

No. 673,282.

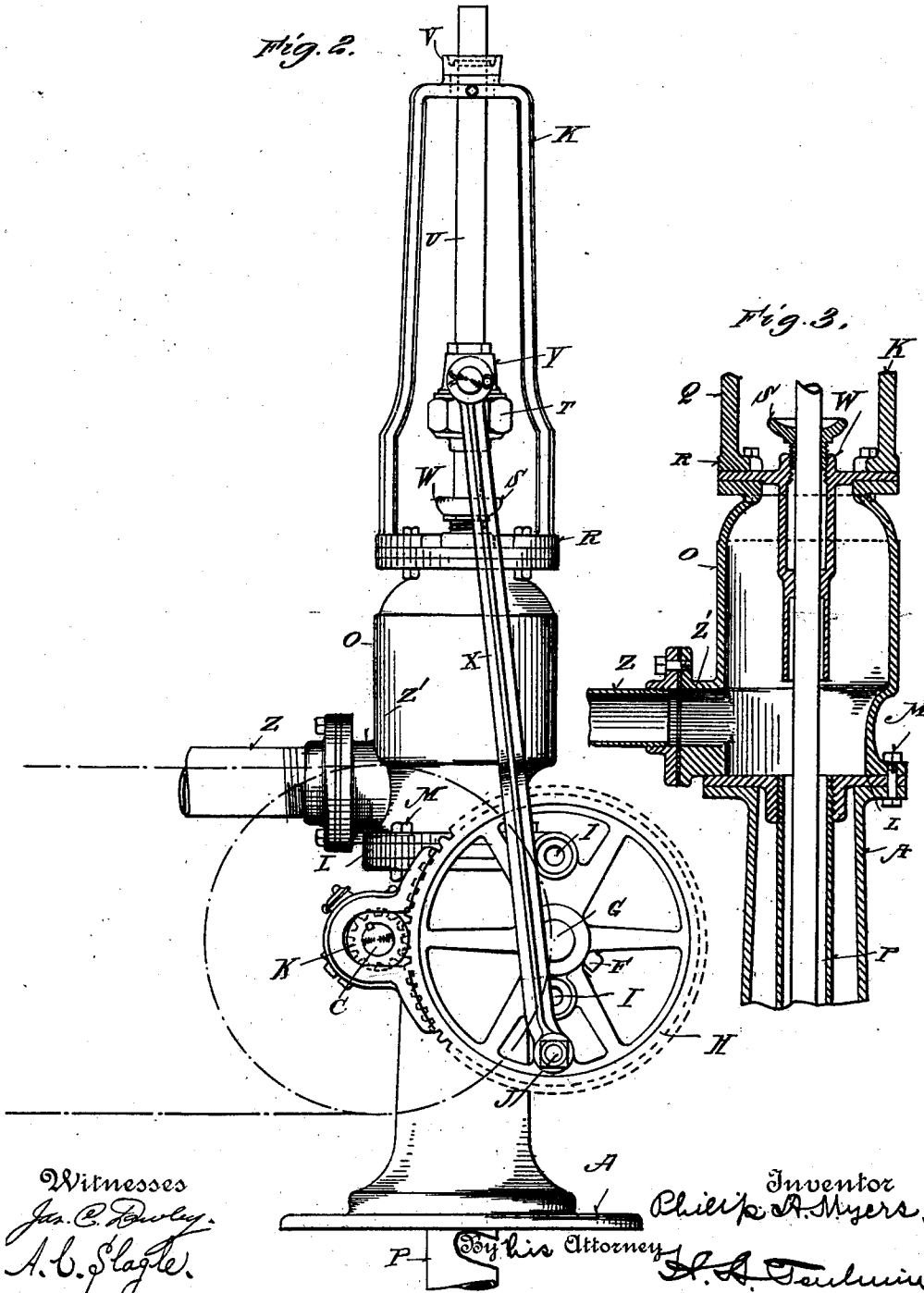
Patented Apr. 30, 1901.

P. A. MYERS.
POWER HEAD FOR PUMPS.

(Application filed Aug. 25, 1899.)

(No Model.)

