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PUMP OPERATING DEVICE

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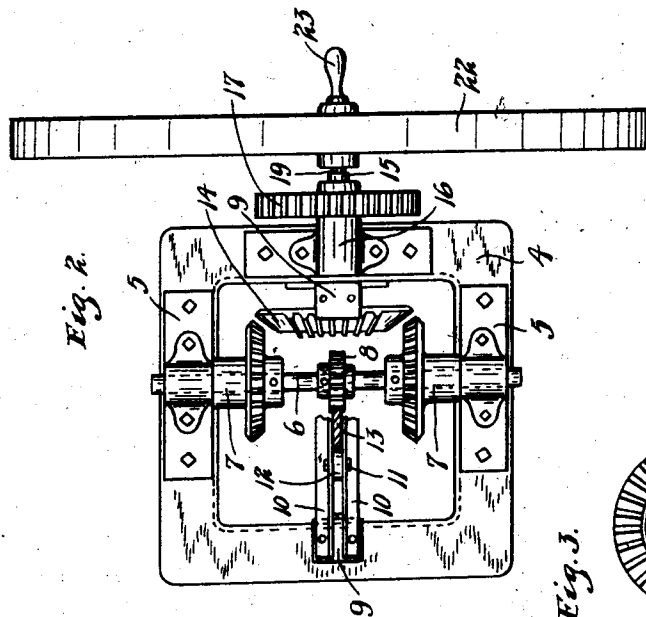
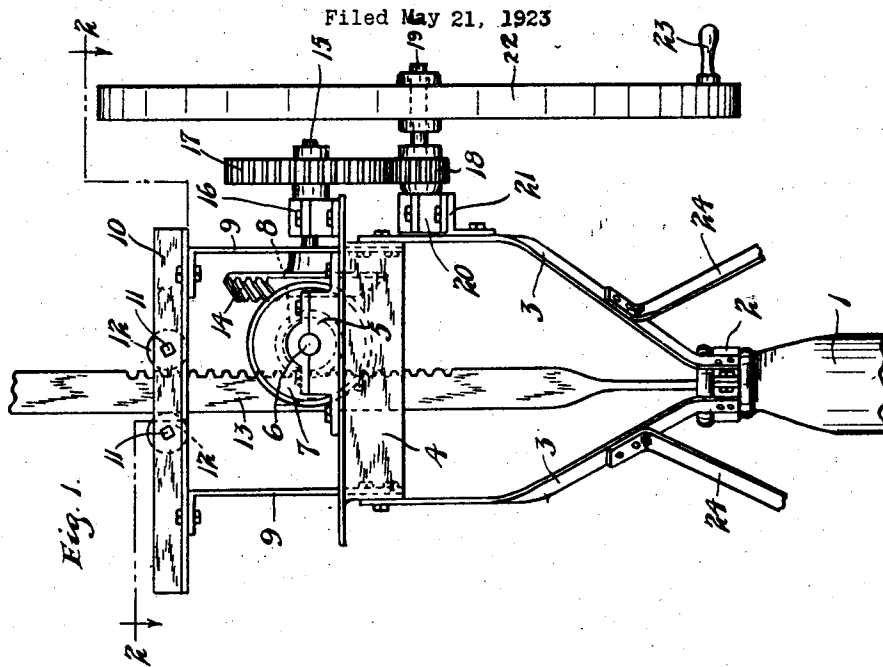
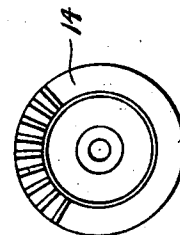


Fig. 3.



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PUMP-OPERATING DEVICE.

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This invention relates to a pump jack or means for reciprocating a pump plunger or other element. As is well known, the ordinary pump is operated by reciprocation of a plunger rod. This rod is usually operated manually either by a pump handle or from a motor.

It is an object of this invention to provide a simple and efficient means adapted to be attached to the pump body by which the pump plunger may efficiently be operated either by hand power or by a motor.

It is a further object of the invention to provide such a means including a rack bar adapted to be connected to the pump plunger, which bar is engaged by a pinion which, in turn, alternately is rotated in opposite directions by a novel arrangement of gear mechanism.

