

R. J. MEYER.
WATER ELEVATOR.
APPLICATION FILED OCT. 2, 1908.

932,628.

Patented Aug. 31, 1909.

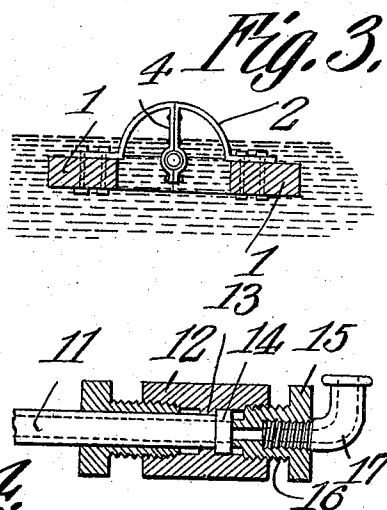
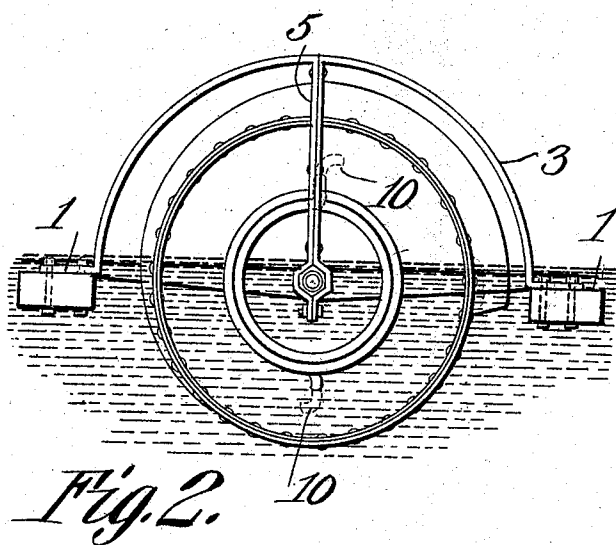
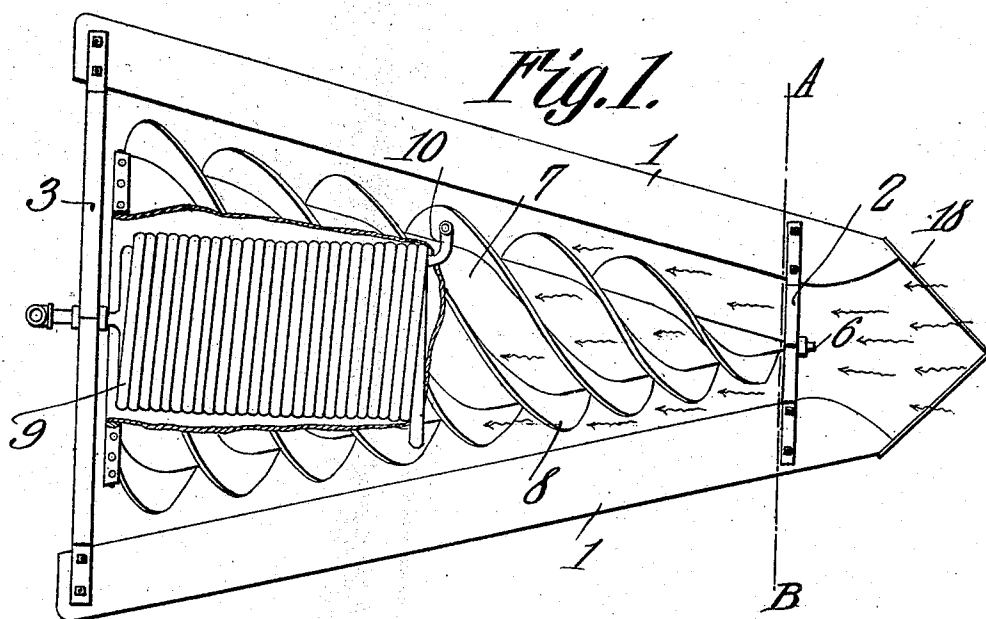
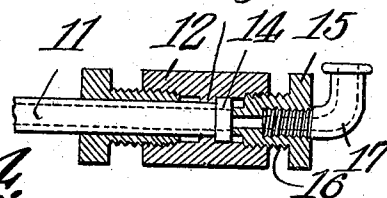


Fig. 4.



Witnesses

E. J. Stewart
Herbert D. Lawson

Ralph J. Meyer.

Inventor

By C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

RALPH J. MEYER, OF GRAND JUNCTION, COLORADO, ASSIGNOR OF ONE-HALF TO ABIGAIL A. BERGEN, OF GRAND JUNCTION, COLORADO.

WATER-ELEVATOR.

932,628.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed October 2, 1908. Serial No. 455,829.

To all whom it may concern:

Be it known that I, RALPH J. MEYER, a citizen of the United States, residing at Grand Junction, in the county of Mesa and State of Colorado, have invented a new and useful Water-Elevator, of which the following is a specification.

