

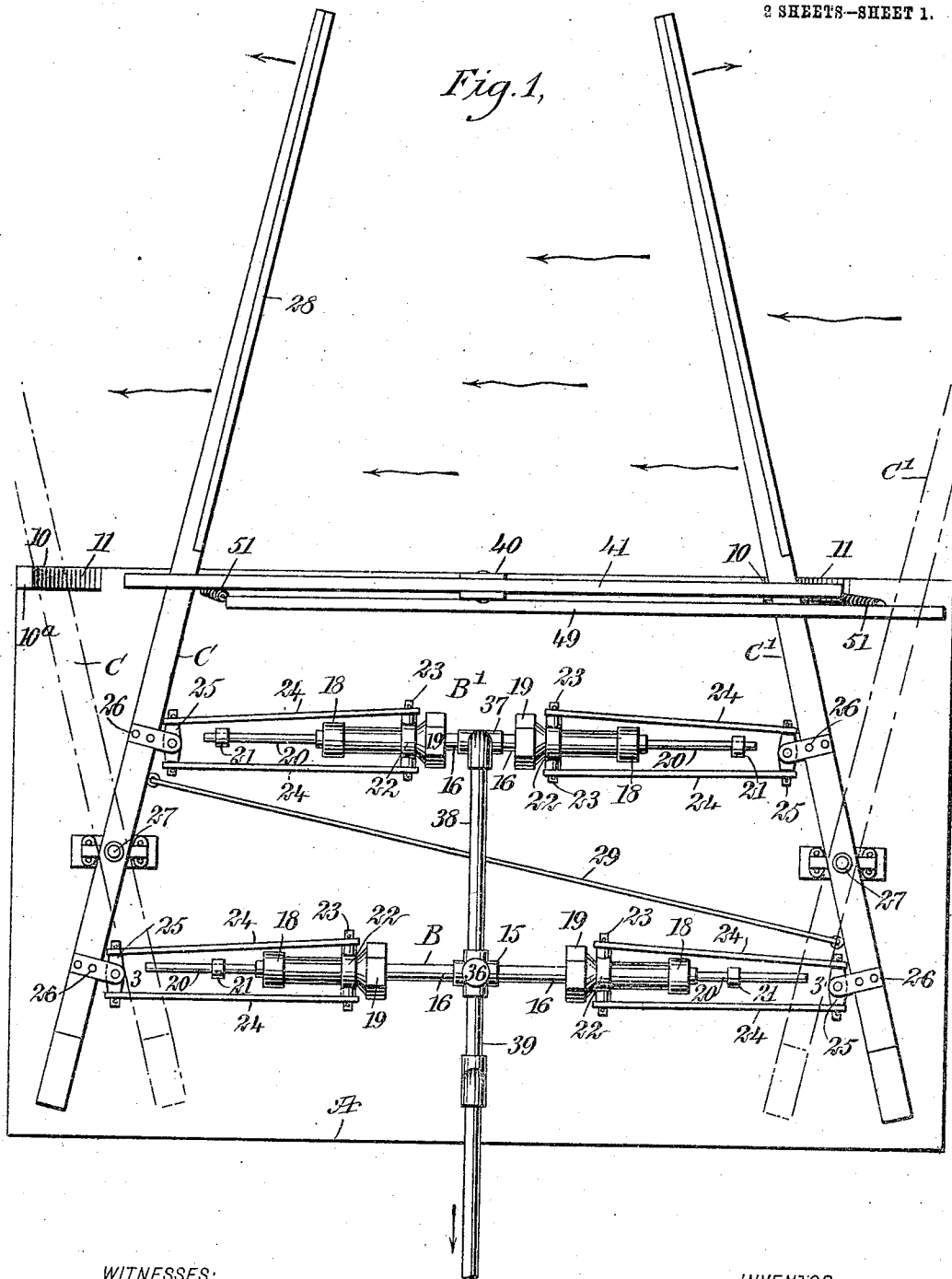
No. 847,201.

PATENTED MAR. 12, 1907.

