No. 800,399. PATENTED SEPT. 26, 1905.

G. C. RICHARDS.

POWER PUMP HEAD.

APPLICATION FILED AUG. 16, 1904.

Fig. 1.

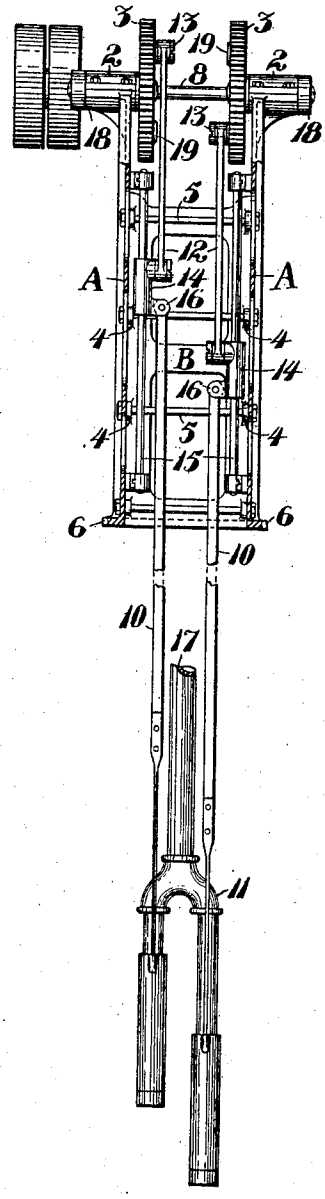


Fig. 2.

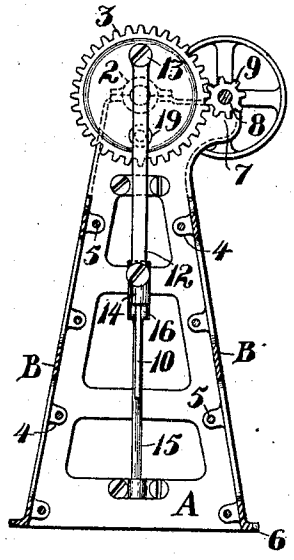


Fig. 3.

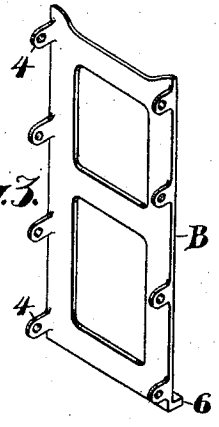
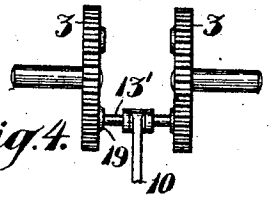


Fig. 4.



Witnesses:-

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By Geo. H. Strong, Atty.

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UNITED STATES PATENT OFFICE.

GEORGE CLARK RICHARDS, OF OAKLAND, CALIFORNIA.

POWER PUMP-HEAD.

No. 800,389. Specification of Letters Patent. Patented Sept. 26, 1905.

Application filed August 16, 1904. Serial No. 220,923.

To all whom it may concern:

Be it known that I, GEORGE CLARK RICHARDS, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Power Pump-Heads, of which the following is a specification.

My invention relates to improvements in pump-heads, and especially in those designed for use with double-acting deep-well pumps of the type shown, for instance, in my Patent No. 737,274, dated August 25, 1903.

The object of my invention is to provide a power-pump head which will be very simple in construction, easily set up, and easily knocked down for shipment, which is adaptable for either single or double acting pumps, and which will be powerful and absolutely rigid.

It consists of the parts and the construction and combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation, in partial section, showing my pump-head associated with a double-acting pump. Fig. 2 is an end elevation, in partial section, of the pump-head at right angles to view of Fig. 1. Fig. 3 is a detail in perspective of a side plate. Fig. 4 is a detail showing crank-gears adapted for single-acting pumps.

