No. 622,978. Patented Apr. 11, 1899.

A. L. RINEARSON.

HYDRAULIC POWER MACHINE.

(Application filed Apr. 6, 1898.)

(No Model.)

Fig. 1

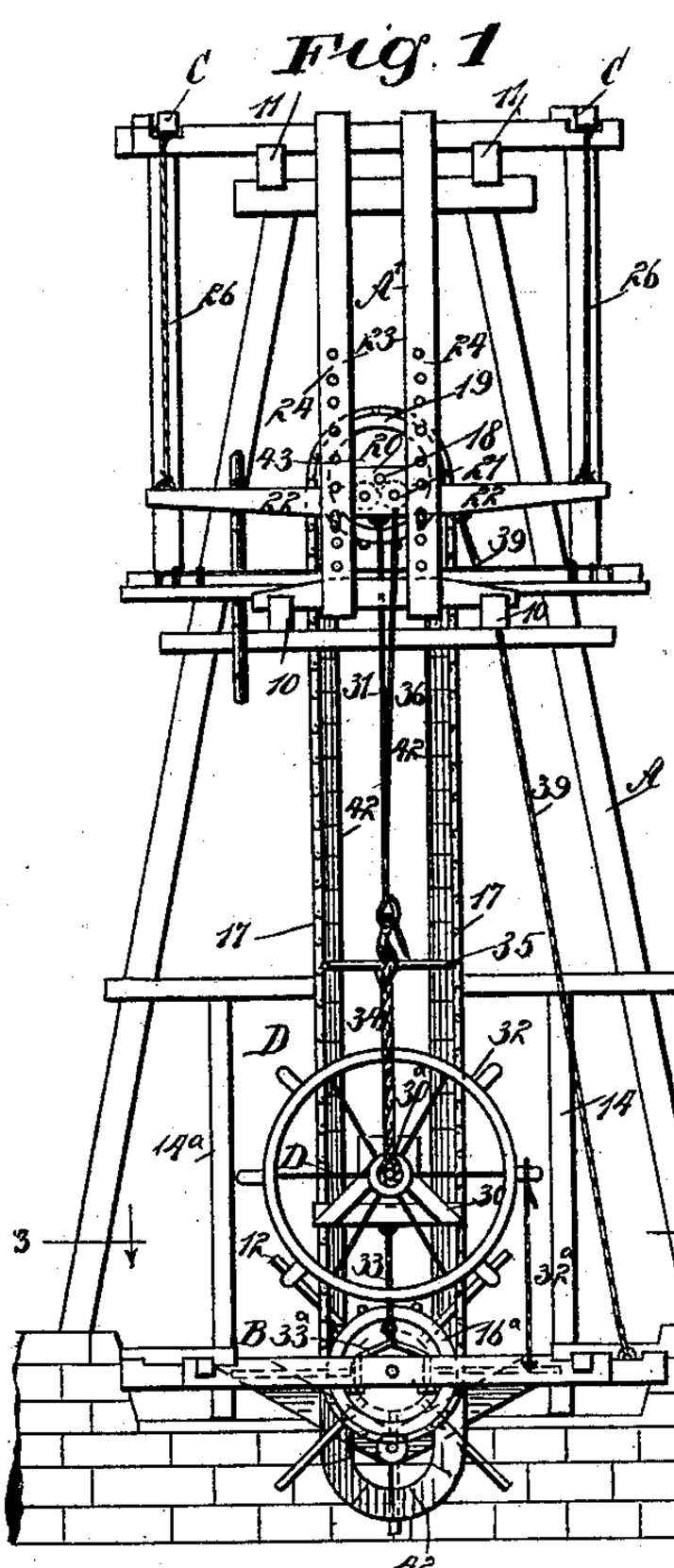
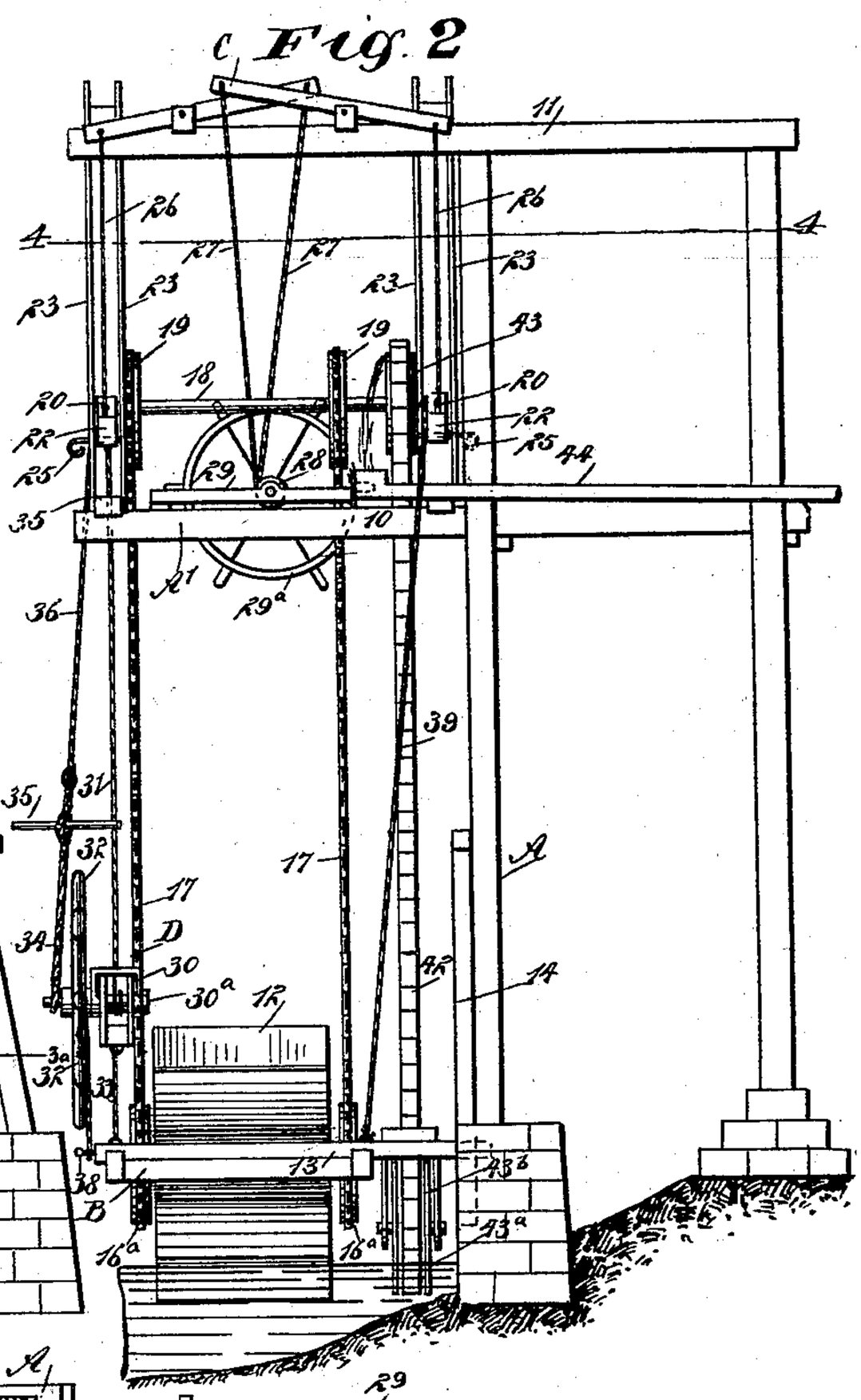