4 Sheets—Sheet 2.



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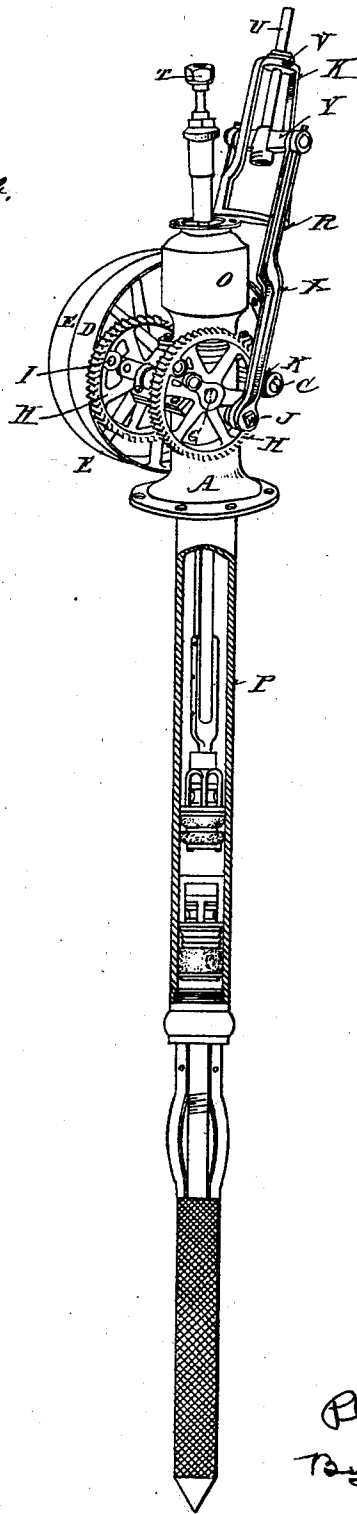
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Fig. A.



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4 Sheets—Sheet 4.

Fig. 5.

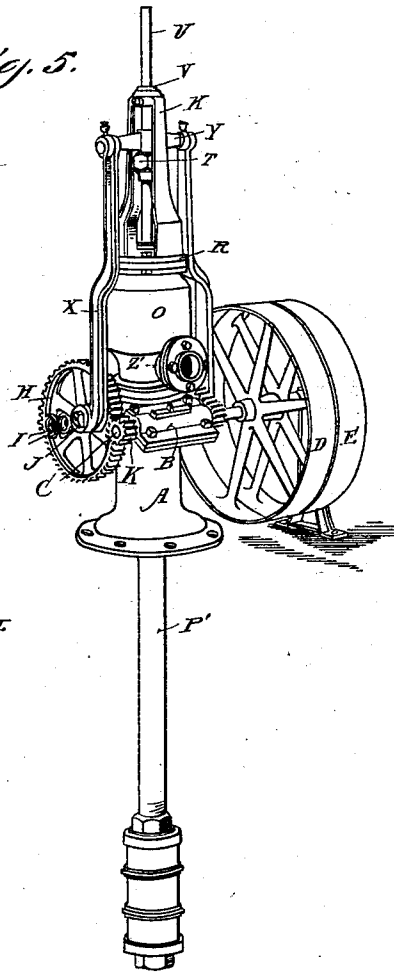
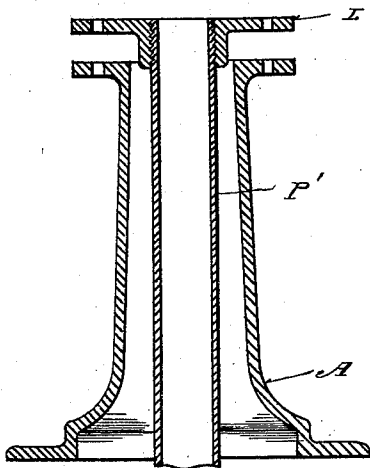


Fig. 6.



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UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO F. E. MYERS & BROTHER, OF SAME PLACE.

POWER-HEAD FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 673,282, dated April 30, 1901.

Application filed August 25, 1899. Serial No. 728,437. (No model.)

To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Power-Heads for Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in pump-operating mechanism, commonly known as "power working heads." This working head is designed to rest upon the well-top or platform and to operate the piston-rod of the pump. I have illustrated and will describe my invention as applied to two of its principal uses—viz., to a deep-bored-well pump and to an open-well pump.

The several principal and leading objects of my invention are—

First. The location and arrangement of the gearing of the apparatus by which the rotary motion of the driving-pulley is converted into reciprocating motion and transferred to the operating-rod down near to the base of the head, so that the belt-shaft is so low that the belt is deprived of purchase or leverage, such as would tend to loosen the head and pull it over to one side in the course of use.

Second. The location and arrangement of the driving-shaft on one side of the vertical center of the head, and the location and arrangement of the driven shaft which operates the pitmen-wheels on the other side of such center, and the location and arrangement of the operating-rod in guides above but between the centers of such driving and driven shafts, so that the pitmen on the up or pumping stroke will work almost directly under and largely in line with the operating-rod, giving it a direct push, while on the down or non-pumping stroke the pitmen having less load will travel faster, which is advantageous, as it hastens the operation.

