C. W. BLACK.

PUMPING APPARATUS.

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1,361,958. Patented Dec. 14, 1920.

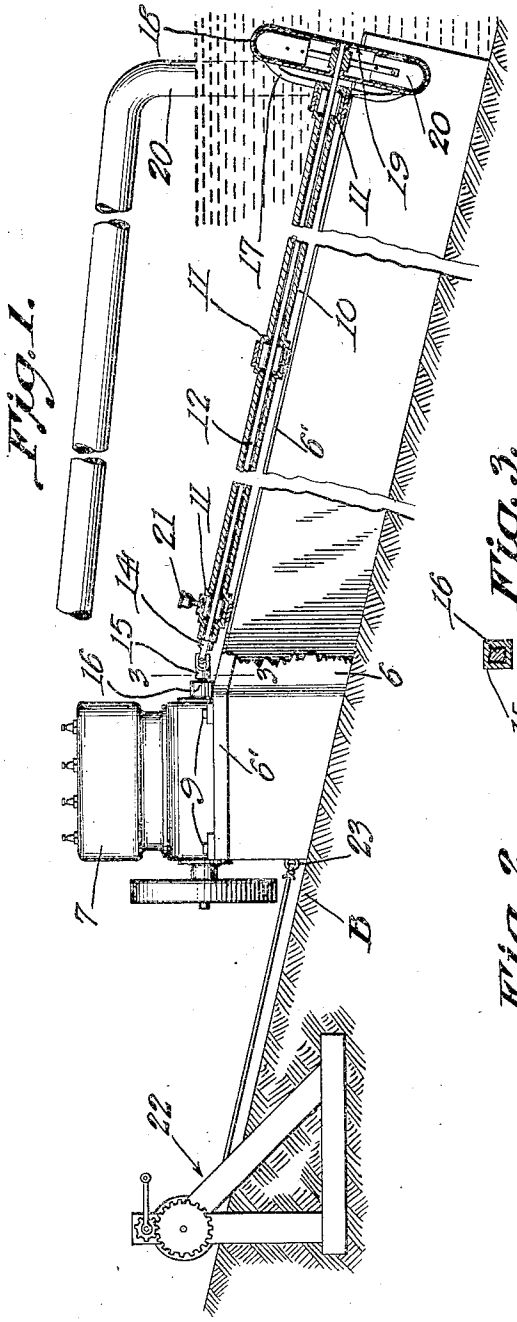


Fig. 1.

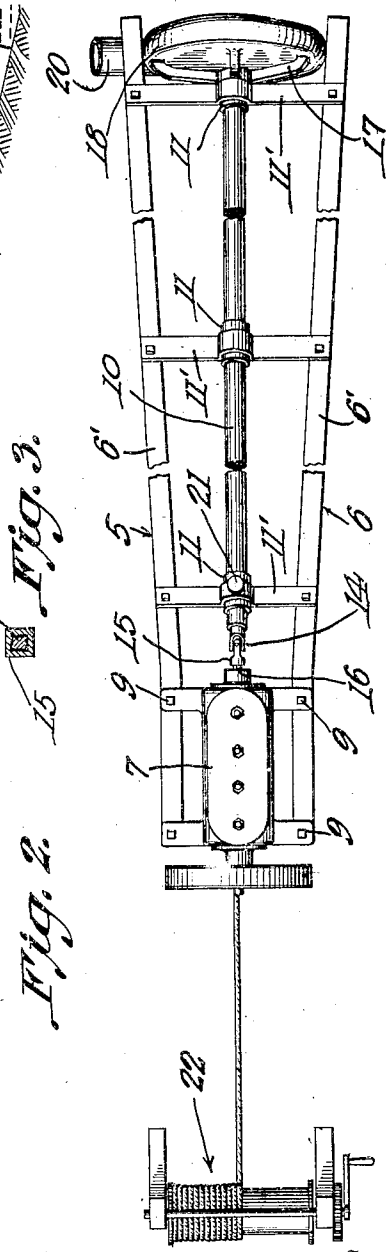


Fig. 3.

Fig. 2.

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PUMPING APPARATUS.

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To all whom it may concern:

Be it known that I, CHARLES W. BLACK, a citizen of the United States, and a resident of Baker, in the county of Baker and State of Oregon, have invented certain new and useful Improvements in Pumping Apparatus, of which the following is a specification.

My invention is a pumping apparatus, its principal object being to provide a pump to be submerged in the water adjacent the river bank and which is driven directly by an engine supported on the river bank and above the water level so that the water will not contact with any part of the engine mechanism.

A further object of the invention is to provide a portable pump apparatus which includes a rotary pump to be submerged in the water and a drive motor therefor, the apparatus being capable of being moved toward or away from the water, according to the rise and fall of the same so that the motor will be at all times disposed above the water level.

A still further important object of the invention resides in the provision of a rotary pump to be submerged in the water, the drive shaft of which being journaled in a tubular casing to protect the shaft and the antifriction elements associated therewith from the water, and which tubular casing serves to carry lubricant to the antifriction elements and pump shaft.

Further, my invention embodies a portable frame to rest upon the inclined river bank and supporting the pump at its lower end to force the water to a given point, and a motor supported in a horizontal plane at the opposite end of the frame for operating the pump and which frame is slid up the river bank according to the height of water so that the engine will be disposed at a point where it is dry through the medium of a windlass or other suitable means.

An additional object of the invention is to provide a pumping apparatus which is durable and efficient, is simple in construction, and easy to manufacture and can be sold at a comparatively small cost.

