

(No Model.)

2 Sheets—Sheet 1.

G. W. GRIMES.
WELL PUMPING POWER.

No. 579,480.

Patented Mar. 23, 1897.

Fig. 1,

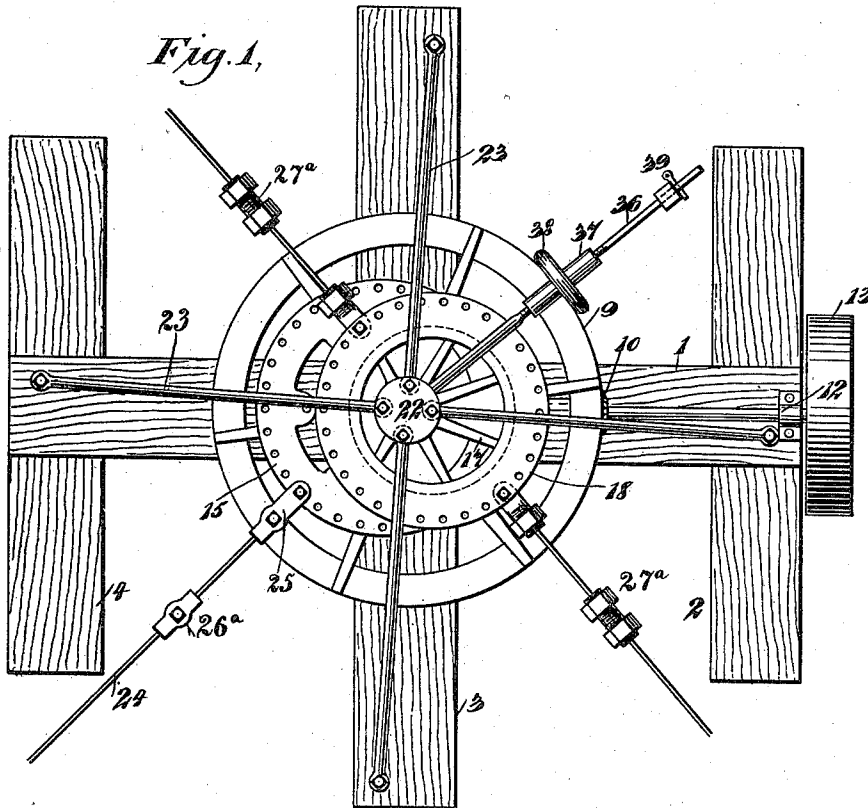
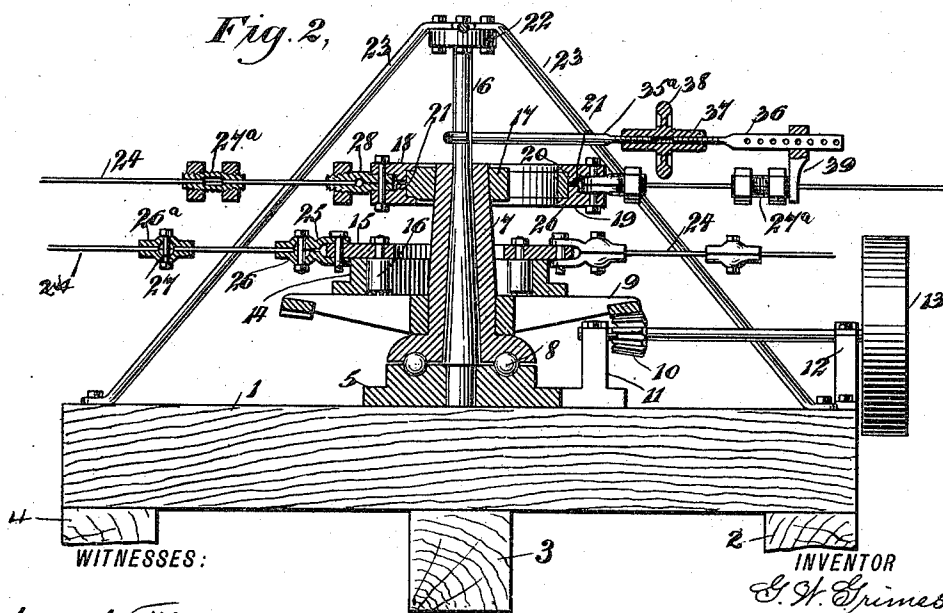


