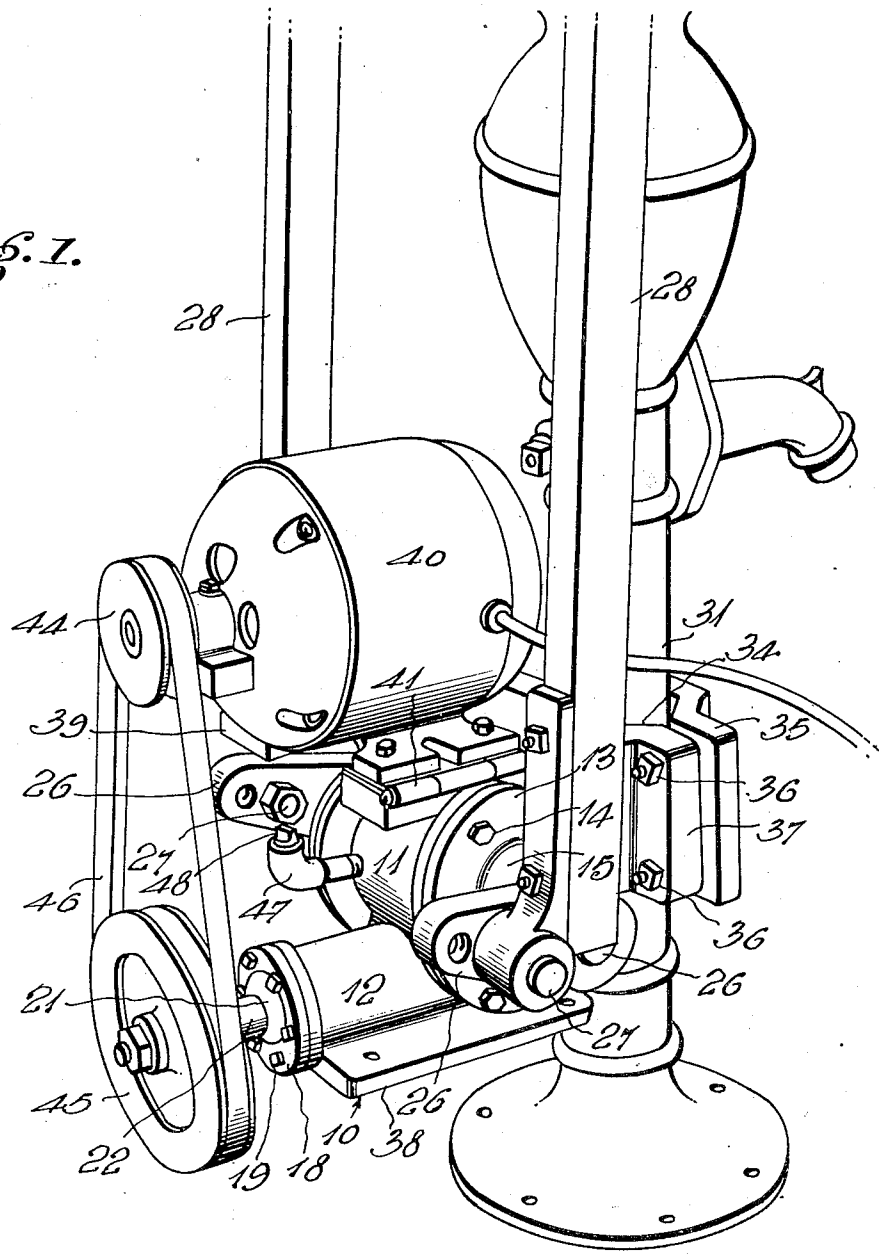
May 30, 1933. W. H. BEITZ 1,911,666

PUMP JACK

Filed Aug. 16, 1932 3 Sheets-Sheet 1

Fig. 1.



Witness
H. Woodard

Inventor
W. H. Beitz

By H. B. Williamson & Co
Attorneys.

May 30, 1933. W. H. BEITZ 1,911,666

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Fig. 2.

