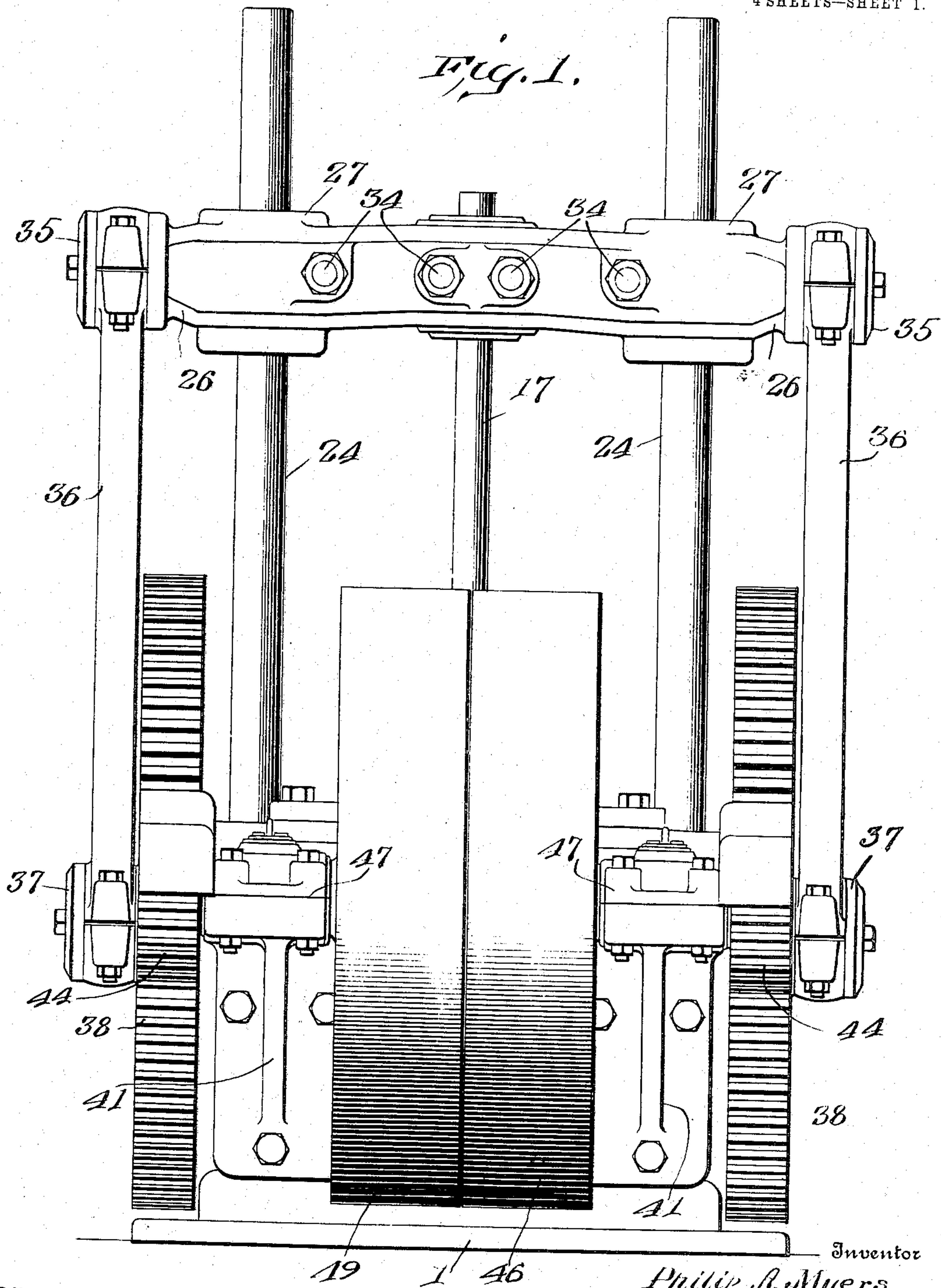


P. A. MYERS.
WORKING HEAD FOR POWER PUMPS.
APPLICATION FILED JUNE 8, 1908.

930,405.

Patented Aug. 10, 1909.

