

M. F. REAGAN.

PUMP.

APPLICATION FILED NOV. 23, 1911.

Patented Aug. 13, 1912.

2 SHEETS—SHEET 1.

1,035,468.

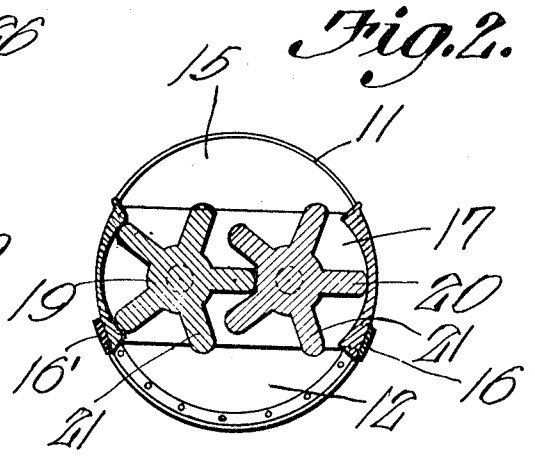
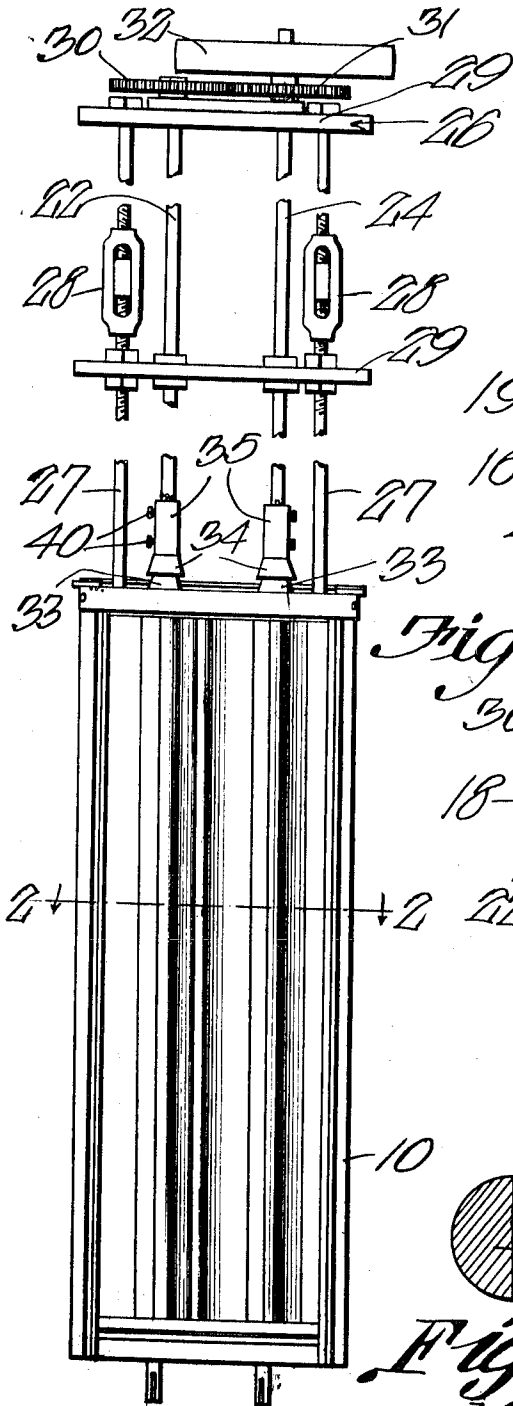


Fig. 1.

Fig. 3.

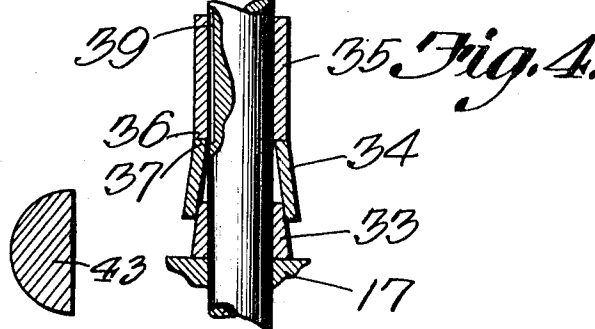
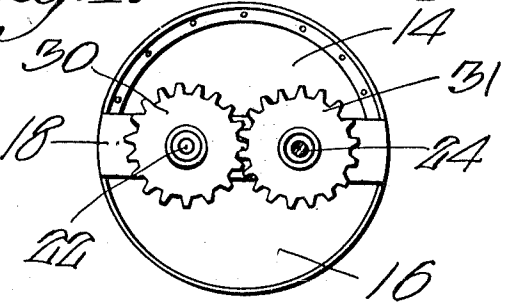


Fig. 11.