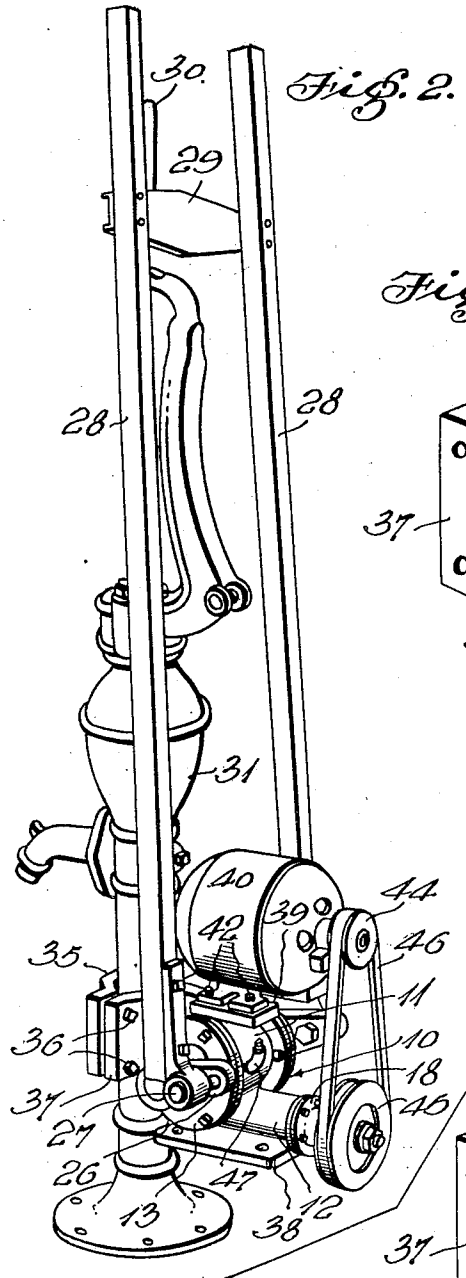


Fig. 3.

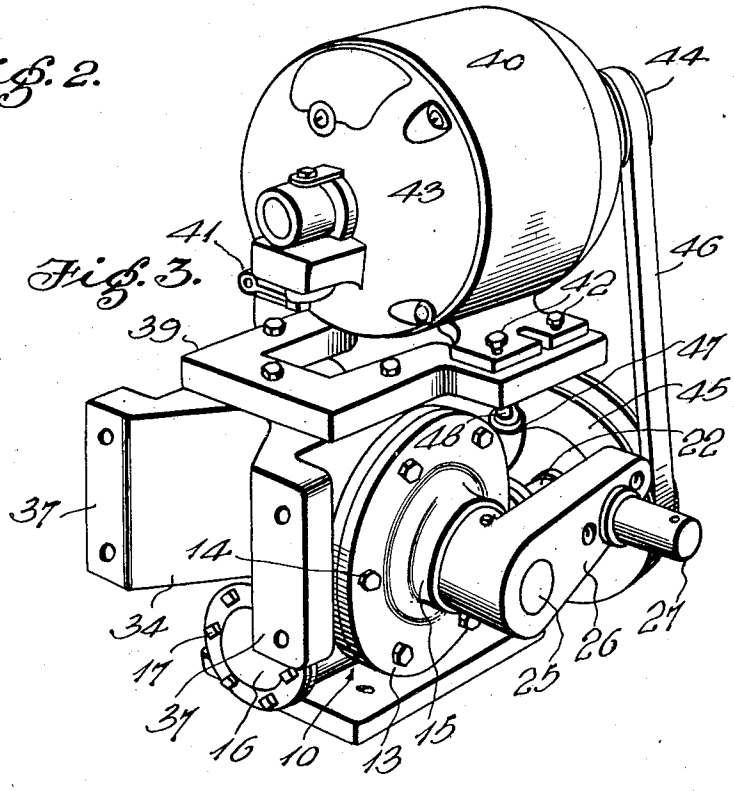
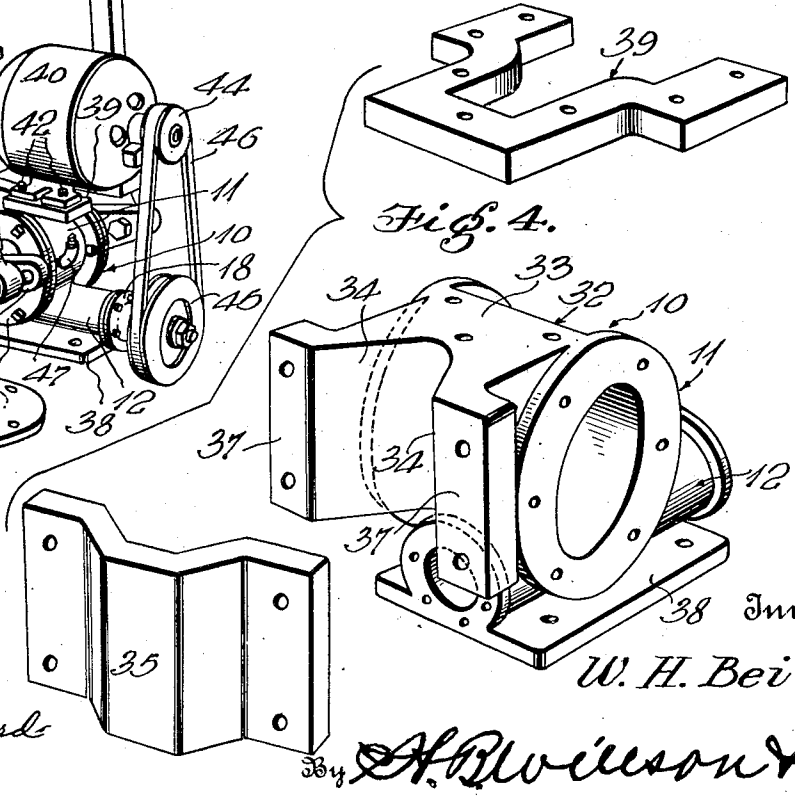


