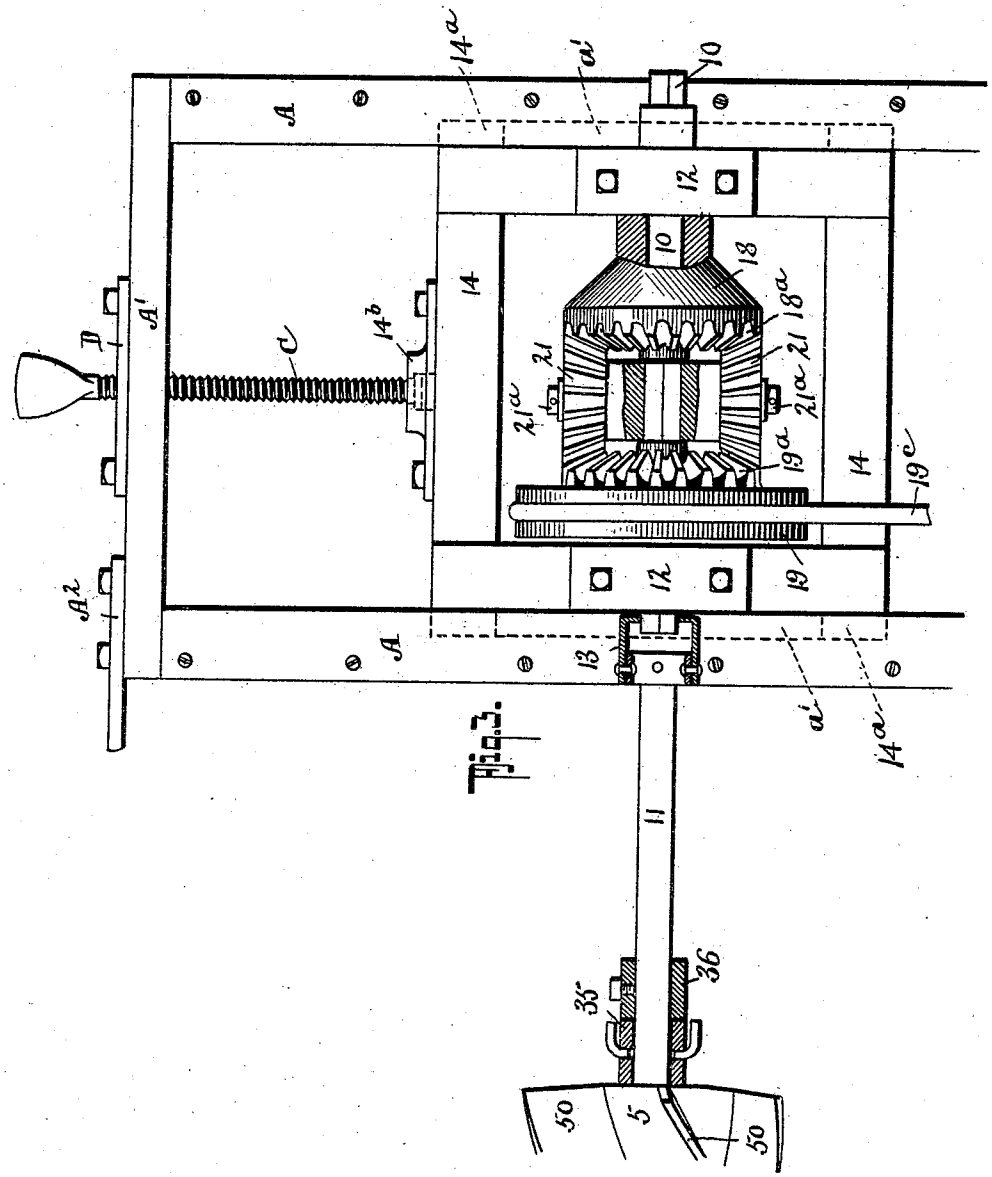

Fig. 3.

WITNESSES:

Hayward Woodard

John T. Schrott

INVENTOR

John H. Atkins

BY

Fred G. Dieterich & Co

ATTORNEYS

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN H. ATKINS, OF PASCO, WASHINGTON.

CURRENT-MOTOR.

953,891. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed July 26, 1909. Serial No. 509,494.