Fig. 2,



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Fig. 3,

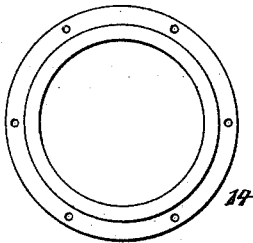


Fig. 4,

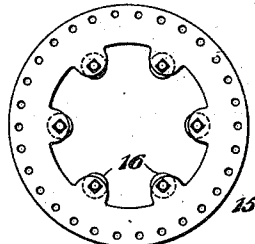


Fig. 5,

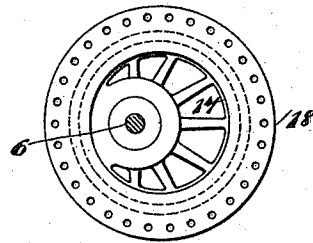


Fig. 6,

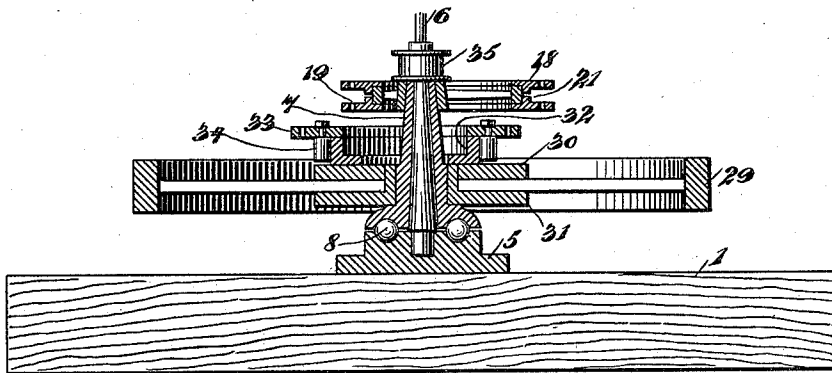


Fig. 7,

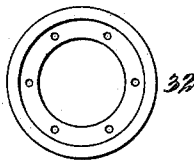
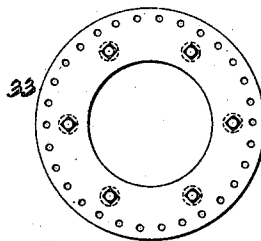


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEORGE W. GRIMES, OF BLUFFTON, INDIANA.

WELL-PUMPING POWER.

SPECIFICATION forming part of Letters Patent No. 579,480, dated March 23, 1897.

Application filed April 17, 1896. Serial No. 587,988. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. GRIMES, of Bluffton, in the county of Wells and State of Indiana, have invented new and useful Improvements in Well-Pumping Powers, of which the following is a full, clear, and exact description.

This invention relates to power devices for operating pump rods or lines for either water or oil wells in great numbers from a central station; and the object of the invention is to provide such a power wherein the motion will be uniform and require a minimum of power to operate it.

I will describe a pumping power embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a power embodying my invention. Fig. 2 is a vertical section thereof. Fig. 3 is a plan view of a certain operating-ring employed. Fig. 4 is a plan view of a pump-line plate. Fig. 5 is a plan view showing another pump-line-plate mechanism employed. Fig. 6 is a vertical section showing a modification. Fig. 7 is a plan view of a pump-line-actuating device carried thereby, and Fig. 8 is a plan view of the pump-line plate coacting with the device shown in Fig. 7.

Referring to the drawings, 1 designates a base-sill supported on transverse base-sills 2, 3, and 4, one of which, 3, is arranged centrally of the base-sill 1, and the others are arranged at the ends thereof. Upon the base-sill 1 is mounted a bed-plate 5, and attached to and extended upwardly from this bed-plate 5 is a fixed post or shaft 6, upon which is mounted to rotate a sleeve 7, having an annular flange at its lower end provided with a groove in which antifriction-balls 8 are located, the said bed-plate 5 being also provided with a groove to receive said balls.

