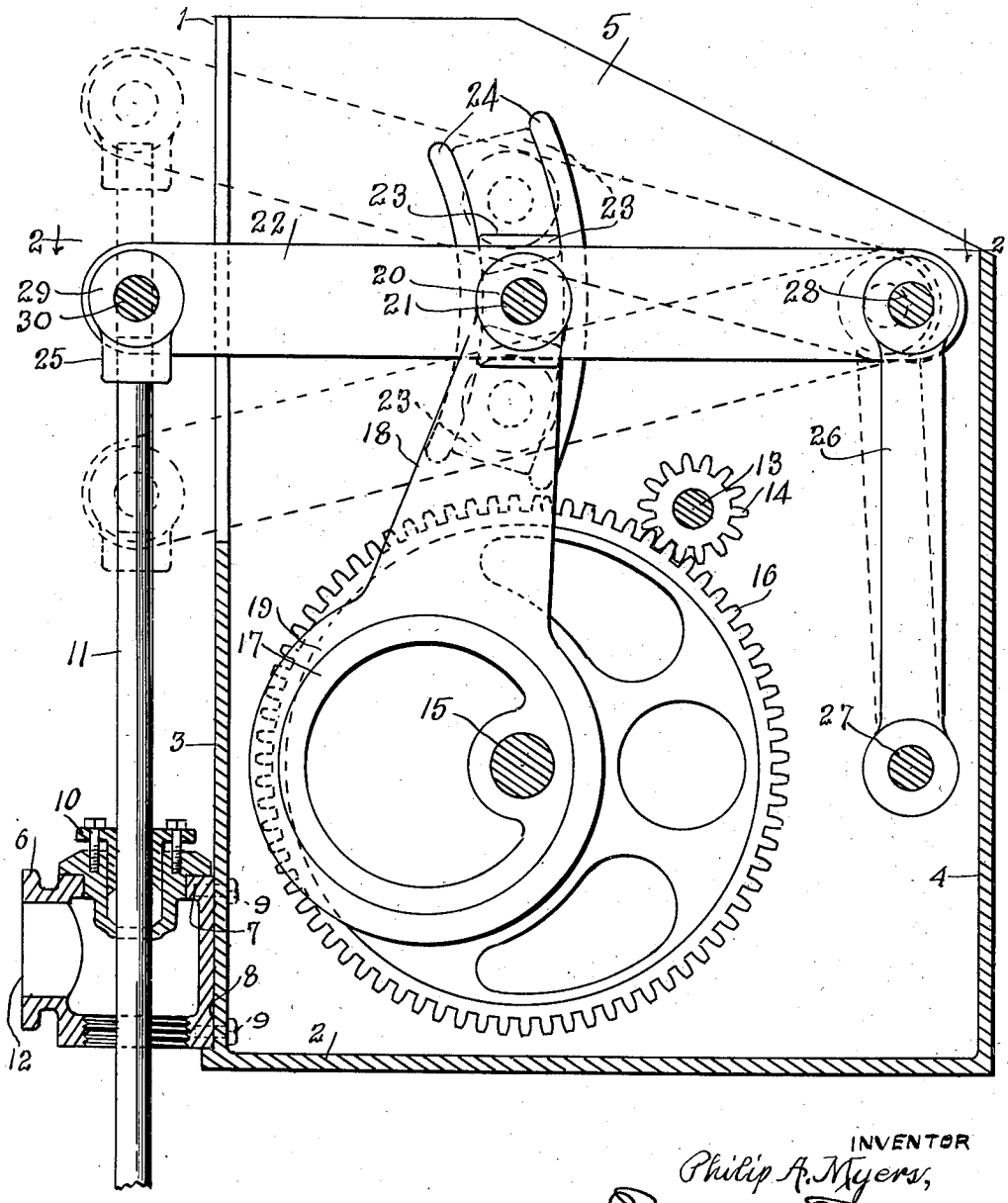
March 9, 1926. 1,576,208

P. A. MYERS

POWER HEAD

Original Filed Nov. 8, 1924 2 Sheets-Sheet 1

Fig. 1.