C. A. NEYLAND.  
PUMP.

APPLICATION FILED DEC. 16, 1905.

2 SHEETS--SHEET 1.



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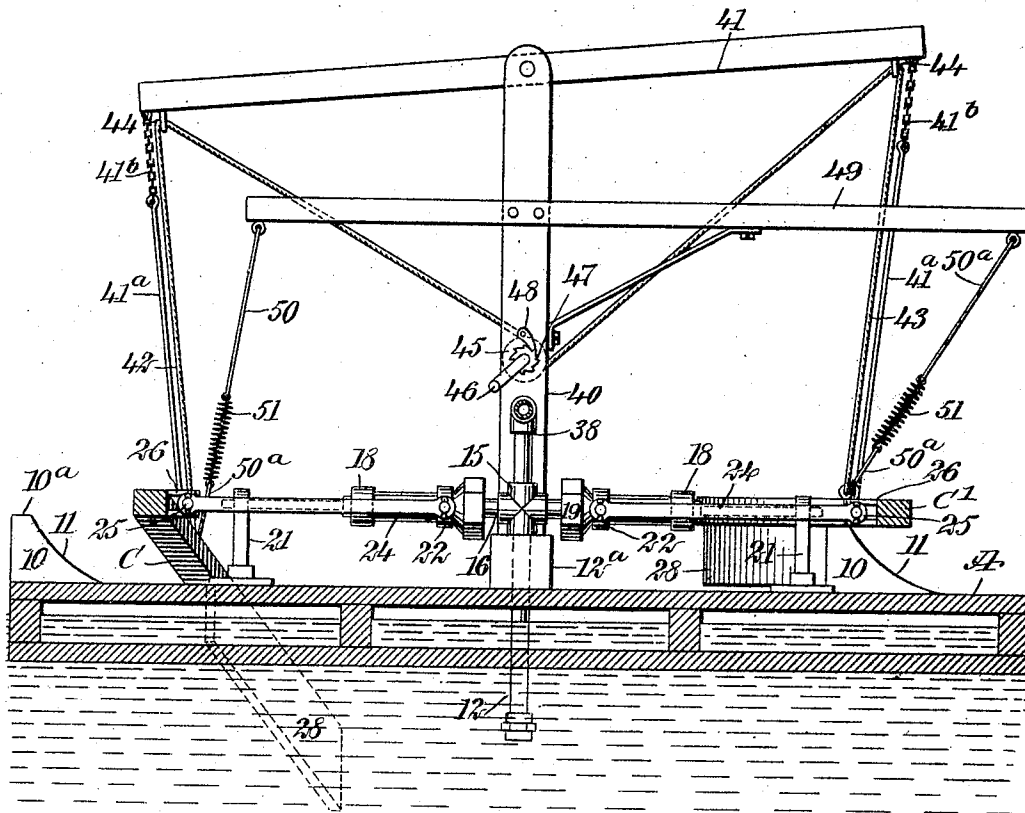
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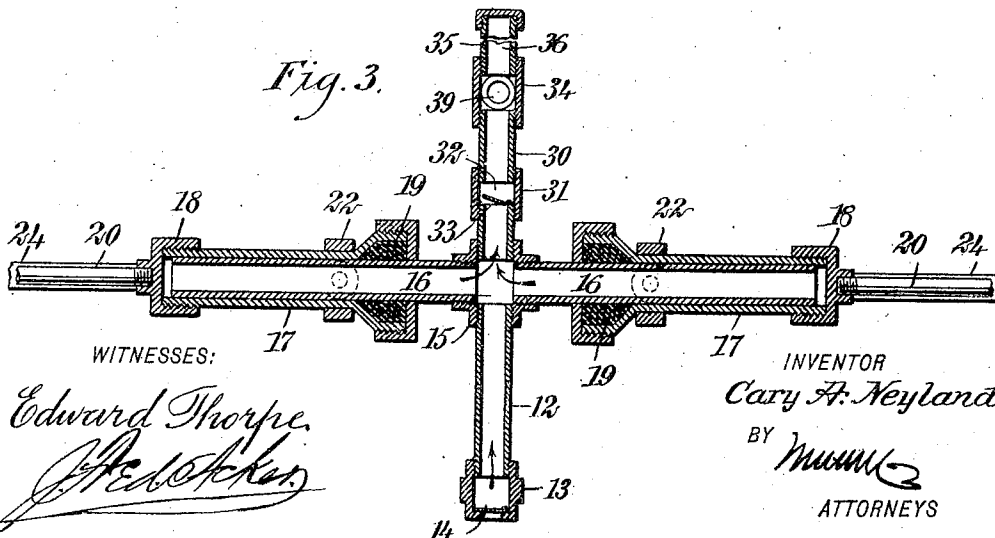
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2 SHEETS—SHEET 2.