Witnesses

J. P. Fleming
Ernest F. Riley

Mendal F. Reagan

Inventor

by

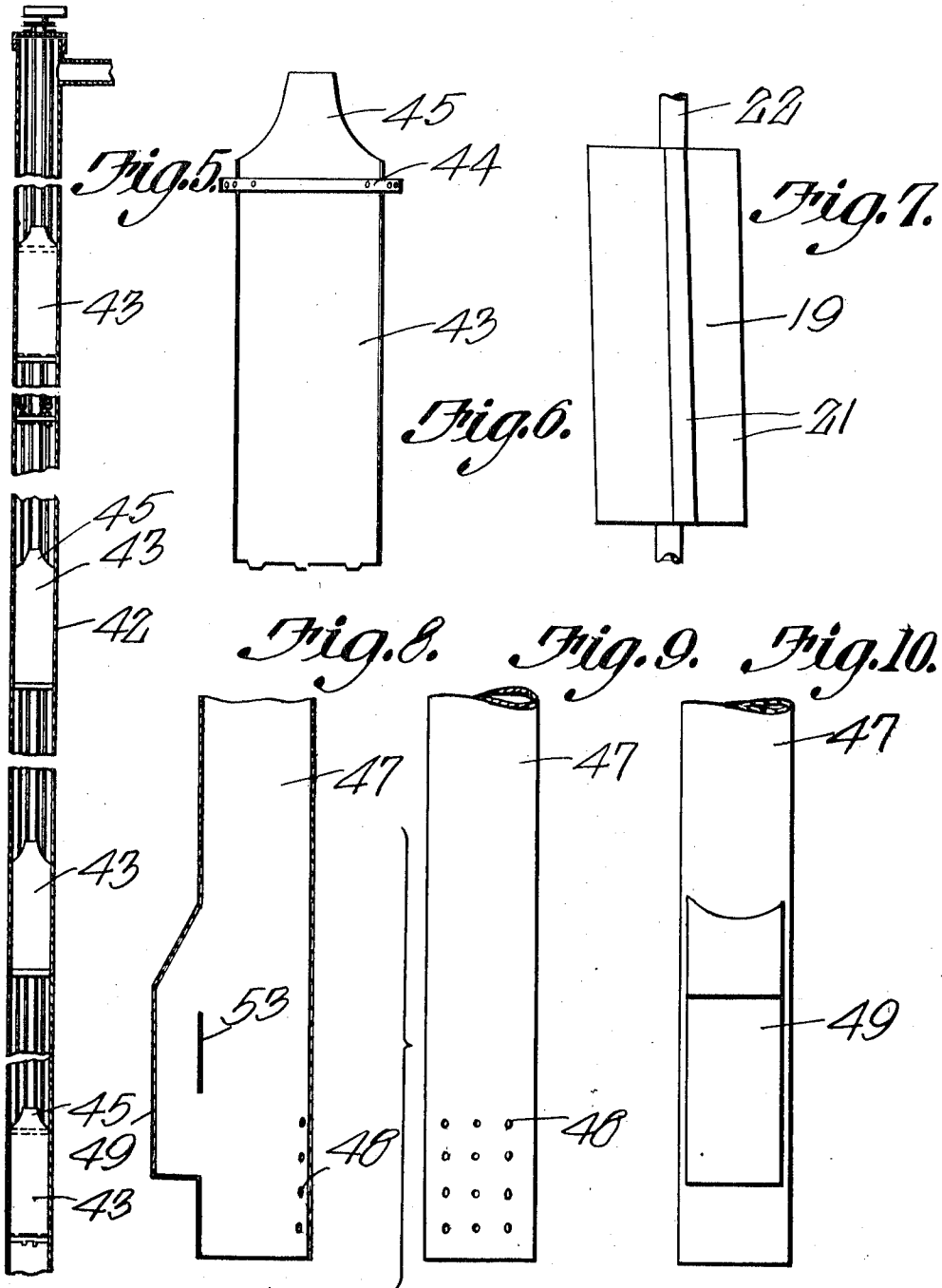
C. A. Snow & Co.

Attorneys

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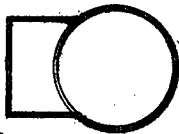
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Patented Aug. 13, 1912.
2 SHEETS-SHEET 2.



Witnesses

J. P. ...
Ernest H. ...



Meredith F. Reagan Inventor
by *Chas. Snow & Co.* Attorneys

UNITED STATES PATENT OFFICE.

MENDAL F. REAGAN, OF ROCKY FORD, COLORADO, ASSIGNOR OF ONE-FOURTH TO
ARTIS P. ST. JOHN, OF ROCKY FORD, COLORADO.

PUMP.

1,035,468.

Specification of Letters Patent.

Patented Aug. 13, 1912.

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To all whom it may concern:

Be it known that I, MENDAL F. REAGAN, a citizen of the United States, residing at Rocky Ford, in the county of Otero and State of Colorado, have invented a new and useful Pump, of which the following is a specification.

This invention relates to an improvement in pumps.

The primary object of the present invention is to provide a water elevating mechanism by which the water may be raised from various levels for irrigating purposes.

A further object of the invention is to provide means whereby the elevating mechanism may be arranged in series, sections being added as the elevation is increased.