It is more specifically an object of the invention to provide a novel frame adapted to be attached to the pump body having guiding means therein for a reciprocating rack bar engaged by a pinion, which frame is carried in a shaft which, in turn, carries gears arranged alternately to rotate said pinion in opposite directions and to be driven by a mutilated gear through reducing gears, which latter gears may be operated either by hand or from a motor.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view in side elevation of the top portion of a pump having the device of the invention applied thereto;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1; and

Fig. 3 is a face view of one of the gears used.

Referring to the drawings, the top of a pump body 1 is illustrated which may represent any common or well known type of pump which is operated by a reciprocating element or plunger. A circumferential band 2 embraces the top of the body 1 and is formed of separable parts adapted to be tightly clamped on said body. Circumferentially spaced bars 3 are secured in any suitable manner to the band 2 and diverge upwardly therefrom having upper parallel vertical portions which are bolted or otherwise suit-

ably secured at their top ends to the vertical flange of an angle frame member 4. This frame member 4 is rectangular in shape being illustrated as substantially square and, as stated, is made of angular material having vertical and horizontal flanges. Secured to opposite sides of the members 4 and to the horizontal flanges thereof are cap bearings 5 in which is journaled a shaft 6 extending across said frame and having secured thereon adjacent each end and abutting the said bearings oppositely facing beveled gears 7. A pinion 8 is secured to said shaft intermediate of the gears 7. The member 4 also has bolted to the inside of its vertical flange at each end thereof, standards 9 having horizontally disposed upper portions to which are secured spaced angle members 10 extending between said standards. The angle members 10 have their horizontal flanges bolted to the standards 9 and their vertical flanges in slightly spaced relation. Pivot bolts 11 extend between said vertical flanges and have journaled thereon spaced rollers 12. A rack bar 13 is guided between the vertical flanges of the members 10 and the rollers 12 and is adapted to be connected to the pump plunger. While this connection can be made in any desired manner, in the embodiment of the invention illustrated, said rack bar is shown as being integrally connected to the pump plunger. The rack bar 13 meshes with the pinion 8 on shaft 6. The gears 7 are alternately engaged by a toothed section of a mutilated beveled gear 14 which is secured to the end of a shaft 15 journaled in a cap bearing 16 secured to the horizontal flange in one end of frame 4. A spur gear 17 is secured to the other end of shaft 15 outside of the bearing 16 with which meshes a pinion 18. The pinion 18 is secured to a shaft 19 journaled in a cap bearing 20 secured to a horizontal flange of an angle member 21 which is, in turn, secured to the members 3. The shaft 19 carries at its outer end a comparatively large wheel 22 which may constitute a belt wheel to receive a belt from a suitable motor and which is also equipped with a handle 23 so that it may be turned manually. The frame members or bars 3 are further suitably braced to the well platform by outwardly extending bars 24 having their upper ends suitably secured to the bars 3.

In operation, the wheel 22 will be turned either manually by the handle 23 or by a

belt from a suitable motor. The rotation of the wheel 22 drives shaft 19 and pinion 18 which, in turn, drives the gear 17 and shaft 15. The shaft 15 drives the gear 14
5 and as this gear revolves the toothed portion thereof alternately engages the gears 7 so that said latter gears and the shaft 6 and pinion 8 are alternately driven in opposite directions. The pinion 8 reciprocates
10 the rack bar 13 so that this bar is thus reciprocated to operate the pump plunger.

From the above description it is seen that applicants have provided an extremely simple and efficient driving mechanism for the
15 pump. The parts of the device are comparatively few and the arrangement is very compact and rugged. The plunger of the pump is positively reciprocated in both directions and there is a slight interval between the opposite movements of the bar
20 13. The device can be easily and quickly applied to any standard pump and constitutes an attachment having high utility. The device has been successfully demonstrated in actual practice and found to be
25 very successful and efficient.

It will, of course, be understood, that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of
30 applicants' invention, which, generally stated, consists in the matter shown and described and set forth in the appended claim.

What is claimed is:

A pump jack mechanism comprising a
35 frame comprising a circular clamp adapted to be secured to the top of a pump body, circumferentially spaced bars extending upwardly therefrom, a closed frame supported
40 on said bars, standards rising from opposite sides of said frame, transverse members secured to said standards, guiding means on
45 said members, a reciprocable rack bar guided by said means and transverse members, bearings on said closed frame, shafts journaled in said bearings, and means carried by said shafts for reciprocating said rack bar.

In testimony whereof we affix our signatures.

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