4 SHEETS—SHEET 1.



Witnesses

G. Howard Walmsley,
Edward T. Reed

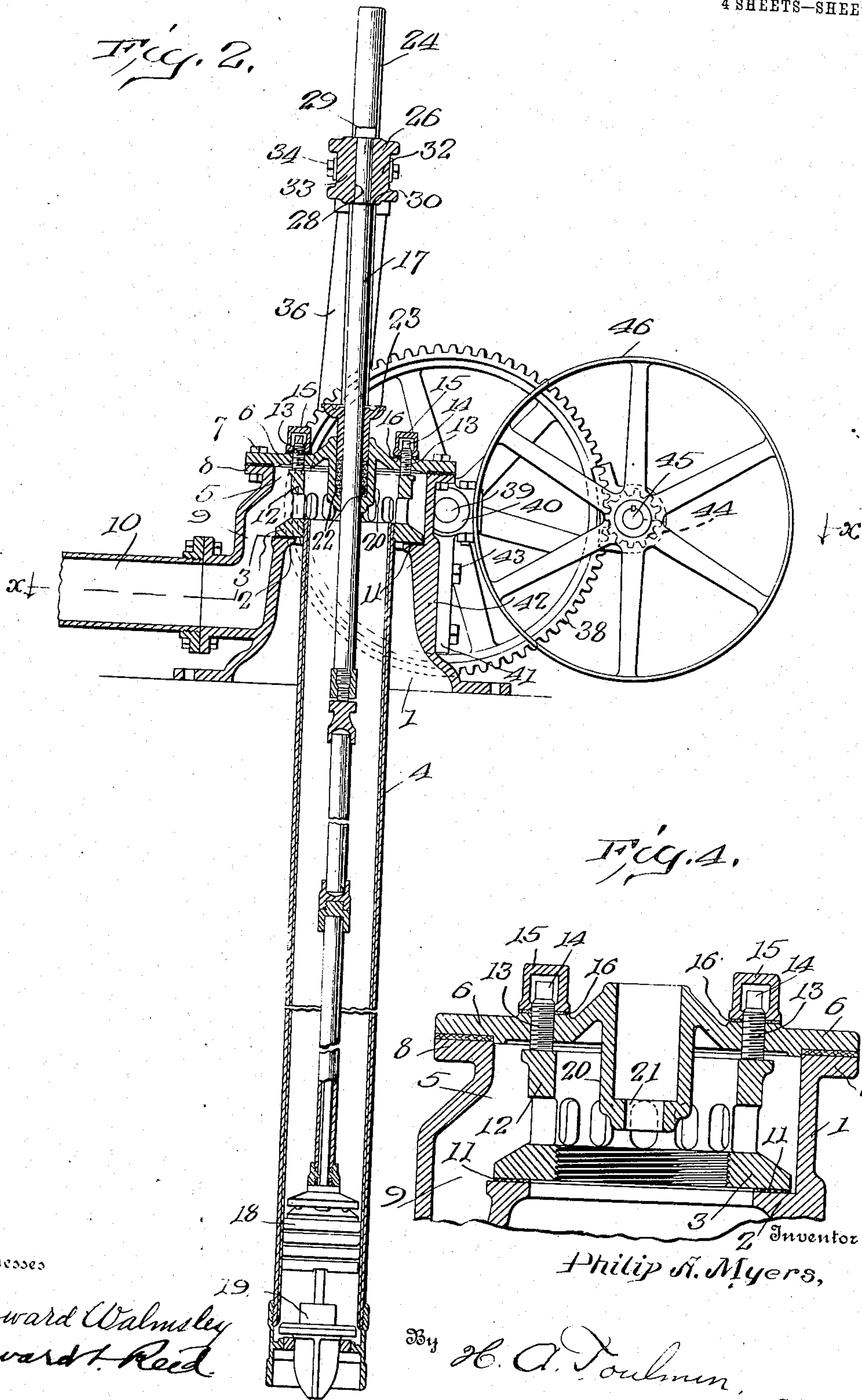