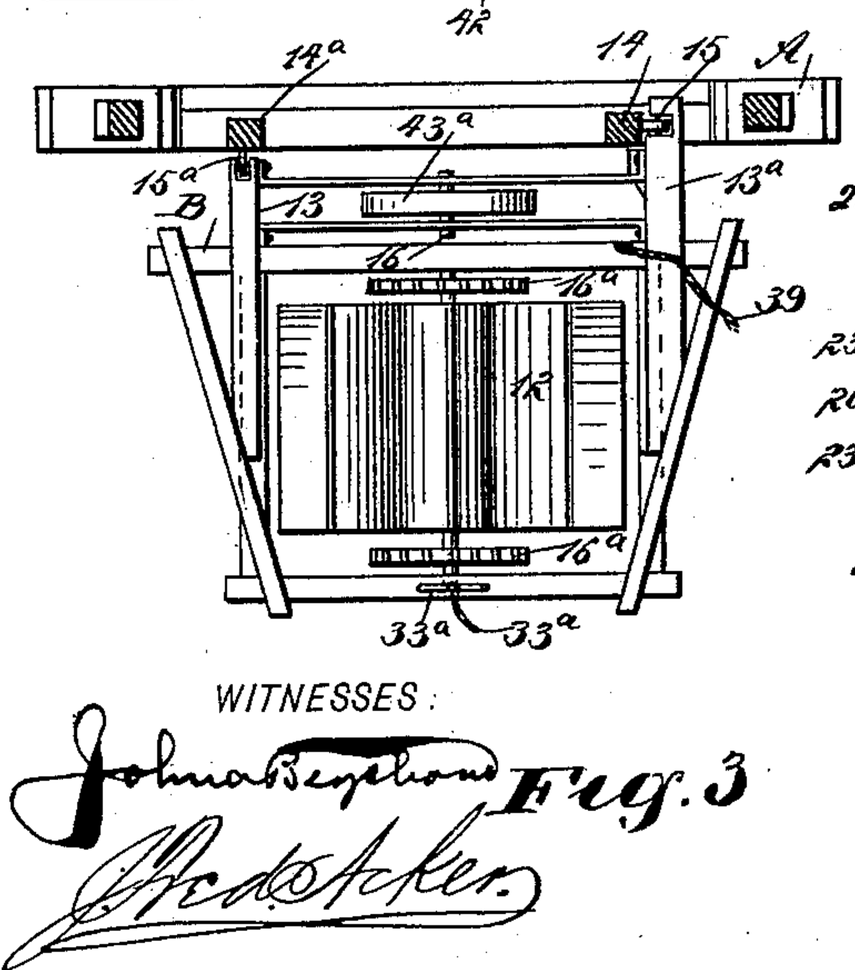
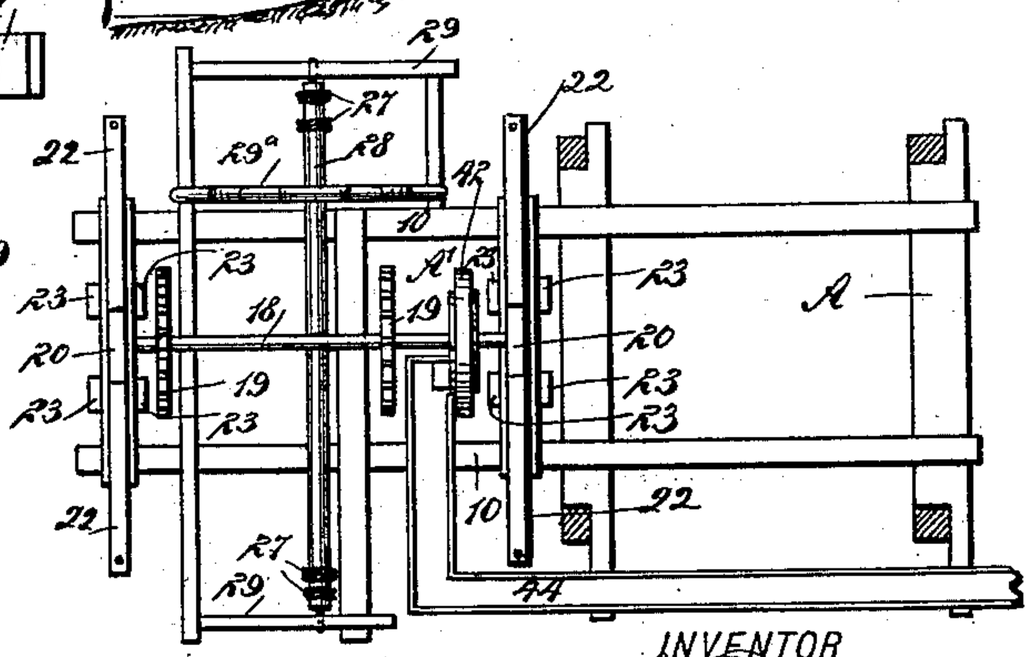