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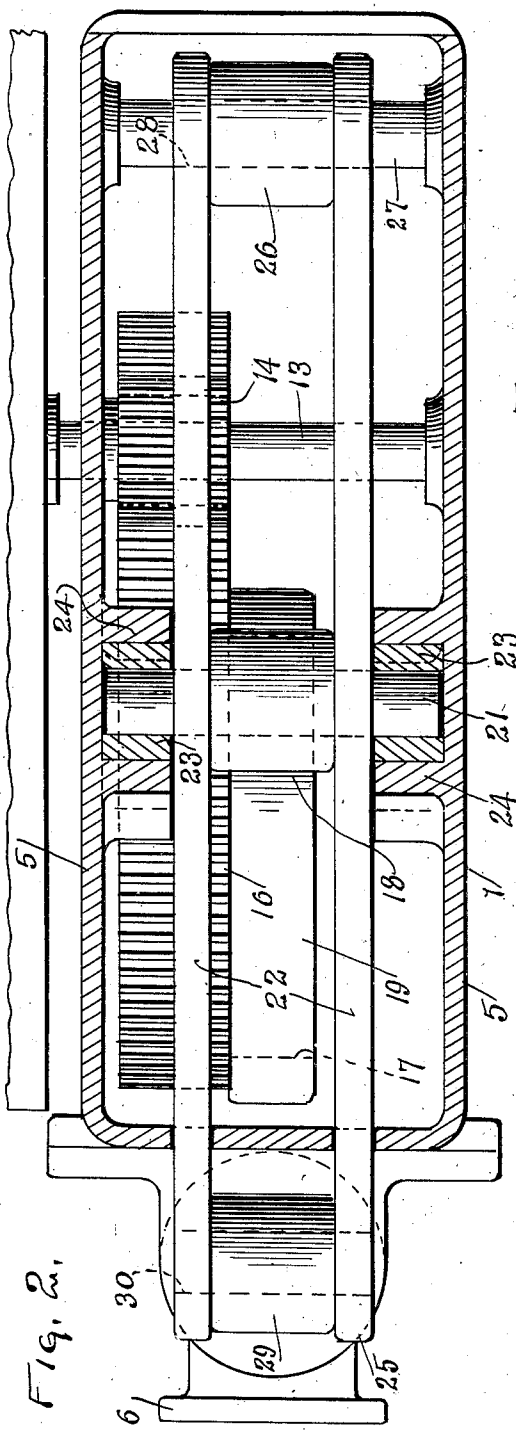



Fig. 2.

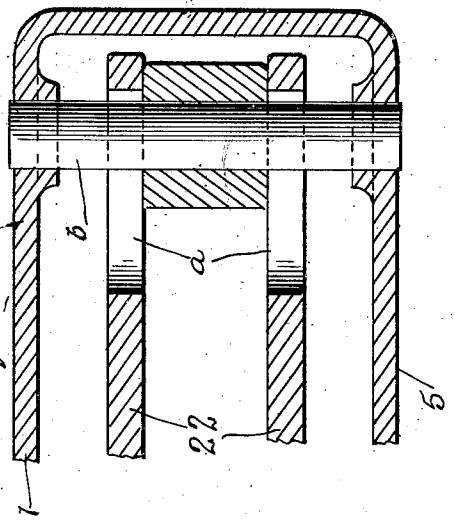



Fig. 4.

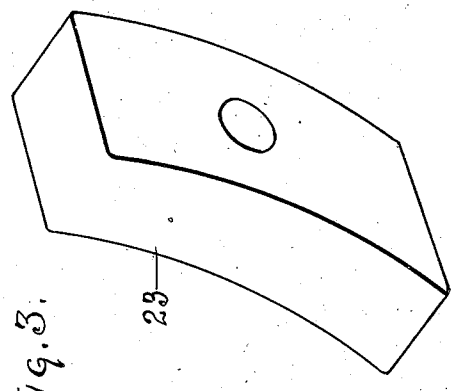



Fig. 3.

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Patented Mar. 9, 1926. 1,576,208

# UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO THE F. E. MYERS & BROTHER COMPANY, OF ASHLAND, OHIO, A CORPORATION OF OHIO.

## POWER HEAD.

Application filed November 8, 1924, Serial No. 748,536. Renewed January 15, 1926.

*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, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in power heads for use in operating the piston or pumping rod of water pumps.

The invention is in the nature of an improvement upon the power head shown and set forth in Letters Patent, No. 1,473,861, issued November 13, 1923, in which are illustrated and described a sliding member in the nature of a sleeve and a guide for the sleeve in the nature of a rod, whereby the walking beam was guided in a right line at the end where it connected with the piston or pumping rod, its other end being pivotally attached to the casing by means of a compensating link.

In the present invention I dispense with such sliding member and guide and instead thereof have invented cam mechanism by which the oscillatory walking beam is made to travel in substantially a straight line at the point of its connection with the pump or piston rod, as will be hereinafter more fully explained.

In the accompanying drawings:

Figure 1 is a vertical sectional view of the lubricant casing and a side elevation of the operating mechanism of my power head.

Figure 2 is a horizontal sectional view on the line 2—2 of Figure 1, showing the casing and the cam parts in section and the operating mechanism, pumping rod, etc., in plan view.

Figure 3 is a detail perspective view of the cam block which is adapted to travel in the ways formed by the cams.

Figure 4 is a view showing a modification of the compensating device between the casing and the walking beam.

In the drawings, the numeral 1 indicates a casing, preferably constructed of cast iron and comprising a base 2, front and rear walls 3 and 4 and side walls 5 so as to form a chamber within which lubricant may be placed for the lubrication of the operating parts.

Secured to the casing is a pump head indicated at 6 in the nature of a hollow casting which is, when assembled, in effect, a part of the casing except that it is preferably removable, as shown. A shoulder 7 on the casing receives and supports one edge 8 of the pump head. Suitable fastening means are employed in cases where the pump head is not integral with the casing, such as screw bolts indicated in dotted lines at 9.