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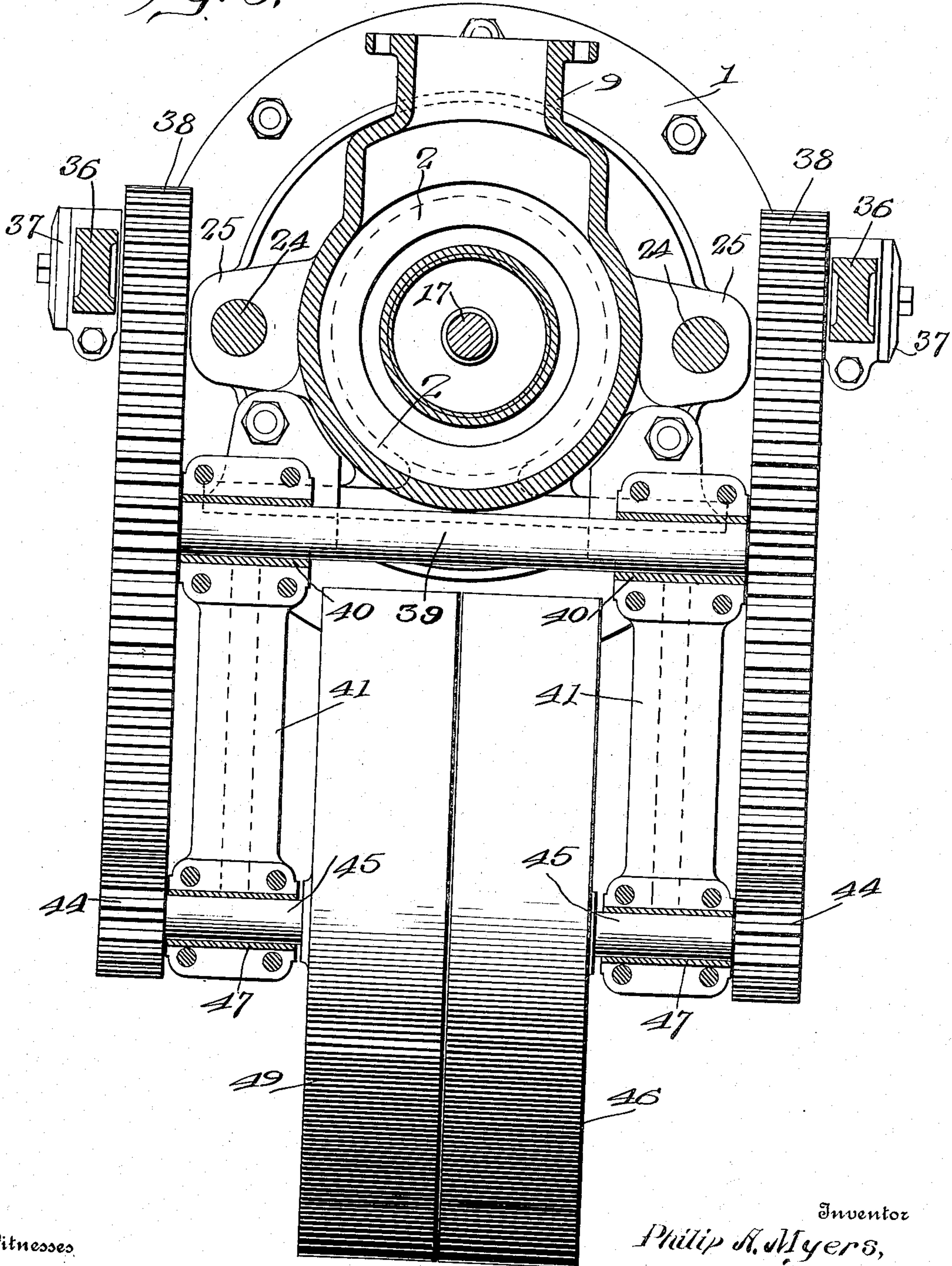
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