With the above and other objects and advantages in mind, my invention consists in the novel combination of elements, construction and arrangement of parts, the operations and specific features, all of which will be hereinafter enlarged upon and explicitly defined in the subjoined claims, the invention being illustrated in the attached drawing, wherein:

Figure 1 is a view partly in elevation and partly in cross section of the apparatus in operative position;

Fig. 2 is a top plan view of the same; and

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

On the drawing, wherein like characters of reference denote corresponding parts throughout the several views, the numerals 5 and 6 indicate a pair of divergent side beams which rest upon the inclined river bank designated at B. The upper faces of the beam 5 are cut on a horizontal line at their upper ends. Angle-irons 6′ extend longitudinally of the upper edges of the beams to serve to reinforce the structure. An engine 7 which in this instance is shown as an internal combustion engine but may be any conventional motor is disposed at the upper ends of the beams and secured to the same by outstanding ears 8 extending from the base of the engine and through which fastenings 9 extend. Extending longitudinally of the divergent beams 5 is a tubular casing 10 which is formed with bearing race-ways or cages 11, these race-ways being arranged at spaced intervals on the tubular casing and in this instance one is provided at each end of the casing and one disposed at a point centrally of the ends of the casing. Pairs of opposed straps 11 extend transversely of the beams and engage the tubular casing to retain the same in position. A drive shaft 12 extends centrally through the casing and engaging the drive shaft are anti-friction elements disposed within the race-ways 11. A universal joint 14 is carried by the inner end of the drive shaft and includes a sleeve 15 which is rectangular in cross section and received on the rectangular shaft 16 of the engine 7. This sleeve 15 is capable of slight longitudinal movement on the shaft 16, thereby obviating the strain on the drive shaft of the engine due to the drive shaft 12 being disposed at an angle with respect to the engine drive shaft.

A spider 17 extends from the endmost race-way and supported on the spider is a pump shell or casing 18 provided with a water inlet 19 and an outlet pipe 20 which extends vertically through the water and

thence extended toward the river bank B to any desirable point. Rotatable within the pump shell is a rotatable piston or impeller 20 fixed to the lower end of the drive shaft 12.

A lubricant cup 21 is threaded in the race-way at the upper end of the casing and owing to the inclination of this casing the lubricant will flow the entire length of the casing and supply lubricant to each set of roller bearings and shaft 12.

A conventional type of windlass denoted in its entirety at 22 is supported on the river bank and has one end of its cable connected to an eye 23 carried by the upper end of the frame whereupon rotation of the drum of the windlass the pump apparatus may be moved up the inclined river bank so that the apparatus will be positioned with the pump shell submerged and the engine disposed above the water level.

From the disclosure it will be obvious that upon rotation of the drive shaft 12 the water will be forced from the pump shell and through the pipe 20 to the desired point. It will also be obvious should the tide rise the frame will be drawn up the river bank a sufficient distance to prevent the water from contacting with the engine, through the instrumentality of the windlass and upon lowering of the tide the frame will be lowered toward the water.

The embodiment of the invention illustrated and described is a practical structure but it will be understood that the same may be modified in many respects and that my limits of such embodiments are only governed by what is claimed.

What is claimed is:

1. In an apparatus of the character described, a pair of longitudinal members extending parallel to an inclined surface, an engine supported on the upper ends of the longitudinal members, an angularly disposed drive shaft supported on the longitudinal members and extending longitudinally thereof and extending parallel to the inclined surface, a pump supported at the lower ends of the longitudinal members and including a rotary piston fixed to the lower end of the drive shaft, and an operative connection between the upper end of the drive shaft and the engine shaft.

2. In a pump apparatus, a pair of longitudinal supporting members, a motor supported at one end thereof, an angularly disposed drive shaft extending longitudinally of the longitudinal supporting members and having operative connection with the motor, a substantially vertically disposed spider arranged at the opposite end of the supporting members, a pump shell supported on the spider and provided with an inlet and outlet, and a rotary piston fixed to rotate with the shaft and arranged within the pump casing.

3. In a pump apparatus, a pair of longitudinal supporting members adapted to be arranged upon a river bank, a cylindrical casing supported between the supporting members and extended parallel to the upper edges of the supporting members, an engine supported at the highest ends of the supporting members, a drive shaft extending longitudinally through the casing and having operative connection with the engine, a spider supported on the cylindrical casing, a pump casing supported by the spider, and a rotatable piston in the pump casing and fixed to rotate with the drive shaft.

4. In an apparatus of the character described, a pair of longitudinal members extending parallel to an inclined surface, an engine supported on the upper ends of the longitudinal members, an angularly disposed drive shaft supported on the longitudinal members and extending longitudinally thereof and extending parallel to the inclined surface, a pump supported at the lower ends of the longitudinal members and including a rotary piston fixed to the lower end of the drive shaft, an operative connection between the upper end of the drive shaft and the engine shaft, and a windlass for moving the longitudinal members up the inclined surface.

5. In a pump apparatus, a pair of supporting beams arranged at an angle, a motor support on the upper end of the longitudinal members, a cylindrical casing extending longitudinally of the longitudinal members, antifriction element race-ways formed in the casing, anti-friction elements arranged in the race-ways, a shaft extending longitudinally of the casing and engaged by the anti-friction elements, pairs of opposed supporting straps engaging the casing and secured to the longitudinal elements, and a pump supported at the lower end of the longitudinal element and operated by the drive shaft, and means for supplying lubricant to the upper end of the cylindrical casing to flow through the same to lubricate the shaft and anti-friction elements.

CHARLES W. BLACK.