This pump head is equipped with a stuffing box of any approved type indicated at 10, through which the pump or piston rod 11 passes. The stuffing box prevents water from leaking past the rod. A discharge opening 12 in the pump head delivers the water drawn up through the pumping mechanism proper, which is hung from the head. This mechanism may be any of the conventional forms comprising one or more cylinders, say an outer and an inner cylinder, and the piston rod shown, which in practice is equipped with a piston for each cylinder. But the point is that the pump head 6 constitutes the means by which the pumping mechanism is suspended and sustained, and by which also it is connected with the casing of the power head.

The power mechanism within the casing comprises a driving shaft 13 having suitable bearings in the walls of the casing and provided with a pinion 14 and in practice with suitable belt pulleys, not shown. It further comprises a gear shaft 15 which also has suitable bearings in the walls of the casing and a driven gear wheel 16 mounted on such shaft. An eccentric 17 is connected to operate with the gear 16 as by being formed integral therewith or by being secured to the shaft 15 in case the gear and the shaft rotate together. These latter considerations are matters of expediency which may be followed in such form as may be convenient.

Mounted on the eccentric 17 is an eccentric arm 18 having an eccentric ring 19 which rides on the eccentric and at its other extremity is bored out as at 20 to receive a connecting pin 21 which it actuates. This pin, as best seen from Figure 2, extends laterally beyond the eccentric arm through the members of a walking beam 22 and thence extends into cam blocks 23 mounted in ways formed on cams 24. By means of these cams the walking beam is caused to travel at its end 25 where it connects with the pump or piston rod in substantially a straight line,

The radius of the cams is such, as seen in Figure 1, as to cause the walking beam to travel in such right line and to compensate for the pivotal mounting of the walking beam in the casing. This mounting is accomplished through the use of a compensating link 26 pivoted at one end by a pin 27 to the casing and at the other end to the walking beam by a pin 28.

It will now be seen that when the eccentric arm is actuated by any suitable motor operating through the driving shaft and pinion and the driven gear, the walking beam will be given an up and down oscillatory movement on the pin 28, but will be prevented from moving in the arc of a circle on such pin as the center, by means of the compensating link 26 and the controlling cam mechanism described. In this way the end of the beam which connects with the pump rod is made to travel in substantially, if not literally, a vertical line so that the pump or piston rod is the more easily and properly operated, without lateral deflection which would tend to bend it or to cause friction and wear.

I have described and shown a single driven gear 16 with an eccentric and an eccentric arm, but it is obvious that this part of the mechanism may be modified without departing from the essential of my invention, which lies, primarily, in the cam mechanism for directing the oscillating beam in the manner stated, in this cam mechanism combined with the compensating link, and in the general combination of the cam mechanism, the walking beam and the casing, in which the cam mechanism and beam are mounted, including also a compensating feature for permitting the beam to travel in such straight line, notwithstanding its pivotal connection.

I have shown in Figure 1 a compensating link as one form of compensating device, and have illustrated in Figure 4 another form of compensating construction in which the connection of the walking beam with the casing includes a sliding motion, as by the slot *a* in the beam adapted to travel on the fixed pin *b*. Of course the reversal of this arrangement might be employed, such as making the pin *b* to slide instead of the walking beam.

I may add that the rod 11 is preferably equipped with a coupling 29 screwed thereon and having an opening to receive a coupling pin 30 by which the rod is connected with the walking beam.

The cam ways may be integral with the casing or be otherwise supported. The cam block which travels in the ways may be of any desired character, either a block specifically or other device adapted to travel readily in the ways.

I desire to comprehend within my invention such modifications as may be necessary to adapt it to varying conditions and uses.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a power head, the combination with a casing and power mechanism mounted therein comprising a shaft and pinion, a gear, and an arm actuated thereby, of a walking beam, compensating devices connecting the beam and casing, cam ways carried by the casing, a cam block in the ways and a connection between the block, the beam and the arm.

2. In a power head, the combination with a casing and operating mechanism mounted therein, comprising a driving shaft and pinion, a gear driven by said pinion, an eccentric operated by said gear and an eccentric arm mounted on the eccentric, of a walking beam, a compensating connection between the walking beam and the casing, cam ways carried by the casing, a cam block in said ways and a pin connecting the block, the walking beam and the eccentric arm.

3. In a power head, the combination with a casing, a driving shaft and pinion, a driven gear mounted therein, and an eccentric and its arm operated by the gear, of a walking beam comprised of two members spaced apart, a compensating link connecting one end of the walking beam to the casing, cam ways carried by the casing, cam blocks in the ways, and a connecting pin extending through the arm and beam and into the blocks.

4. In a power head, the combination with a casing and power mechanism mounted therein comprising a shaft and pinion, a gear and an actuating arm, of a walking beam, a compensating link pivoted to one end of the beam and to the casing and located therein, curved cam ways within the casing and carried thereby, cam blocks adapted to travel in the curved path defined by the ways, and a connection between the arm, walking beam, and blocks, whereby the oscillating end of the walking beam is made to travel in substantially a right line.

In testimony whereof, I affix my signature.

PHILIP A. MYERS.