In the drawings:—Figure 1 is a side elevation. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a top plan view. Fig. 4 is a detail view of the piston packing. Fig. 5 is a vertical section showing a plurality of elevators. Fig. 6 is a front elevation of the blocks or plugs which divide the mechanism in order to deflect the water from one side of the cylinder to the other. Fig. 7 is a detail view showing the angle at which the impellers are disposed. Fig. 8 is a sectional view of the water intake employed when but one set of impellers are used. Fig. 9 is a side elevation of said intake, and Fig. 10 is a front elevation of the same. Fig. 11 is a transverse sectional view of one of the plugs 43.

In the drawings, 10 designates a framework which supports a cylindrical casing 11, said casing being partially closed at either end by the plates 12 and 14 which are disposed in staggered relation, the water entering through the opening 15 and flowing through the opening 16. Disposed within the casing and supported by the transversely arranged bearing plates 17 and 18 are a plurality of impellers 19 and 20, said impellers being slanted slightly with respect to the casing. Secured to the casing are resilient strips or cushions 16' which allow the casing to accommodate itself to different sized casings. These impellers are provided with the radially extending fins 21, the impellers being so spaced from each other that the fins or extensions interdigitate as the same are rotated, the fins or extensions being spaced sufficiently from the casing to allow the impellers to rotate and yet, at the same

time, allow them to elevate the water. The impellers are rotated by shafts 22 and 24 which are supported by the structure 26, consisting of the bars 27 which may be brought together or extended by means of turn buckles 28, bearing plates 29 being supported by the upper and lower bars, the upper bearing plate supporting the meshing gears 30 and 31, the shaft on which the gear 31 is mounted being rotated by the pulley 32 which may be driven in any convenient manner. The upper bearing plate 17 supports the conical bearing 33, a similar bearing 34 surrounding the shaft, said second bearing embracing the first mentioned bearing. These bearings prevent the water from rising and flowing through the openings in the plates through which the shaft passes, and at the same time preventing foreign matter from entering through said openings, the shaft being provided with a sleeve 35, the end 36 of which impinges the end 37 on the conical bearing 34, thus insuring a water tight joint, the sleeve 35 being secured to the shaft by means of a key 39 and set screws 40.

In the construction shown in Fig. 1 the device is intended for elevating water when the same does not necessitate a great elevation. When it is found necessary to raise the water a considerable distance a plurality of rotors are arranged within a casing 42, as shown in Fig. 5, the elevating mechanism being so spaced that the water is first elevated from one to the other and then to the top of the casing. In this step by step elevation, the staggered relation of the intake and outlet openings of the casing is carried out by the plugs 43 which are semi-circular in cross-section and which are secured to the casing by means of straps 44, the plugs terminating in the conical extensions 45, the fluid passing around said plugs in its upward travel.

By this construction it will be noted that the water may be elevated step by step in a simple and convenient manner. When the water is raised from a comparatively slight depth, the intake shown in Figs. 8, 9 and 10 is employed, said intake consisting of the cylinder 47 formed at its base with the intake opening 48 and at a point diametrically opposite said opening and slightly above the same is formed an enlargement 49 which is off-set from the main cylinder by the spac-

ing member 53, thus preventing back pressure.

The many advantages of a water elevator of this character will be clearly apparent as it will be noted that the structure provides means whereby water may be elevated from various heights, the supporting structure being such that various elevating sections may be readily inserted when it is desired to increase the lifting capacity of the pump. Particular attention is called to the fact that the staggered relation of the intake and outlet openings is maintained by the plugs 43 which are arranged above each set of impellers. It will be noted that the entire structure is such as may be easily and economically manufactured, the various parts being readily assembled.

What is claimed is:

1. A water elevator comprising a casing, said casing being formed with an inlet and outlet in staggered relation, a plurality of impellers arranged in said casing, supporting plates for said impellers arranged within said casing, shafts adapted to drive said impellers, and an adjustable support for said shafts, including spaced plates capable of relative movement.

2. A water elevator comprising a casing, resilient members secured to said casing, said casing being formed with an inlet and outlet in staggered relation, impellers arranged in said casing, shafts adapted to drive said impellers, a plurality of spaced plates forming a support for said shafts,

and adjustable means connecting said plates.

3. A water elevator comprising a casing, a plurality of impellers arranged in said casing, said casing being formed with an inlet and outlet in staggered relation, plates forming bearings for said impellers, said plates being adjustable with respect to each other, a plate supported at one end of said casing, conical bearings supported by said plate, said bearings surrounding said shafts, conical bearings embracing the first mentioned bearings, and sleeves keyed to said shafts, the end portions of said sleeves abutting the second mentioned conical bearings.

4. A water elevator comprising a casing, a plurality of impellers arranged in said casing, said casing being formed with an inlet and outlet in staggered relation, plates arranged in said casing, said plates forming bearings for said impellers, shafts adapted to drive said impellers, conical bearings supported by said plates, said bearings surrounding said shafts, conical bearings embracing the first mentioned bearings, and sleeves keyed to said shafts, the end portions of said sleeves abutting the second mentioned conical bearings.

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

MENDAL F. REAGAN.

Witnesses:

GEORGE M. COFFMAN,
ARTIS P. ST. JOHN.