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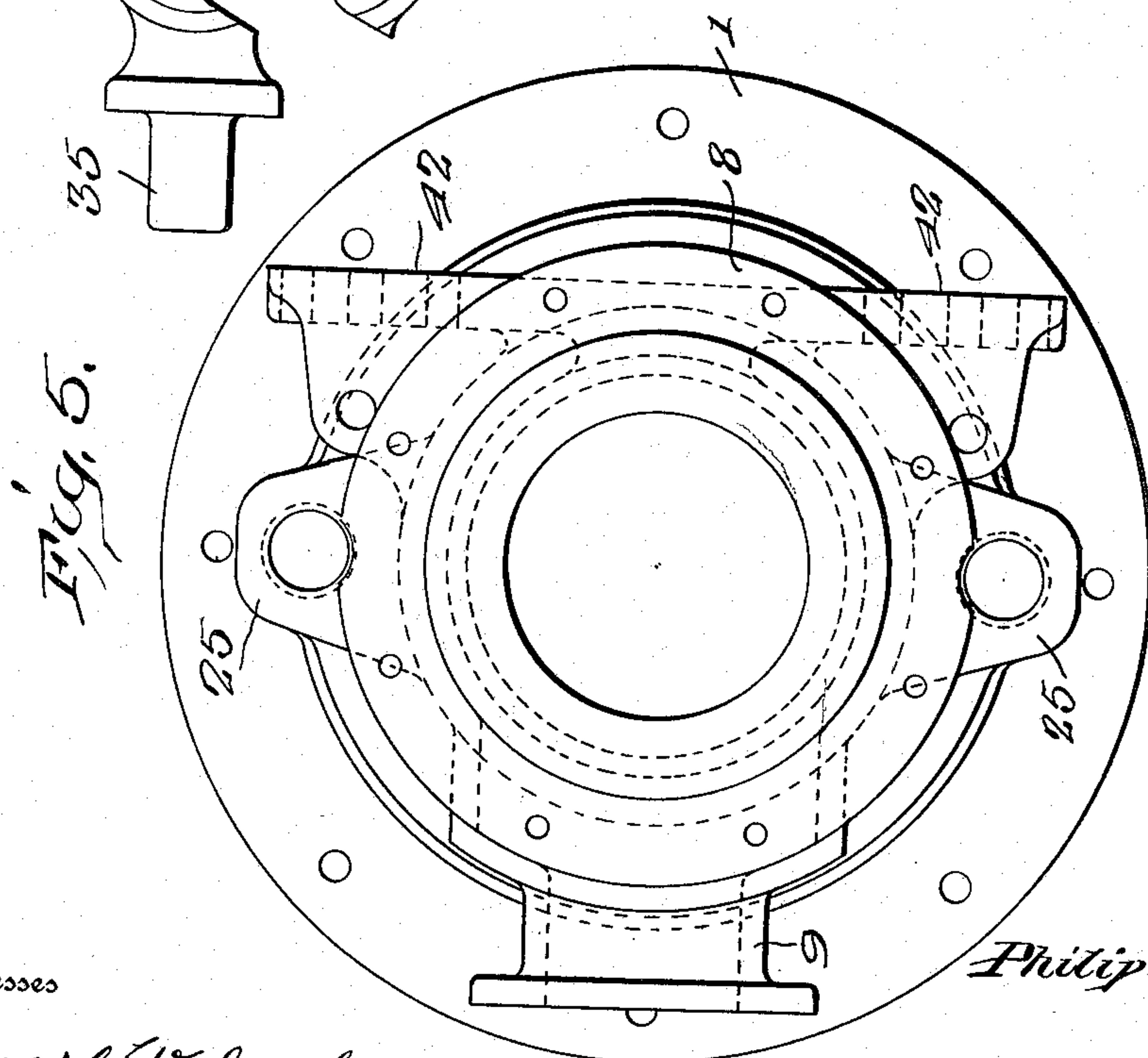
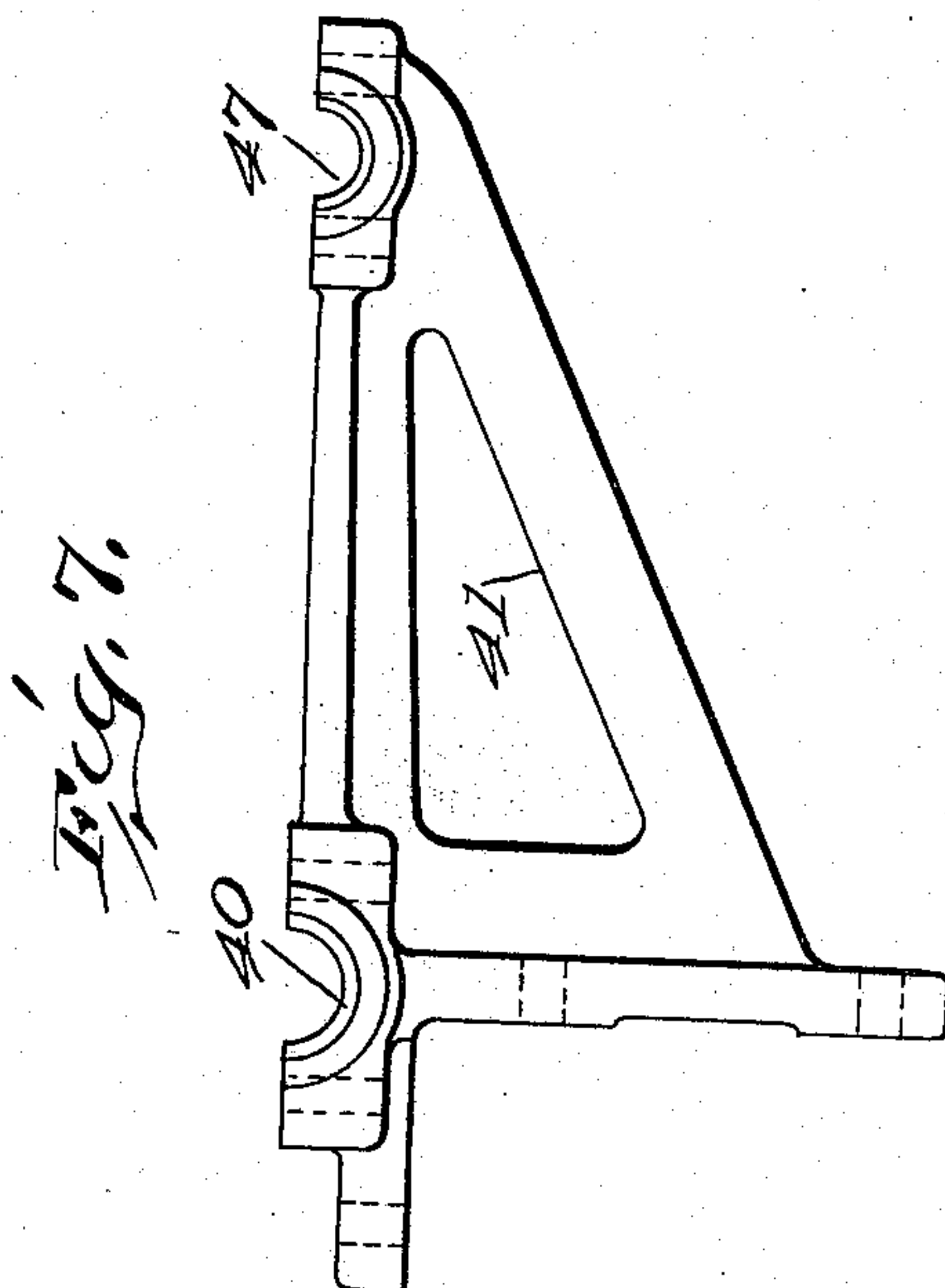