In carrying out my invention I construct the frame of the head in four parts, preferably cast and suitably bolted together. As shown, the frame comprises two end castings A somewhat in the form of an isosceles triangle, with the apex of each casting provided with a long bearing or box 2 for the arbor of a crank-gear 3. The two triangular end castings A are spaced and braced by two side castings or plates B, having inwardly-projecting lugs 4 provided with perforations registering with corresponding perforations in the legs of the end castings A. Tie-bolts 5 extend through the several perforations of both end frames and across the side plates, as shown. Both side and end castings are flanged at the bottom, as represented at 6, and when the bolts 5 have been tightened up and the entire assembled structure bolted down it is extremely rigid. In fact, the long tie-bolts 5 are purposely extended from end casting to end casting because of the additional bracing they afford. At the same time the removal of these eight bolts enables the entire frame to be quickly dismantled. The end castings A have a second set of integrally-cast boxes 7, paralleling boxes 2 and affording bearings for the drive-shaft 8, which receives motion from any suitable source of power. From shaft 8 power is transmitted to gears 3 by means of the pinions 9.

The rotary motion of the crank-gears 3 is converted into a vertical rectilinear movement of the sucker-rods 10 of the double-acting pump 11 by means of the connecting-rods 12, each having one end pivoted on a wrist-pin 13 on a gear 3 and the other end pivoted to a sleeve-casting 14, slidable on the vertical stationary guide-rod 15, fixed at its ends in a respective end casting A. The lower end of each sleeve-casting has a perforated radial projection 16 for the engagement of a respective rod 10.

The pump, while it may be of any type, is here shown of the double-acting variety illustrated in the patent previously referred to, in which there are two outer valved cylinders reciprocal on the stationary valved barrels, the latter uniting at the top in a common discharge-pipe 17. Each cylinder is suspended from a rod 10 on the outside of the barrels and discharge-pipe, and the operation of the rods and cylinders is so arranged that their action of suction and discharge shall be alternate. Thus the sucker-rods and cylinders work on a balance, leaving the weight of the water only to be actually lifted, saving the excess power constantly needed in other pumps to raise the extra weight of the rod and plunger and obviating the strain usual in most pumps on the power.

The ends of the arbors of gears 3 are each provided with adjustable collars 18, so that snug smooth-running bearings may be always maintained. By giving the arbors a long bearing, as shown, a plentiful support for them and the gears is afforded. This pump-head, while shown and described in connection with a double-acting pump, is applicable for use with any single-cylinder pump. For this purpose each gear on its inner face is provided with a boss having a threaded recess 19 disposed in axial alinement with the wrist-pin of the other gear, so that by uncoupling one connecting-rod 12 a single crank-pin 13′,

Fig. 4, may be substituted for the two wrist-pins 13. This construction saves taking off or loosening from its bearings shaft 8.

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

1. A power pump-head comprising a frame made up of two end castings each approximately in the form of an isosceles triangle and having long bearings integral with each of said castings for the reception of a cranked gear-arbor, crank-gears journaled in said bearings, interconnecting side castings between said end castings, long tie-bolts passing through the end castings and extending across the intermediate side castings, suitably-guided connecting-rods pivoted to said crank-gears, and means for imparting motion to said gears.

2. A frame for power pump-heads comprising end castings substantially triangular in form, journal-boxes in axial alinement disposed at the apices of said triangular castings and intermediate side castings connecting and bracing the end castings and having perforated lugs against which the end castings bear, said end castings having perforations corresponding with the perforations in the said castings and tie-bolts passing through said perforations and across the side castings.

3. A power-pump-head frame comprising triangular end castings having integral axially-alined journal-boxes at their apices, side castings disposed between and bracing the end castings and long tie-bolts passing through the end castings and side castings and extending across the latter.

4. A power-pump-head frame comprising triangular end castings having integral journal-boxes at their apices, separate side castings connecting and bracing the end castings, means for removably uniting said side and end castings and said side and end castings having each base-flanges provided with means for the attachment of the frame to a fixed support.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE CLARK RICHARDS.

Witnesses:
FRED L. STEWART,
C. E. ARNOLD.