Third. The construction of the head proper upon a common center line for all of its parts—that is, for the base, for the air-chamber, for the connecting-flange which connects with the pump-pipe or pump-casing,

and for the guides in which the operating-rod works—so that the apparatus cannot be put together wrong and so that it can be taken apart and again put together in exact line one part with the other.

Fourth. In constructing the head and in connecting the pump-pipe or pump-casing thereto in such manner that by removing or disturbing portions of the head the pump piston-rod and its pistons in the case of bored wells may be removed and in the case of open wells so that the whole pump, including the piston-rod, its pistons, the pump pipe or barrel, and the cylinder may be removed and so that these parts in both of these cases can be replaced in operating position, all this being accomplished and permitted by the simple removal or disconnection of parts of the head without disturbing the base portion and the driving-pulley, gears, and shafts.

Fifth. My invention also comprehends and includes various other features looking to details and constructions for the further perfection of the general objects above stated, which details and constructions will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding parts, Figure 1 is an elevation of my improved power-head looking toward the discharge-pipe and along the side of the shafts; Fig. 2, another elevation at right angles to Fig. 1; Fig. 3, a detail vertical sectional view of a portion of the head, showing particularly the pump-pipe or pump-casing, the flange holding it, and the pump piston-rod; Fig. 4, a detail perspective view of the pump-head and a bored-well pump in conjunction therewith, a part of the pump-casing being broken away to show the interior and the guide-rods, actuating-rod, and pitman disconnected and moved over to one side to admit of the withdrawal of the piston-rod and its piston-bucket, the piston-rod having been disconnected from the operating-rod; Fig. 5, a detail perspective view of the parts in conjunction with an open-well pump; and Fig. 6, a vertical sectional view in detail, showing the pump, part of the head disman-

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tled to admit of the removal of the pump-pipe, cylinder and contained piston-rod, and piston or bucket.

The letter A designates the base, adapted to be secured upon a well-top or platform and provided on one side with bearings B for the driving-shaft C, carrying the tight and loose pulleys D and E, and on the other side of the center with a bearing F for the driven shaft G, upon which are mounted the pitmen-driving wheels H, one at either end of the shaft G and each provided with several wrist-pin openings I at different radii for the purpose of producing different lengths of stroke by securing the wrist-pin J in one or the other of such openings, so that pumps of different strokes and pumps of different sizes may be operated by the same power-head. These pitmen-wheels have gear-teeth which mesh with driving-pinions K on the driving-shaft C, and the pinions being small, while the pitmen-wheels are relatively large, the speed of the driving-shaft is thus geared down, while the power is correspondingly increased.

A flange or flange-piece L is secured upon the base A, preferably by means of the same bolts M or means of attachment by which the air-chamber O is secured to the base. This flange-piece connects with the upper end of the bored-well casing P, as shown in Fig. 3, or connects with the upper end of the open-well-pump barrel or pipe P', as shown in Fig. 6. When the piston-rod and its piston or bucket are to be removed from the bored-well casing, the flange-piece is not disconnected from the base; but when the open-well pump, with its cylinder, piston-rod, and piston, is to be removed from the well the flange-piece is disconnected from the base. In the former case also the air-chamber O is not removed, but only the guide-bars K, with their base-flange R and guide and stuffing box S, as shown in Fig. 4; but in the latter case the air-chamber O is disconnected, as well as the flange-piece L, as shown in Fig. 6, in addition to the preliminary removal of the guide-bars and connected parts, as above stated, and in both cases the coupling-nut T, by which the pump piston-rod (no matter which kind of pump is being operated) is connected with the operating-rod U, is unscrewed from such operating-rod, as shown, for instance, in Fig. 4. Thus for either of the uses indicated it will be seen that provision is made for the removal of such part of the pump as in practice it has been found necessary and desirable to remove from time to time for repairs or other purposes and that such provision is made and completely carried out without removing the base of the head, without disconnecting it from the platform or well-top, and without in any manner disturbing the gearing or even disconnecting the pitmen from their operating-wheels. It will also be seen that the structure is built up part upon part about one common center line, the flange-piece upon the base, the air-

chamber upon the flange-piece, the guide-rods upon the air-chamber, and the upper guide V upon such rods, with the lower guide W upon the base-flange R, the lower guide also constituting the stuffing-box. It will further be seen that the driving-shaft, with its pulleys, and the driven shaft, with its pitmen-driving wheels, being low down on the structure tend to make it more steady, while such location deprives the driving-belt and its tension and weight from leverage sufficient to tip over or work the structure out of its true upright position.