Fig. 4.



Witness
H. Woodard

Inventor
W. H. Beitz

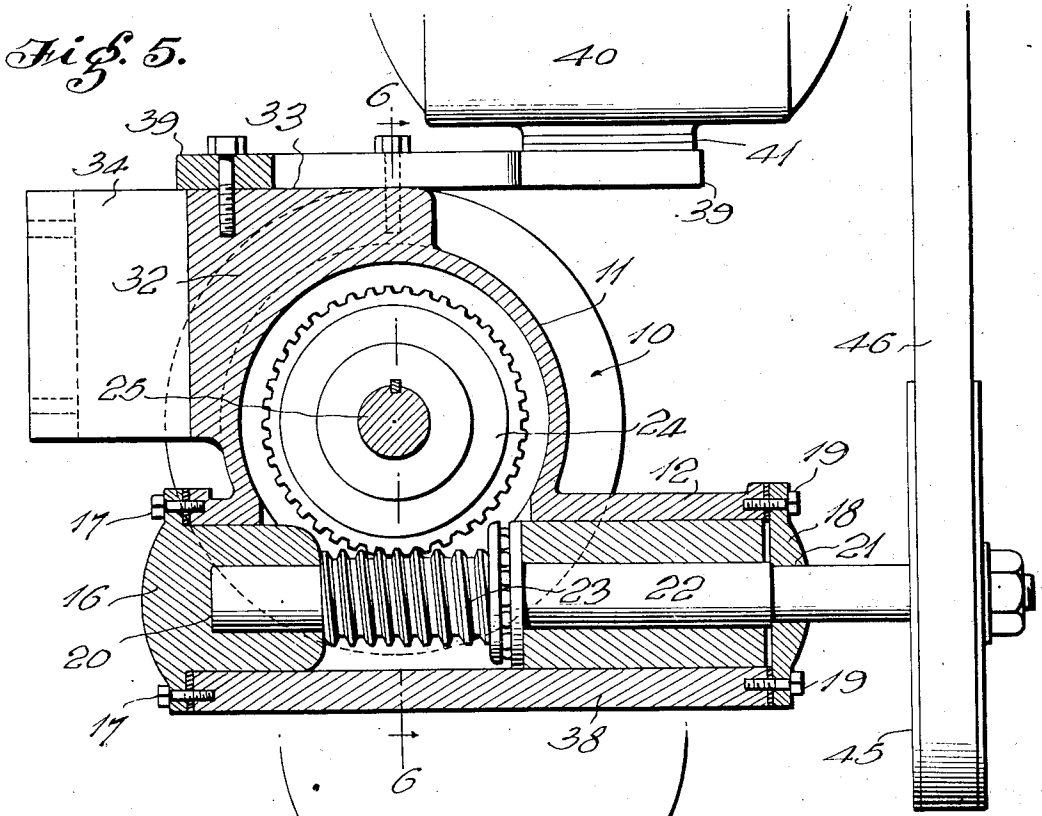
By H. B. Williamson & Co
Attorneys.