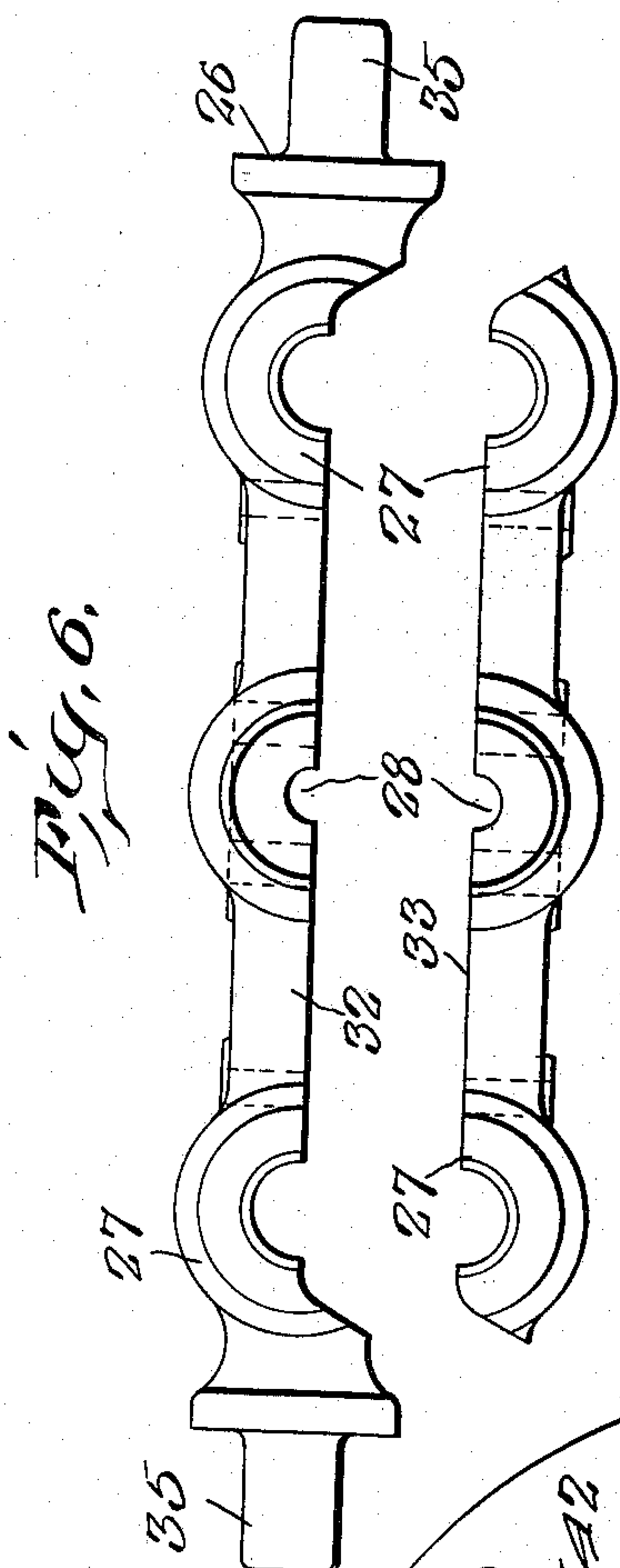
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4 SHEETS—SHEET 4.