As above indicated, it will further be seen that the pitmen X get practically under the operating-rod U and the connecting cross-head Y when on the up or pumping stroke, so that they act with the greatest effect and the least side strain or pressure, with the attendant evil of increased friction, while on the downstroke, when the pitmen are pulling more to one side on the actuating-rod and piston, the load is less, and hence the speed is greater.

The discharge-pipe Z is secured to a branch Z', projecting from the lower part of the air-chamber. The air which is confined between the column of water that rises in the chamber above this discharge branch acts expansively and causes an even stream to flow, the stuffing-box guide S preventing the air from escaping about the piston-rod.

Thus it will further be seen that the several objects of my invention are fully carried out by the organization and construction thus detailed, while at the same time more simplicity is obtained, and consequent durability and economy of production are got.

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

1. In a power-head for pumps, the combination with a fixable base-section, the same being hollow for the passage of a pump-piston and well-casing, of a driving-shaft mounted on one side of the vertical center of said base-section, a driven shaft mounted on the opposite side of said center, said base-section lying wholly between said shafts, whereby the weight of said shafts and their adjuncts is substantially equally distributed upon the opposite sides of said vertical center, a driving-pulley on the driving-shaft, and motion-transmitting wheels or devices rotatably connecting the driving-shaft with the driven shaft, two pitmen, one connected at one end with one of said motion-transmitting devices and the other with the other of said devices, both pivotally connected at their other ends to said pump-actuating rod, the location of said shafts being also below the upper end of said base-section, whereby the driving-belt for the driven shaft is deprived of leverage to disturb the fixity of said base-section, guide-rods for guiding said pump-actuating rod, and an intermediate portion or section supporting said guide-rods and which is supported by said

base-section and having a water-discharge opening to emit water received through said well-casing, substantially as shown and described.

5 2. In a power-head, the combination with the base of a flange-piece secured thereto, an air-chamber above the base and guide devices or rods above the chamber, an operating-rod carried by the latter, a coupling device to
10 connect said rod with a pump piston-rod extending through said structure, and a connection between such pump-casing and the flange-piece, the guide rods or devices being detachable and the coupling detachable,
15 whereby said pump-piston and its adjunct may be removed up through the power-head.

3. In a power-head, the combination with a base, a flange-piece thereon, an air-chamber upon the latter, guide-rods upon the air-
20 chamber, an actuating-rod carried by the guide-rods, a coupling to connect the actuating-rod with the pump piston-rod, a connection between the pump-casing and a flange-piece; said guide-rods being detachable from
25 the air-chamber and said coupling from the piston-rod, whereby said piston-rod with its adjunct may be removed up through the base flange-piece and air-chamber.

4. In a power-head, the combination with a
30 base, a flange detachable piece to connect with the pump barrel or pipe, a detachable air-chamber, and detachable guide rods or devices, an actuating-rod carried by the latter and a detachable coupling to connect said rod
35 with a pump piston-rod extending up through the structure; said coupling, guide rods or devices, air-chamber and flange-piece being detachable and removable, whereby such pump
40 entire may be removed up through the base.

5. In a power-head, the following instrumentalities: the base, a driving-shaft mounted on one side of its center and below its
45 upper end, a driven shaft mounted on the other side of the center and below said end, a pulley and pinions on the former shaft,

driving-wheels on the latter shaft meshing with said pinions, such location of such shafts being for the purposes set forth, pitmen operated by said driving-wheels, a detachable
50 flange-piece, a detachable air-chamber, detachable guide-rods, said flange-piece, air-chamber and guide-rods being mounted one upon the other and the flange-piece upon the base, an actuating-rod in the guide-rods, a
55 coupling to connect the actuating-rod with the pump-piston passing up through the structure and a connection to connect the flange-piece with the pump casing or pipe, said coupling and guide-rods being detached to withdraw the pump-piston and its adjuncts, and
60 said coupling, guide-rods, air-chamber and flange-piece being detached to withdraw the piston-rod and the pump entire.

6. In a power-head, the combination of a
65 three-part structure composed of a lower fixed column constituting a base, and a part constituting an air-chamber secured upon said base, and another part constituting guides secured upon said air-chamber, of a driving-
70 shaft having a pulley and mounted on the said fixed base below its upper end and a driven shaft on the opposite side of its vertical center, and having driving wheels or devices receiving motion from the driving-shaft,
75 such location of such shafts distributing the weight with reference to the center of the base, and such location of the driving-shaft depriving the belt of leverage to disturb the
80 fixity of the fixed base, a pump-actuating rod working within said first and second parts and guided by said third part, and connections between said actuating-rod and said driving wheels or devices whereby said actuating-rod is operated.

In testimony whereof I affix my signature
85 in presence of two witnesses.

PHILIP A. MYERS.

Witnesses:

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C. C. GAMBLE.