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PUMP JACK

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Fig. 5.



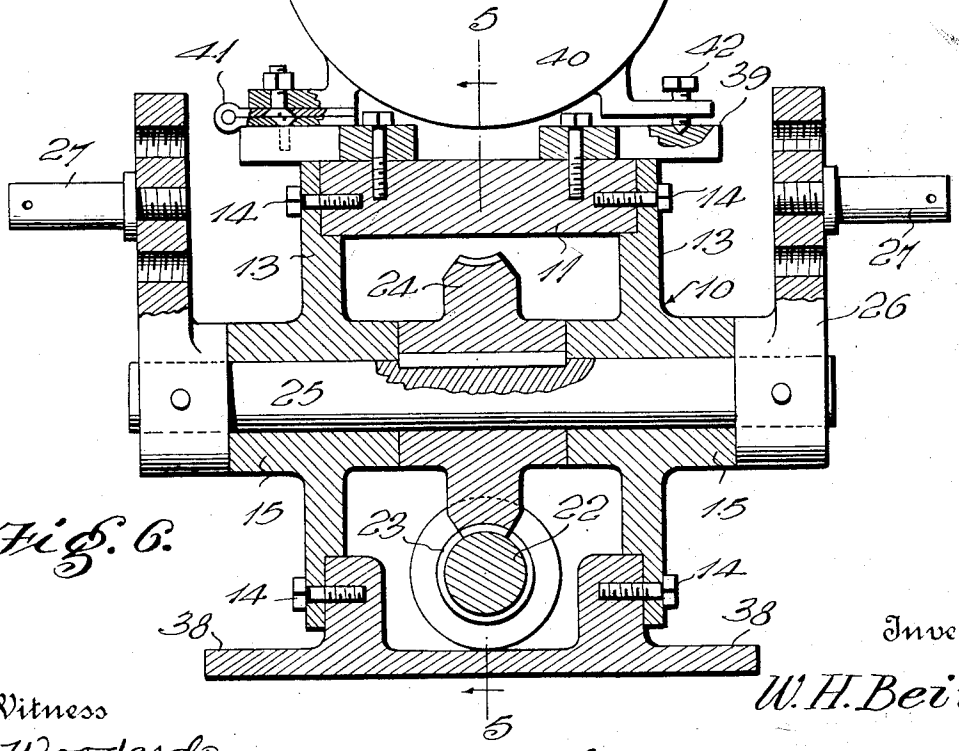


Fig. 6.

Witness
H. Woodard

Inventor
W. H. Beitz

By H. B. Williamson & Co
Attorneys.

Patented May 30, 1933 1,911,666

UNITED STATES PATENT OFFICE

WILLIAM H. BEITZ, OF LOMIRA, WISCONSIN

PUMP JACK

Application filed August 16, 1932. Serial No. 629,061.

The invention aims to provide an exceptionally simple and inexpensive, compact, efficient, well lubricated and long-lived motor-driven jack for operating a pump, and the jack in its preferred construction, is such that it may be applied to pumps of a wide variety of makes.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Figs. 1 and 2 are perspective views looking in opposite directions and showing the jack applied.

Fig. 3 is a perspective view showing the jack removed from the pump.

Fig. 4 is a disassembled perspective view of a number of the parts of the jack.

Fig. 5 is a vertical sectional view cut longitudinally of the drive shaft, as indicated by line 5—5 of Fig. 6.

Fig. 6 is a vertical sectional view cut transversely of the drive shaft, substantially on line 6—6 of Fig. 5.