Fig. 2







WITNESSES:

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Fig. 3

Fig. 4

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ABRAHAM LEWIS RINEARSON, OF HORSE SHOE BEND, IDAHO.

HYDRAULIC-POWER MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,978, dated April 11, 1899.

Application filed April 6, 1898. Serial No. 676,664. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM LEWIS RINEARSON, of Horse Shoe Bend, in the county of Boisé and State of Idaho, have invented a new and Improved Hydraulic-Power Machine, of which the following is a full, clear, and exact description.

The object of this invention is to provide a machine adapted to take power from the current of a stream and to apply said power for various purposes at a point inshore or at a point at or near the stream or over the stream, if necessary.

A further object of the invention is to so construct the power-machine that it will be simple, durable, and economical and whereby the float-wheel of the machine may be raised and lowered as required by the height of the water or by the drift or when necessary to stop the machine altogether.

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 front elevation of the machine. Fig. 2 is a side elevation thereof. Fig. 3 is a horizontal section taken practically on the line 3 3 of Fig. 1, and Fig. 4 is a horizontal section taken practically on the line 4 4 of Fig. 2.

Upon the bank of the stream a vertical structure A is erected, consisting of suitable cross-timbers and uprights. At the upper portion of the structure a supplemental section A′ is made, arranged to extend horizontally over the stream, and this projecting portion A′ of the framework consists of horizontal timbers or beams 10 and 11, located at the sides of the main structure, one above the other, and connected by suitable front bars or braces of any description. A frame B is provided at the bottom of the main structure and independent thereof, in which frame B the current-wheel 12 is journaled. From the inner or long side of this frame B horizontal beams or timbers 13 and 13^a project out over the water and have guided movement against upright posts 14 and 14^a, forming a portion of the main structure. The upstream-beam is the anchor-beam, as shown in Fig. 3, and has fixed at one side, near the end, an antifriction-roller 15, having movement on the post or upright 14. The lower or downstream beam 13 (see also Fig. 3) is a straining-beam and is provided with an antifriction-roller 15^a, having movement upon the upright 14^a of the main structure.

The current-wheel may be of any approved or suitable construction, and the shaft 16, to which the wheel is secured, is provided with one or more sprocket-wheels 16^a, (or grooved pulleys when ropes are employed,) connected by chain belts 17 or ropes with the upper shaft 18, provided with a corresponding number of sprocket-wheels or grooved pulleys 19, over which the chains or ropes 17 pass. These sprocket-wheels or grooved pulleys may be of any suitable construction to receive and be turned by the chain belts or ropes without danger of the belts slipping therefrom. The ends of the upper shaft 18 (shown in Figs. 1, 2, and 4) are journaled in suitable boxes 20, the ends of the shaft being held to turn on rollers 21, as shown particularly in Fig. 1, and these rollers are placed in suitable receptacles containing oil or other lubricant. The rollers 21, upon which the shaft 18 has bearing, as shown in Fig. 1, are located upon lift-bars 22, said lift-bars being placed one at the front and the other at the rear of the extension A′ of the main structure, having guided movement between standards 23, which standards are in pairs, as shown in Figs. 1, 2, and 4. Each pair of standards 23 is provided with longitudinally-arranged apertures or openings 24, and pins 25 are passed through these openings below the lift-bars 22. Of these pins the two on the right of the center of the lift-bars 22 serve as fulcrums at the moment at which the lift-bars have movement, leaving the two pins on the left free to be moved up or down one or more apertures, as desired. In turn the two pins on the left are made fulcrums and the pins on the right are free to be moved. These movements of the pins are repeated as often as desired and effect the movement of the frame carrying the current-wheel either upward or downward. When the lift-bars 22 are raised, the current-wheel and its frame, together with its

power-shaft 18, resting upon the lift-bars, will also be raised, since the frame and shaft 18 are connected by the belt 17, and these parts will be held in their adjusted position by the aforesaid pins 25.

In order that the vertical movement of the frame carrying the current-wheel may be easily made, levers C are provided at the upper portion of the frame extension A′, the levers being located each side of the said extension. The fulcrums of the levers are at one side of their centers, their outer ends being shorter than their inner ends, as shown particularly in Fig. 2. The shorter ends of the levers C are connected by chains or ropes 26 with the ends of the lift-bars 22, while the longer ends of the levers are connected, by means of ropes or chains 27, with an adjusting-shaft 28, journaled in a frame 29, (see Figs. 2 and 4,) the said frame being made fast to the beams 10 of the extension A′ of the main structure. The ropes or chains 27 at opposite sides of the structure are wound in opposite directions upon the adjusting-shaft 28, so that when the shaft is manipulated opposite ends of the lift-bars will be alternately raised and lowered. The shaft 28 is provided with a hand-wheel 29ª, whereby the said shaft may be turned, and by winding the ropes 27 on the adjusting-shaft 28 the current-wheel and the parts connected therewith may be elevated.