*Fig. 2,*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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## PUMP.

No. 847,201.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed December 16, 1905. Serial No. 292,060.

*To all whom it may concern:*

Be it known that I, CARY ALBERT NEYLAND, a citizen of the United States, and a resident of Lewiston, in the county of Nez Perce and State of Idaho, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a construction of pump especially adapted for irrigating purposes which will be simple, durable, automatic, and continuous in its action, the pump being particularly designed to operate by the current of a body of water, and also to so construct the device that two pumps are coupled together to form one complete pump, each individual pump having two plungers which operate simultaneously, but in opposite directions.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the complete device. Fig. 2 is a sectional rear elevation of the device, and Fig. 3 is an enlarged vertical longitudinal section through one of the individual pumps.

A represents a float which at its forward portion at opposite sides is provided with upwardly-extending blocks 10, which blocks have a flat upper surface 10<sup>a</sup>, as is shown in Fig. 2, and one side is usually perpendicular, but the other side is expressly downwardly curved or inclined, as is shown at 11 in said Fig. 2. The said inclined or curved surfaces of the blocks are at the same sides thereof or face in the same direction, as is also shown in Fig. 2.

Two pumps B and B' are placed in parallelism, with the float A extending longitudinally thereof, as is shown in Fig. 1. Each of the said pumps is in the main of like construction, each pump comprising a suction-pipe 12, which is carried down through a supporting-block 12<sup>a</sup> on the float and through the body of the float, as is shown in Fig. 2, and the said suction-pipe at its bottom is provided usually with an attached sleeve 13, partially closed at the bottom, and the opening in the bottom of said sleeve is controlled

by a valve 14, adapted to open in an upward direction. However, it will be understood that the sleeve 13 may be omitted and the valve 14 be located directly in the bottom of the said tube.

The suction-tube 12 at its upper end is screwed into the bottom member of a cross-fitting 15, and at each side of this cross-fitting is located a tube 16, which is screwed into a side arm or member of the cross-fitting 15, as is best shown in Fig. 3, the said tubes 16 being open at their outer ends, and a plunger in the form of a sleeve 17 is mounted to slide on each tube 16, and each sleeve 17 is closed at its outer end by a cap 18, screwed thereon or otherwise secured thereto. At the inner end of each sleeve 17 a stuffing-box 19 is provided, adapted to render the action of the sleeves 17 on the tubes 16 air and liquid tight. Each sleeve 17 at its capped end is provided with a guide-rod 20, and these guide-rods 20 have movement in bearings formed in the upper end of standards 21, which standards are secured to the upper face of the float A, as is indicated in Figs. 1 and 2.

A collar 22 is connected with each sleeve 17, preferably adjacent to the stuffing-box 19 of the sleeve, and each collar 22 is provided with opposing pins 23. (Best shown in Fig. 1.) Opposing shifting arms 24 are pivoted upon the said pins 23, and the said arms 24 extend outward beyond the guide-bars 20 of the sleeves and are connected at their outer ends by a cross-bar or cross-head 25. These cross-bars or cross-heads 25 have a pivotal connection with straps 26, and these straps are secured to operating-arms C and C' at each side of the pivot 27 of said operating-arms, as the said operating-arms C and C' are mounted for horizontal and for vertical rocking movement on the said float A in any suitable or approved manner. These operating-arms C and C' extend any desired distance beyond what may be termed the "forward edge" of the float A, and each operating-arm C and C' at its projecting rear end is provided with a plate 28, of metal or any suitable material, which extends downward, so as to enter the water and be operated upon by the action of the current. These operating-arms C and C' at that portion which extends over the float A are connected with a link 29, the link 29 being pivotally attached to one arm—the arm C, for