This invention relates to hydraulic pumps of that type designed to be partly submerged within a water current and actuated thereby for the purpose of forcing a portion of the water to a desired point.

The object of the invention is to provide a float-supported revoluble device designed to be actuated by the current in which the device is supported, means being carried by said revoluble device for alternately taking up air and water and discharging the same into a distributing pipe.

A further object is to provide a revoluble drive element which is of novel form and so mounted as to be protected from large floating objects within the frame.

A still further object is to provide a machine of this character which is simple and durable in construction and which will efficiently operate in a current of practically any velocity.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a plan view of the device, a portion of the revoluble element being broken away. Fig. 2 is a rear elevation of the device. Fig. 3 is a section on line A—B Fig. 1. Fig. 4 is an enlarged section through the coupling between the distributing pipe and the revoluble element.

Referring to the figures by characters of reference 1, 1, designate converging beams formed of wood or other light material and constituting the base of a frame designed to float in the current from which power is to be derived. The front and rear portions of these beams are connected by arches 2 and 3 respectively which serve to rigidly connect the parts.

Extending downwardly from the middle portion of each of the arched braces or connecting devices 2 and 3 are hangers 4 and 5 respectively, the front hanger 4 constituting

a bearing for a trunnion 6 extending from the apex of a conical rotor 7 having a spiral blade 8 arranged thereon and extending from the apex to the rear end of the rotor.

Two concentrically arranged coiled pipes 9 are supported within the large end of the rotor and each of these pipes has its front end bent radially through the rotor and slightly curved at its terminus in a direction opposite to that in which the rotor is designed to revolve, these terminals or intakes of the coils being indicated at 10. The rear ends of the two coils merge into an outlet tube 11 which projects into and is designed to rotate within a sleeve 12 having an interior flange 13 constituting an end bearing for a cylindrical head 14 formed at the free end of the tube. It will be seen therefore that the tube 11 is free to rotate within the sleeve 12 but cannot move longitudinally relative thereto, this being due to the fact that flange 13 prevents head 14 from moving in one direction while movement of the head in the opposite direction is prevented by a screw-plug 15, engaging the sleeve and having a passage 16 therein which opens into an elbow 17. The distributing pipe of the apparatus, and which is not designed to rotate, is to be attached to the elbow 17.

From the foregoing description it will be apparent that the conical body 7 and the coils 9 carried thereby are free to rotate between the float members 1 while the coupling elbow 17 remains substantially stationary relatively thereto.

In order that logs and other objects which might injure the device, may be prevented from passing between the beams 1 and striking the rotor, deflecting blades 18 are secured to the front ends of said beams.

In using the pump herein described the same is anchored in a current and the elbow 17 is connected to the distributing pipe not shown. The device is positioned so that the apex of the rotor will point in the direction opposite to that in which the current is flowing. The float members 1 will of course support the pump so that the body 7 will be only partly submerged. The action of the current upon the spiral blade 8 will result in the rotation of the body 7 and during this movement thereof the intakes 10 will successively move below and above the surface of the water. During their movement through the water they will collect a portion

thereof and the same will be directed into the coils. After leaving the water the intakes will be filled with air and this in turn will be directed into the coils. It will be
 5 seen therefore that alternate quantities of water and air will be directed into the coils and as said coils rotate with the body 7 the contents thereof will be moved along the coils to the coupling shown in Fig. 4 from
 10 which they will be discharged into the distributing pipe.

A pump such as here described is particularly useful for irrigating purposes in that it can be readily installed within water currents and, because of its simple construction,
 15 can be used almost indefinitely without requiring attention.

Various changes can of course be made in the construction and arrangement of parts
 20 without departing from the spirit or sacrificing any of the advantages of the invention. For example, instead of providing the arch 2 a straight bar may connect the front ends of the beams 1.

25 It is also to be understood that where a sufficient current cannot be had, the cone herein described can be rotated by a suitable motor for the purpose of elevating water from wells, lakes, etc.

30 What is claimed is:—

1. A pump comprising converging floats, arched connections between the end portions thereof, hangers depending from said con-

nections, a conical rotor journaled within the hangers and between the floats, said
 35 rotor extending partly below the floats, a deflector connected to the floats and disposed beyond one end of the rotor, a spiral blade upon the rotor and a tubular coil movable
 40 with the rotor and having an intake at one end and a discharge at its other end.

2. A pump comprising a float, and a rotor journaled upon the float and extending
 45 above and below the same, said rotor consisting of a hollow conical member revoluble about its longitudinal axis, a spiral blade extending from the apex to the base of said conical member, and outer and inner concentric tubular coils within the conical member,
 50 and pitched reversely to the blade, each coil having a tangential intake portion extending through the conical member at a point between the ends of said member, said intakes being disposed at diametrically opposite points and extending in the direction of
 55 rotation of the conical member, and an outlet tube, both of the coils opening into said tube.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

RALPH J. MEYER.

Witnesses:

HENRY R. RHONE,
 WILLIAM H. BERGEN.