Witnesses

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UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO F. E. MYERS AND BROTHER, OF ASHLAND, OHIO, A COPARTNERSHIP.

WORKING-HEAD FOR POWER-PUMPS.

No. 930,405.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed June 8, 1908. Serial No. 437,280.

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 Working-Heads for Power-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to working heads for power pumps and the object of the invention is to provide a working head of this character which will permit the removal of the working parts of the pump without disconnecting, or in any way interfering with the discharge pipe or operating gearing for the pump; to so construct such a working head as to render the same water-tight at all points; to so support the operating gearing thereon that it will not interfere with the removal of the working parts; and to provide such a working head which will be simple in its construction and operation and which will be strong and durable, the parts of which will not be liable to become disarranged.

With these objects in view my invention consists in certain novel features of construction and in certain parts and combinations hereinafter to be described, and then more particularly pointed out in the claims.

35 In the accompanying drawings, Figure 1 is a front elevation of a working head embodying my invention; Fig. 2 is a vertical sectional view, taken centrally through the same; Fig. 3 is a transverse sectional view, taken on the line $x-x$ of Fig. 2; Fig. 4 is a sectional detail view of the upper portion of the base; Fig. 5 is a detail plan view of the base; Fig. 6 is a detail view of the cross head; and Fig. 7 is a detail view of one of the bearing blocks.

45 In these drawings I have illustrated the preferred form of my invention and have shown the same as comprising a hollow base 1 which may be secured upon a support or platform of any suitable character and which is provided at a point between the upper and lower ends thereof with an inwardly extending projection or annular flange 2, upon which is mounted a supporting ring 3 adapted to support the suction pipe 4, the ring and upper end of the suction pipe being preferably screw-threaded to enable the same to be readily connected to and disconnected

from each other. The flange 2 and ring 3 divide the hollow base 1 into two parts and form above the ring 3 a chamber 5 which is provided with a closure 6 adapted to be secured to the base by bolts 7 extending 60 through the closure and through a flange 8 formed on the upper end of the base, a packing being inserted between said flange and said closure. This chamber 5 is provided with an outlet 9 which is preferably formed 65 integral with the base 1 and is adapted to have the outlet pipe 10 secured thereto. In order that there may be no leakage between the chamber 5 and the lower part of the base, it is desirable that a water-tight joint should 70 be formed between the flange 2 and the supporting ring 3, and, to this end, I have inserted a packing 11 between the ring and the flange and have provided the ring with an upwardly extending apertured collar or cage 75 12 which, in the present instance, is formed integral therewith and terminates a short distance below the closure for the upper end of the chamber 5. Adjustable clamping members are carried by the closure 6 and are 80 adapted to engage the upper edge of the collar 12 and thereby clamp the ring 3 tightly upon the flange 2. This clamping means preferably comprises a series of bolts 13 threaded into apertures in the closure 6 and 85 having their lower ends adapted to engage the upper edge of the collar and their upper ends squared or otherwise provided with a wrench grasp 14, thus enabling the same to be turned down tightly upon the collar 12. 90 A suitable cap or hollow nut 15 is mounted upon that portion of the bolt 13 which extends beyond the closure 6, and a packing 16 is inserted between said nut or cap and the upper side of the closure. Thus, by tightening 95 down the cap, a water-tight connection is made between the cap and the closure and all leakage prevented about the bolt 13, and further, the nut or cap 15 serves as a jamb-nut which tends to prevent the movement of 100 the bolt 13 in the closure 6. The pump rod 17, which carries at its lower end a water lifting device, such as the piston 18, and has connected thereto the valve 19, extends upwardly through the closure 6 and is connected at its outer end to suitable operating mechanism. The closure is preferably provided with a packing box, through which the rod extends and which comprises a cup-shaped depression or gland 20 formed in the 110

closure 6 and having an aperture 21 at its lower end, through which the pump rod extends. Packing material 22 is inserted in the cup-shaped gland about the rod 17 and a cap 23 is inserted in the upper end of the receptacle about the rod 15 to secure the packing firmly in place.