example—forward of its fulcrum 27 and to the opposing arm C' about an equal distance to the rear of the fulcrum of said arm, as is illustrated in Fig. 1. In the further construction of each individual pump a stand-pipe 30 is secured to the upper arm or member of the cross-fitting 15, and this stand-pipe is usually made in two sections, as is illustrated in Fig. 3, connected by a sleeve 31, forming thereby a receiving-chamber 32 of enlarged diameter, and the lower section of the stand-pipe, which is also a discharge-pipe, is provided at its upper end with a valve 33, which opens upward in the chamber 32, as is also indicated in Fig. 3.

At the upper end of the stand or discharge pipe 30 of the first or forward pump B a sleeve 34 is secured, and a capped extension-pipe 35 is secured to the said sleeve 34, forming an air-chamber 36; but in the construction of the individual pump B' the parts 30, 34, and 36 are omitted, and in place of the cross-fitting 15 a T-fitting 37 is employed, connected by a length of pipe 38 with the rear member of the cross-fitting 15 of the forward pump B, as is shown in Fig. 1, and a delivery-pipe 39 is carried from the sleeve 34 below the air-chamber 36 to any desired point where the water is to be delivered.

A standard 40 is erected from the edge portion of the float A at or near its center, and a beam 41, which may be termed a "walking-beam," is pivoted to the upper end of the said standard, and the ends of the walking-beam 41 are connected with the operating-arms C and C' to insure coöperation of such parts by attaching rods 41<sup>a</sup> to said arms and chains 41<sup>b</sup> to the upper ends of the rods, which chains are adjustably connected with the walking-beam. Cables 42 and 43 are attached to the operating-arms C and C' near their projecting ends, and these cables are loosely passed through eyes 44, located at the end portions of the walking-beam 41. The cables 42 and 43 are carried to an engagement with opposite sides of a drum 45, to which they are attached, the said drum being mounted to turn in the standard 40. The shaft of the drum is provided with a suitable crank-handle 46 and a ratchet-wheel 47, engaged by a pawl 48, carried by the said standard, as is shown in Fig. 2, so that the said operating-arms C and C' may be drawn upward, so as to be entirely out of the stream when so desired and be held in their upper position. The cables 42 and 43 should be slack while the arms C C' are in motion, so as not to interfere with the upward and downward stroke of the arms as suspended by the members 41<sup>a</sup> and 41<sup>b</sup>. The windlass and cables 42 and 43 are only used in stopping the power. At all other times they hang loose. A cross-bar 49 is attached to said standard 40, and links 50 and 50<sup>a</sup>, together with interposed springs 51, con-

necting the links 50 and 50<sup>a</sup>, are attached to the ends of the cross-bar 49 and to the operating-arms C and C', where the cables 42 and 43 are connected with said arms. The springs 51 serve to assist the operating-arms C and C' in their upward movement.

The normal position of the operating-arms C and C' is that shown by full lines in Fig. 1, wherein their projecting ends are made to converge and their inner ends to diverge. In the normal position of the said operating-arms C and C' one arm will be upon the upper resting-surface 10<sup>a</sup> of a block 10, while the other arm will be free from its adjacent block 10, and its blade 28 will be in the water to be acted upon by the current, and as the current moves the operating-arm C, for example, in direction of the left-hand side of the device the said arm will ride up upon the left-hand block 10, while the right-hand arm C' will be carried off from its block, held up by the action of the walking-beam 41, until, when the left-hand arm C shall have been well seated upon its block 10, the right-hand arm C' will have been dropped down, so that its blade will enter the water, to be acted upon in its turn by the current, which concerted movements of the two arms C and C' is brought about by the connecting-link 29. At such operation of the two arms C and C' the plungers of the forward or individual pump B will be forced inward, as is indicated by the dotted position of the arms in Fig. 1, and the plungers of the individual pump B' will be carried outward or in an opposite direction to those of the pump B, and as the arms C and C' reverse in action the reverse movement of the plungers of the two individual pumps will take place. It will be observed that by means of the connections which have been described the two individual pumps act connectedly as one.