A construction has been shown which has proven advantageous from numerous standpoints, and while such construction will be specifically explained, it is to be understood that within the scope of the invention as claimed, numerous variations may be made.

The jack embodies a housing 10 which includes an upper substantially cylindrical portion 11 having its axis disposed horizontally, and a lower substantially cylindrical portion 12 tangential to and communicating with the lower part of said portion 11, said portion 12 also having its axis disposed horizontally. The ends of the upper cylindrical portion 11 are provided with closure plates 13 secured thereto by cap screws or the like 14, said closure plates being provided with central bearings 15. The inner end of the lower cylindrical portion 12 is provided with an appropriate closure 16 secured thereto by cap screws or the like 17, and the outer end of said portion 12 is provided with a closure 18 secured by screws or the like 19. The closures 16 and 18 are provided with central bearings 20 and 21 respectively, in which a drive shaft 22 is rotatably mounted, the outer end of said shaft 22 projecting beyond the housing portion 12. The inner portion of shaft 22 is provided with a worm 23 meshing with a worm gear 24 on a driven shaft 25 which is rotatably mounted in the bearings 15, the two ends of said shaft 25 being provided with pitman operators which are preferably in the form of cranks 26 having wrist pins 27 which may be adjusted toward or from the shaft 25, to increase or decrease the strokes of the pitman rods 28. These rods are secured to a cross head 29 which is clamped or otherwise secured upon the rod 30 of a conventional pump 31.

An upper portion of the housing portion 11, is thickened as at 32, said thickened portion being provided with a flat horizontal upper side 33 and with a vertical laterally facing channel 34 which opens through said flat upper side 33. The channel 34 is adapted to engage one side of the pump 31, and a channel-shaped clamp member 35 is provided to engage the opposite side of said pump, bolts 36 being employed for securing said clamp member 35 to the housing 10. This housing is provided with vertical flanges 37 at opposite sides of the channel 34 for engagement with the bolts 36.

In order that the entire jack may be supported upon a suitable base (not shown) instead of being clamped to the pump, I provide the housing portion 12 with an integral rectangular base 38 which may be readily bolted down or otherwise secured.

A substantially U-shaped, horizontal, motor-supporting plate 39 rests upon the flat upper side 33 of the upper housing portion 11 and projects laterally therefrom away from the channel 34. An electric motor 40 is hinged at 41 to one arm of the plate 39 and is provided with supporting set screws 42 resting upon the other arm of said plate 39. The shaft 43 of the motor 40 is disposed parallel with the drive shaft 22 and is provided with a grooved pulley 44 positioned over a similar pulley 45 on said drive shaft, a V-belt 46 being passed around the two pulleys. Through the instrumentality

of this belt and the pulleys, the motor 40 drives the shaft 22, whereupon the worm 23 and worm gear 24, rotate the shaft 25, thereby operating the cranks 26 and causing the wrist pins 27 to reciprocate the pitman rods 28, for the purpose of operating the pump. The lower portion of the housing 10 is intended to contain oil for lubricating purposes, and it is hence insured that thorough lubrication will be effected, so that all parts will smoothly operate with little friction and wear. Whenever the belt 46 requires tightening, it is simply necessary to downwardly adjust the screws 42, thereby swinging the motor 40 upwardly upon its hinge 41. Whenever it is necessary to replenish the lubricant, this may be done through an appropriate filling neck 47 which is normally closed by a plug 48.

It will be seen from the foregoing that a novel device has been provided for carrying out the objects of the invention, and attention is again invited to the fact that within the scope of said invention as claimed, numerous variations may be made.

I claim:—

1. In a pump jack, a housing embodying an upper cylindrical housing portion having its axis disposed horizontally and a lower cylindrical housing portion tangential to and rigidly joined to the lower part of said upper cylindrical portion, said lower housing portion also having its axis disposed horizontally, both of said housing portions having end walls provided with bearings, a driven shaft extending through said upper housing portion and mounted in the end wall bearings thereof, the ends of said driven shaft having pitman operators at the exterior of the housing, a drive shaft extending longitudinally within said lower housing portion and mounted in the end wall bearings thereof, one end of said drive shaft projecting beyond the housing, an intermeshing worm and worm gear in said housing carried by said drive and driven shafts respectively, a motor mounted on said upper housing portion and having its shaft parallel with said drive shaft, and driving connections operatively connecting said motor and drive shafts.