To all whom it may concern:

Be it known that I, JOHN H. ATKINS, residing at Pasco, in the county of Franklin and State of Washington, have invented a new and Improved Current-Motor, of which the following is a specification.

This invention relates to improvements in that type of power transmitting means of the water wheel type, adapted to float in or over the current of the stream and which, by impact of the water is rotated and conveys motion to a power transmitting wheel or device mounted on the bank of the stream, upon a wharf or upon a scow anchored in the stream.

My invention, in its generic nature, comprehends an improved construction of the water or power wheel, the means for coupling it to the standard or platform devices on which the power transmitting means coupled with the water wheel is mounted, and means, also operable from the said platform or standard, for conveniently and quickly shifting the water wheel to bring it into or out of the impacting force of the current.

In its more complete nature, my invention embodies, in connection with a current wheel and means for shifting the same into and out of the current, an improved means for raising or lowering the wheel to adapt it to the rise and fall of the tide, other details of construction being also included, all of which will be hereinafter fully described, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:—

Figure 1, is a perspective view of my invention, the wheel being shown as held in direct line of the current. Fig. 2, is a plan view thereof, the wheel being shown swung out of the current, in full lines, and on the current, in dotted lines. Fig. 3, is a front elevation of my invention, parts being in section, the connections between the current wheel and the bracket extension being omitted.

In carrying out my invention, the supporting means or framing is upon or adjacent a wharf or platform designated W in the drawing, and the said supporting means consists of two posts or spiles A—A that are preferably driven into the creek or river bed adjacent the wharf, as clearly shown in Fig. 1, by reference to which it will be also noticed, that the two parts A—A have guide grooves a'—a' to receive the laterally projected tongues 14^a on a rectangular frame or carriage 14 vertically adjustable between the said posts, the adjustment thereof being provided for by a plate 14^b in the top of the frame, a screw rod C whose lower end swivelly joins with the said plate 14^b and whose upper end passes through a cross head or bar A′ that is secured to the tops of the posts A—A, and which has attached to it a plate D having a threaded aperture to receive the threaded rod C, the several parts being so combined that by simply turning the rod C to the right or left the frame or carriage can be readily raised or lowered, as described.

10 designates a driven shaft, horizontally journaled in the brackets 12—12 on the posts A—A, the inner end of which, in practice, is preferably squared to allow an operator to apply a crank to turn the same when it is desired to wind up the wheel pulling cable on a drum like rack wheel 18 having a spur or gear face 18^a that engages with a pair of oppositely disposed planet gears 21 journaled on short stub shafts 21^a—21^a that project outwardly from a block mounted on the shaft 10 to turn therewith, see Fig. 3.

19 designates a power transmitting pulley loosely mounted on the shaft 10 and provided with a bevel gear face 19^a that meshes with the gears 21 and over which takes the transmitting belt or cable 19^c which, in practice, extends ashore and is coupled with the driver pulley (not shown) of mechanism to be driven by the power generated by the current wheel.

13 designates a universal coupling for joining the shaft 10 with the shaft 11 of the current wheel that comprises a hub 5 in which shaft 11 is fixedly held, and a series of radial and auger like shaped wings or blades 50, as best shown in Figs. 1 and 2 of the drawing.

It should be here stated, the planet gear devices before referred to, provide, as it were, an equalizer movement and said movement is further connected with the current wheel by means of a cable 32, one end of which connects with the hub of the drive gear 18, see Fig. 2, and passes over a guide pulley 23 on the main framing and also over a pulley block 34 that is connected to a sleeve 35 loosely mounted on the current wheel shaft. For holding the wheel to the current, and also for conveniently swinging it into proper position, a supplemental post

30 is provided that is located adjacent the posts A—A and joins with the upper or cross head A′ by a bracket timber A^2. On the timber A^2 and directly above post 30 is mounted a windlass 31 to which one end of cable 32, before referred to, is fastened and on which it is wound by the windlass crank y that is held from back thrust by pawl x which engages the ratchet disk on the windlass, see Fig. 1. Cable 32 extends down from windlass 31 over a guide pulley 33 mounted on a pulley block that projects from a sleeve 27 vertically adjustable on the post 30, for being raised or lowered in harmony with the gear carrying frame on the posts A—A to suit the rise and fall of the tides. From the pulley 33 cable 32 passes to pulley 34 and from thence over pulley 37 and roller 23 to the drive gear 18 to which it is fastened.