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

1. In pumps, a support, operating-arms pivoted upon said support, connected for simultaneous convergent movement at one of their ends and divergent movement at their opposite ends, two individual pumps coupled to form one complete pump, two plungers for each individual pump, operating in opposite directions, and pivotal connections between the plungers and the said operating-arms.

2. In pumps, a support, operating-arms pivoted upon said support, connected for simultaneous convergent movement at one of their ends and divergent movement at their opposite ends, two individual pumps coupled to form one complete pump, two plungers for each pump, operating in opposite directions, pivotal connections between the plungers of the individual pumps and the said operating-arms, which connection takes place at opposite sides of the pivotal portions of said arms,

and means for automatically raising one arm and simultaneously dropping the opposing arm.

3. In pumps, a support, operating-arms 5 provided with blades, which arms have pivotal and rocking movement upon the support, a link connecting the said arms, which link is connected with one arm at one side of its pivotal point and with the other arm at 10 the opposite side of its pivotal point, whereby the said arms have a divergent movement at one of their ends and a simultaneously convergent movement at their opposite ends, a set of pumps, a connection between the two 15 pumps, rendering them as one, plungers for each individual pump, arranged to operate in opposite directions, pivotal connections between the plungers of the two individual pumps and the two said arms, the connection 20 between the plungers of the said individual arms being at opposite sides of the pivotal supports for said arms, and means for automatically raising one of the said arms at its blade-carrying portion and lowering the opposing arm at the same portion.

4. In pumps, a support, operating-arms provided with blades, which arms have pivotal and rocking movement upon the support, a link connecting the said arms, which 30 link is connected with one arm at one side of its pivotal point and with the other arm at the opposite side of its pivotal point, whereby the said arms have a divergent movement at one of their ends and a simultaneous convergent movement at their opposite ends, a set of pumps, a connection between the two 35 pumps rendering them as one, plungers for each individual pump, arranged to operate in opposite directions, pivotal connections between the plungers of the two individual pumps and the two said arms, the connection 40 between the plungers of the said individual pumps being at opposite sides of the pivotal supports for said arms, means for automatically raising one of the said arms at its blade-carrying portion and lowering the opposing arm at the same portion, an upright 45 from the said support, a walking-beam con-

nected with the upright and with said arms, a winding device carried by the upright, and 50 cables attached to the said arms, having sliding movement relative to the walking-beam at its ends and connection with the said winding device.

5. In pumps, a support, operating-arms 55 provided with blades, which arms have pivotal and rocking movement upon the support, a link connecting the said arms which link is connected with one arm at one side of its pivotal point and with the other arm at 60 the opposite side of its pivotal point, whereby the said arms have a divergent movement at one of their ends and a simultaneous convergent movement at their opposite ends, a set of pumps, a connection between the two 65 pumps, rendering them as one, plungers for each individual pump, arranged to operate in opposite directions, pivotal connections between the plungers of the two individual pumps and the two said arms, the connection 70 between the plungers of the said individual pumps being at opposite sides of the pivotal supports for said arm, means for automatically raising one of the said arms at its blade-carrying portion and lowering the op- 75 posite arm at the same portion, an upright from the said support, a walking-beam connected with the upright, suspension rods and chains connecting the ends of the walking-beam with said arms, a winding device 80 carried by the upright, cables attached to the said arms, having sliding movement relative to the walking-beam at its ends and connection with the said winding device, a cross-bar secured to the said upright, and spring con- 85 nections between the ends of the cross-bar and the said arms, the spring connections being attached to the arms where the said cables are connected therewith.

In testimony whereof I have signed my 90 name to this specification in the presence of two subscribing witnesses.

CARY ALBERT NEYLAND.

Witnesses:

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M. W. BARNETT.