I employ a device D (shown particularly in Figs. 1 and 2) for leveling the water or current wheel 12 and its frame B. This device consists of a triangular frame 30, in which is journaled a short shaft 30ª. The frame 30 preferably consists of a base member, side members, and a block at the apex of the side members. The shaft 30ª has attached to it one end of a rope 31, which is carried upward and secured, preferably, to the central portion of the forward lift-bar 22. The short shaft 30ª is provided with a hand-wheel 32 at its outer or forward end, which may be held in any desired position by means of a rope lock 32ª or its equivalent, as shown in Fig. 1. The outer or forward end of the shaft 30ª is supported by a loop-rope 34, in which a cross-bar 35 is introduced, so that the said loop-rope may be lengthened or shortened, and the loop-rope is connected with the forward lift-bar 22 by means of a branch 36. The lower end of the frame 30 is attached to the forward beam of the current-wheel frame B by means of a rope 33, attached to the frame usually by a connected loop 33ª. (Shown in Fig. 1.) Thus it will be observed that the current-wheel and its frame may be leveled in the event it should not be properly adjusted by the levers C and the adjusting-shaft 28. The rope fastening 32ª is attached to a pin 38, secured to the current-wheel frame B, as shown in Fig. 2.

The inshore end of the frame B is supported by one or more ropes or chains 39, leading upward from said frame to a connection with the rear lift-bars 22. A sprocket-wheel 43 is secured upon the upper shaft 18, and in suitable hangers 43ª, attached to the frame B, a second sprocket-wheel 43ᵇ is mounted to turn, a bucket-chain 42 being passed over the wheels 43 and 43ª, and the water elevated by the buckets of the said chain is delivered into the chute 44, through the medium of which chute the water is delivered to any desired point.

The machine may be utilized for any desired purpose where power is required, although in the drawings it is shown as applied for elevating water.

It will be obvious from the foregoing description of the invention that the device is susceptible of various modifications without material departure from the principle and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form of the parts herein set forth.

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

1. In a hydraulic-power machine, a stationary frame, a frame having free movement upon the stationary frame, a current-wheel journaled in the movable frame, a power-shaft driven from the current-wheel, lift-bars supporting the power-shaft, and an adjusting-shaft connected with the lift-bars, whereby the current-wheel and power-shaft are simultaneously and equally raised and lowered, as specified.

2. In a hydraulic-power machine, a stationary frame, a frame having free vertical movement upon the stationary frame, a current-wheel journaled in the movable frame, a power-shaft driven from the current-wheel, lift-bars capable of rocking and vertical movements connected with the power-shaft, and means, substantially as described, for raising and lowering the end portions of the lift-bars, as and for the purpose specified.

3. In a hydraulic-power machine, a main frame, a current-wheel, a frame in which the current-wheel is journaled, having guided movement on the main frame, lift devices, a power-shaft journaled upon the lift devices, supports for said lift devices, a connection between the lift devices and current-wheel frame, levers connected with the lift devices, an adjusting-shaft, and a connection between the levers and said adjusting-shaft, substantially as described.

4. In a hydraulic-power machine, the combination, with a main frame, an extension therefrom, an auxiliary frame held to slide in the main frame, a current-wheel journaled in the auxiliary frame, a drive-shaft, and lift devices upon which the drive-shaft is journaled, of a driving connection between the drive-shaft and the shaft of the current-wheel, levers located at each side of the extension of the main frame, the levers being arranged to cross one another, an adjusting-shaft located

below the levers, a windlass connection between the inner ends of the levers and the adjusting-shaft, a connection between the outer ends of the levers and the lifting devices, and an adjustable support for the outer end of the frame in which the current-wheel is mounted to revolve, substantially as shown and described.

5. In a hydraulic-power machine, the combination, with a main frame having a forward extension, an auxiliary frame held to slide upon the main frame below the extension, a current-wheel journaled in the auxiliary frame, lift-bars having sliding movement in the extension from the main frame, a drive-shaft journaled on the said lift-bars, and a belt connection between the drive-shaft and the shaft of the current-wheel, of levers fulcrumed at a point between their centers and outer ends upon the side portions of the extension-frame, the levers at each side being arranged to cross one another, an adjusting-shaft located below the said levers, a windlass connection between the adjusting-shaft and the inner ends of the said levers, a connection between the outer ends of the said levers and the said lift-bars, adjustable supports for the lift-bars independent of the supports obtained by connection with the said levers, and a leveling attachment for the outer or free end of the auxiliary frame, substantially as shown and described.

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