By reason of connecting the current wheel through the cable 32 with the windlass 31 at one end and the gear drum pulley 18 at the other end, a simple and effective means is provided, first, to swing the wheel and for holding to the current at the set position and that this may be better understood, the working of the machine is now explained.

On the end of shaft 10 is fitted a crank for turning it. By turning the crank to the right the pulley 19 being now held from turning by the frictional resistance of the power cable, drive gear 18 turns with the shaft, winds the cable 32 thereon and as the other end of cable 32 is held from unwinding from windlass 31, the wheel 5 is swung from position shown in Fig. 1 to that shown in Fig. 2. After the wheel has been swung out to the current, the cable 32 is rapidly slackened on the drum gear 18, and as current wheel now turns shafts 11 and 10 in the other direction, the slackened end of cable 32 again winds on drum gear 18, and equalizes as it were, the pull strain of cable 32, one end being now held fast on windlass 31 and the other tightly wound on drum gear 18, the latter being now held from turning and forms a stationary or planet gear around which the gears 21—21 now travel and as they turn on their shafts 21^a—21^a they transmit motion to the ground or power transmitting gear 19^a, which, in the arrangement of the parts shown, receives two revolutions at each complete turn of shaft 10, it being understood that since both ends of cable 32 are held taut, wheel 5 stays to its set position in the current.

19^c is the cable that transfers the power from pulley 19 to the point desired.

It is manifest that when the wheel 5 is in the position shown in Fig. 1 and it is desired to render it inoperative, by tripping the pawl x out of the ratchet y on the windlass device, the current will swing the wheel 5 over to the position shown in dotted lines on Fig. 2 and hold it there, and when thus held it can be easily brought in position to the current by winding cable 32 on the windlass, or in instances where it is desirable the outer end of the shaft 10 may be equipped with a crank and the cable 32 wound on drum 18 to swing wheel out. When swung out the wheel is held there by reason of one end of cable 32 being held taut by the pawl and ratchet devices on the windlass mechanism and the other end of such cable 32 being fast to the drum 18.

38 designates a lift cable that is secured to the upper end of sleeve 27 and is made fast to a stud or pin 39 on the top of bracket member A^2.

From the foregoing, taken in connection with the accompanying drawings, the complete arrangement of my invention, the manner in which it is operated and adjusted, it is believed, will be readily apparent.

By reason of the detailed combination of the several parts as described and shown, the power from motors constructed in accordance with my invention is almost unlimited since the sizes of the wheels may be varied and one more wheel and gear mechanism controlled thereby may be combined and the power from all of the wheels and said mechanisms transmitted to a single driven shaft.

Having thus described my invention, what I claim is:

1. In a current motor, a platform, a pair of standards thereon, a power transmitting means mounted between the standards and having vertical movement with respect to the standards, devices for holding the said power transmitting means to the vertical adjustments, a current wheel, a universal joint connecting the current wheel shaft and the shaft of the power transmitting means, and mechanism mounted on the platform connected with the wheel for moving the wheel into the direct line of the current and for holding it there.

2. The combination with the platform, the standards thereon, a frame vertically slidable between the standards, means engaging the standards and the frame for adjustably moving the frame vertically, power transmitting means mounted on the said frame, a current wheel, universal coupling joining the shaft for the current wheel with the shaft of the power transmitting means, another standard, a pulley block supporting sleeve vertically adjustable on the standard, means for moving the sleeve and holding it to its vertical adjustment, a windlass, a cable wound thereon, pulley blocks on the vertically adjustable sleeve, and a current wheel over which the cable passes, the outer or free end of the said cable being made fast to the platform.

3. A current motor, comprising a platform, power transmitting means mounted

on the platform, a current wheel, a knuckle connection joining the wheel and the power transmitting means, a sleeve on the wheel shaft, a pulley block on the said sleeve, a supplemental standard, a sleeve vertically movable on the said standard, two pulley blocks mounted on the said sleeve, means for raising and lowering the sleeve and holding it to its adjusted positions, mounted on the platform, a windlass mounted on the platform, the cable of which passes over the pulleys on the sleeve and the pulley on the current wheel shaft, the free ends of said cable being made fast to the main framing, and means for vertically adjusting the power transmitting means and the wheel to suit the rise and fall of the tide, as set forth.

JOHN H. ATKINS.

Witnesses:
A. C. ROUTHE,
GRACE ROUTHE.