Guide rods 24 are secured to the base 1, preferably by rigidly mounting the same in suitable apertured lugs 25 located on the opposite sides of the closure 6. These guide rods are adapted to engage the opposite ends of a cross head 26 which is provided with suitable guideways to receive the same and to which the pump rod 17 is secured at a point between said guide rods. To this end, the cross head is provided, near its opposite ends, with apertures 27 which form guideways for the guide rods 24 and near its center with an aperture 28 within which the pump rod 17 is secured, preferably by providing the same with an enlarged head 29 and a shoulder 30 adapted to engage the opposite edges of the cross head and prevent movement of the pump rod within said aperture. In order that the cross head may be readily attached to and removed from the guide rod and pump rod I prefer to form the same in two pieces by dividing the same along a vertical plane, taken longitudinally of the cross head and near the center of the several apertures therein. This line of division extends outwardly to the face of the cross head just beyond the apertures 27 at either end of the cross head and thus divides the cross head into a main portion 32 and a removable portion 33 which is secured to the main portion by means of bolts 34, and, inasmuch as the line of division extends through the apertures 27 and 28 therein, it will be apparent that upon separating the two parts of the cross head that the same can be entirely removed from the guide rods and the pump rod.

The main portion of the cross head is provided near its outer end with bearing lugs or wrist pins 35, upon which are journaled the upper ends of the connecting rods 36, the lower ends of which are journaled upon suitable crank pins 37 eccentrically mounted on the gear wheels 38. These gear wheels are mounted upon the base 1 in any suitable manner, preferably by securing the same to the opposite ends of a shaft 39 which is journaled in suitable bearings 40 upon the base 1, these bearings being preferably formed in the inner ends of brackets 41 secured to the base near the opposite sides thereof. In order to secure these brackets firmly to the base I prefer to provide the base with supporting plates 42, which, in the present instance, are cast integral therewith and are of such a shape and are so arranged as to form a supporting surface for the brackets 41 which are detachably secured

thereto by means of bolts 43. The gears 38 are rotated by means of pinions 44 mounted upon a shaft 45 which is journaled at a point removed from the base 1 and provided with suitable driving gears, such as the pulleys 46. The shaft 45 is preferably mounted in bearings 47 formed in the outer ends of the brackets 41 and has the pinions 44 secured thereto on the outer sides of said bearings and the driving pulley 46 and an idler 49 mounted thereon between the brackets. Thus, it will be seen that the operating gearing is so supported on the base 1 as to be entirely out of alinement with the upper end thereof and that by removing the closure 6 and separating the cross head from the guide rods and pump rod, the entire working parts of the pump may be removed therefrom without interfering with any parts thereof other than those mentioned. These working parts, in the present instance, include not only the pump rod and plunger 18 and valve 19 which are connected to the pump rod, but also the suction pipe 4 and the parts carried thereby, all of which may, if desired, be removed through the upper end of the base without interfering either with the pipe connections or the belting or operating gearing of the pump.

In pumps of this character it is very desirable that the working head should be what is known as a low-down head, *i. e.*, a head having a very short base and having the operating mechanism located close to the supporting surface, thus not only economizing space and material, but bringing the strain close to the support and practically eliminating the tendency of the base to tilt and work loose from its fastenings. It will be observed that I have accomplished this result and have provided a low-down base having the shafts of the operating mechanism supported on one side thereof and in substantially the same horizontal plane as the chamber 5, *i. e.*, in a plane extending between the closure 6 and supporting ring 3, having the operating mechanism operatively connected to the pump rod at a point above the base. It will also be observed that the construction of the packing box or gland and its location relatively to the supporting ring 3 is such as to afford a guide which will maintain the pump rod in a position central of the suction pipe.

It will be apparent from the foregoing description that I have provided a working head of this character which will, as stated, permit the removal of all the working parts without the dislocation of or interference in any manner with the discharge pipe or the belts or other operating gearing; that this working head is of a water-tight construction, preventing all leaking between the several parts thereof; and further, that the construction and operation of the working

head and its operating mechanism is of a simple character which is not liable to become disarranged or inoperative and which is of a strong, durable nature capable of withstanding a large amount of strain and heavy usage.

I wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

1. In a working head of the character described, a hollow base having an inlet and an outlet, a removable closure for the upper end of said base, a pump rod extending through said closure, guide rods carried by said base at points laterally beyond the closure and extending above it, whereby the closure is removable upwardly between and laterally from the guide rods, a cross head slidably mounted on said guide rods, above said closure and detachably connected to said pump rod, a gear wheel mounted on said base, a crank pin carried by said gear wheel, a connecting rod extending between said cross head and said crank pin, a shaft mounted at a point removed from said base, a pinion carried by said shaft and meshing with said gear, and means for rotating said shaft.

2. In a working head of the character described, a hollow base having an inlet and an outlet, a removable closure for said base, a pump rod having a piston and extending through said closure and, with its piston, removable upwardly when the closure is removed, guide rods permanently secured to said base at points laterally beyond the closure and extending above the same, whereby the closure is removable upwardly between and laterally from the guide rods, a cross head slidably mounted on said guide rods above the closure and detachably connected to said pump rod and said guide rods, whereby the closure and the pump rod and its piston may all be removed upwardly and away from the base, a shaft journaled on said base and extending substantially parallel with said cross head, gear wheels mounted near the opposite ends of said shaft, a crank pin carried by each of said gear wheels, connecting rods extending between said crank pins and the adjacent ends of said cross head, a second shaft mounted at a point removed from said base, pinions carried by said second shaft near the opposite ends thereof and adapted to mesh with said gear wheels, and a driving member mounted on said second shaft.

3. In a working head of the character described, a hollow base having an inlet and an outlet, a removable closure for said base, a

pump rod having a piston and extending through said closure, a bracket mounted on said base at one side thereof and having a bearing near each end, a shaft journaled in the bearing near one end of said bracket, a gear wheel mounted on said shaft, a crank pin carried by said gear wheel and operatively connected to the pump rod, a shaft journaled in the bearing near the other end of said bracket, a pinion carried by said shaft adapted to mesh with said gear, and means for rotating said shaft, the lateral position of the bracket and the shafts it carries permitting the removal of said pump rod and its piston from the base when said closure is removed.

4. In a working head of the character described, a hollow base having an inlet and an outlet, a removable closure for said base, a pump rod having a piston and extending through said closure, a supporting plate carried by said base, brackets rigidly mounted on said supporting plate, spaced apart and extending laterally from said base and having bearings near the inner and outer ends thereof, a shaft journaled in each of said bearings, a gear wheel mounted on the innermost shaft and operatively connected to said pump rod, a pinion carried by the outermost shaft and adapted to mesh with said gear wheel, and means for rotating said outermost shaft, the lateral positions of the brackets and shafts they carry permitting the removal of the pump rod and its piston from the base when said closure is removed.

5. A working head of the character described, comprising a low down base having a chamber in the upper end thereof, a removable closure for the upper end of said chamber, a supporting ring mounted in the lower portion of said chamber, a suction pipe carried by said supporting ring, and a piston and piston rod within such pipe, the piston rod alone being removable when the closure is removed, or the piston rod and also the suction pipe and supporting ring being removable when such closure is removed, two shafts supported on one side of said base, spaced some distance apart and arranged in a horizontal plane extending through said chamber between said closure and said supporting ring, and means for operatively connecting said shafts to said pump rod at a point above said closure, such means being arranged to permit the removal of the parts indicated.

6. In a working head of the character described, a base, a projection extending inwardly from said base, a supporting ring mounted on said base, a suction pipe carried by said supporting ring, a vertically arranged member mounted on said supporting ring, a closure for the upper end of said base, adjustable members carried by said closure and adapted to engage the upper

edge of said vertically arranged member, a
pump rod mounted in said suction pipe and
extending through said closure, guide rods
carried by said base, a cross head mounted
5 on said guide rods and connected with said
pump rod, a shaft mounted on said base, a
gear carried by said shaft, a crank pin car-
ried by said gear, a connecting rod extend-
ing between said crank pin and said cross
10 head, a second shaft supported on said base

at a distance from said first-mentioned shaft,
a pinion carried by said last-mentioned shaft
adapted to mesh with said gear, and means
for rotating said last-mentioned shaft.

In testimony whereof, I affix my signature 15
in presence of two witnesses.

PHILIP A. MYERS.

Witnesses:

F. B. KELLOGG,
B. M. TUBBS.