2. In a pump jack, a housing embodying an upper cylindrical housing portion having its axis disposed horizontally and a lower cylindrical housing portion tangential to and rigidly joined to the lower part of said upper cylindrical portion, said lower housing portion also having its axis disposed horizontally, both of said housing portions having end walls provided with bearings and said upper housing portion being provided with a flat horizontal upper side, a driven shaft extending through said upper housing portion and mounted in the end wall bearings thereof, the ends of said driven shaft having pitman operators at the exterior of the housing, a drive shaft extending longitudinally within said lower housing portion and mounted in the end wall bearings thereof, one end of said drive shaft projecting beyond the housing, an' intermeshing worm and worm gear in said housing carried by said drive and driven shafts respectively, a horizontal motor-supporting plate secured upon and projecting laterally from said flat horizontal upper side of said upper housing portion, a motor mounted upon said plate and having its shaft parallel with said drive shaft, and driving connections operatively connecting said motor and drive shafts.

3. In a pump jack, a housing embodying an upper cylindrical housing portion having its axis disposed horizontally and a lower cylindrical housing portion tangential to and rigidly joined to the lower part of said upper cylindrical portion, said lower housing portion also having its axis disposed horizontally, both of said housing portions having end walls provided with bearings, and said upper portion being provided with a vertical laterally opening channel adapted to engage one side of a pump, clamp means co-operable with said channel for securing the housing to the pump, a driven shaft extending through said upper housing portion and mounted in the end wall bearings thereof, the ends of said driven shaft having pitman operators at the exterior of the housing, a drive shaft extending longitudinally within said lower housing portion and mounted in the end wall bearings thereof, one end of said drive shaft projecting beyond the housing, an intermeshing worm and worm gear in said housing carried by said drive and driven shafts respectively, a motor mounted on said upper housing portion and having its shaft parallel with said drive shaft, and driving connections operatively connecting said motor and drive shafts.

4. In a pump jack, a housing embodying an upper cylindrical housing portion having its axis disposed horizontally and a lower cylindrical housing portion tangential to and rigidly joined to the lower part of said upper cylindrical portion, said lower housing portion also having its axis disposed horizontally, both of said housing portions having end walls provided with bearings, and said lower housing portion being provided with an integral horizontal supporting base, a driven shaft extending through said upper housing portion and mounted in the end wall bearings thereof, the ends of said driven shaft having pitman operators at the exterior of the housing, a drive shaft extending longitudinally within said lower housing portion and mounted in the end wall bearings thereof, one end of said drive shaft

projecting beyond the housing, an intermeshing worm and worm gear in said housing carried by said drive and driven shafts respectively, a motor mounted on said upper housing portion and having its shaft parallel with said drive shaft, and driving connections operatively connecting said motor and drive shafts.

5. In a pump jack, a housing embodying an upper cylindrical housing portion having its axis disposed horizontally and a lower cylindrical housing portion tangential to and rigidly joined to the lower part of said upper cylindrical portion, said lower housing portion also having its axis disposed horizontally, both of said housing portions having end walls provided with bearings, said upper housing portion being provided with a flat horizontal upper side and with a laterally opening channel extending through said upper side, clamp means cooperable with said channel in securing the housing to a pump, a driven shaft extending through said upper housing portion and mounted in the end wall bearings thereof, the ends of said driven shaft having pitman operators at the exterior of the housing, a drive shaft extending longitudinally within said lower housing portion and mounted in the end wall bearings thereof, one end of said drive shaft projecting beyond the housing, an intermeshing worm and worm gear in said housing carried by said drive and driven shafts respectively, a horizontal motor-supporting plate secured upon and projecting laterally from said flat horizontal upper side of said upper housing portion, a motor mounted upon said plate and having its shaft parallel with said drive shaft, and driving connections operatively connecting said motor and drive shafts.

In testimony whereof I affix my signature.

WILLIAM H. BEITZ.