It will be seen that the interior of the sleeve 7 and the portion of the post 6 engaged thereby are correspondingly tapered, the wider portion of said taper being at the lower end. Secured rigidly to the sleeve 7 is a master-gear 9, meshing with a pinion 10, mounted on a shaft having bearings in pillow-blocks 11 12, the shaft being provided at its outer end with a band-wheel 13, which may be operated

from any desired source of power, such as an engine or electric motor.

Mounted on the upper side of the master-gear 9 is a ring-plate 14. This ring-plate 14 is mounted eccentrically to the axis of the master-gear, and it carries on its upper side a pump-line plate 15. The ring-plate 14 is designed to rotate relatively to the pump-line plate 15 and to impart a reciprocating motion thereto. To reduce the friction between the pump-line plate and the ring-plate, I provide the pump-line plate with antifriction-rollers adapted to bear against the upwardly-extended flange portion of the ring-plate. In this example of my improvement the antifriction-rollers 16 are mounted on bolts or studs extended downward from the pump-line plate and engaged against the inner periphery of the ring-plate.

Above the mechanism just described and rigidly secured to the sleeve 7 in an eccentric manner is a wheel 17, engaging with its periphery against pump-rod plates 18 and 19, which have portions 20 engaging, respectively, over the upper and lower surface of the wheel 17. The said pump-line plates also have inwardly-projecting flanged portions 21 for engaging with the periphery of the wheel 17, and outward of these flanged portions 21 there is a considerable space between the pump-line plates to receive the shank portions of coupling-clips, as will be hereinafter described.

To the top portion of the post or shaft 6 is attached a metal plate 22, to which the upper ends of brace-rods 23 are bolted, the lower ends of said brace-rods being bolted to the base-sills of the machine. It is obvious that these brace-rods will hold the post or shaft 6 rigidly in an upright position, and, if desired, they may be provided with ordinary turn-buckles.

For engaging the pump-lines 24 with the pump-line plate 15 I employ clips, here shown as consisting of two longitudinally-separated sections 25 26, forming jaws at the outer end to engage with the pump-lines and having at their inner ends clip portions to engage against the upper and lower sides of the pump-line plate. The clips are secured to the pump-line plates so as to swing relatively thereto by means of pins or bolts passing through perforations in the inner clip ends and through perforations formed vertically in the pump-

line plate. The jaw ends of the clips are clamped in engagement with the pump-line by means of threaded bolts and set-nuts thereon.

5 It is sometimes necessary to employ a coupling-block for connecting the sections of a broken pump-line. I have here shown two forms, one of which is shown at 26 and consists of two plates having coincident channels
10 to receive the ends of the pump-line sections and have passed transversely through them a clamping-bolt 27. Obviously by tightening the nut on this clamping-bolt the two plates may be drawn closely into connection with
15 the pump-line sections. The other device (shown at 27^a) consists of a coupling longitudinally slitted from end to end, the outer portions of said ends being tapered and provided with a screw-thread to be engaged by a
20 tapered nut, so that by turning these nuts on said halves the clamping ends will be brought into close connection with the pump-line sections.

In connection with the pump-line plates 18
25 and 19 I employ large clips 28, consisting of parts having perforated shank portions through which fastening-bolts may be passed to secure the same to the pump-line plates, and the entire portion of this clip is longitudinally slitted, so that it may be pressed against
30 the pump-line with a clamping action. The outer portion of this slitted end is tapered and provided with a screw-thread adapted to be engaged by a clamping-nut, also tapered on
35 its inner side. (See the upper left-hand side of Fig. 2.)

Referring to the modification shown in Fig. 6, it will be seen that in lieu of the master-gear 9 I have employed a band-wheel 29, the
40 inner ends of the spokes of the same being clamped between ring-plates 30 31. The plate 31 is provided at its center with a flange or hub portion adapted to engage with the sleeve 7, and the plate 30 has an opening in its center
45 sufficiently large to engage around said hub portion. When in position, the two plates may be secured by bolts or otherwise. On the plate 30 is rigidly secured eccentrically to the axis of the sleeve 7 a ring-plate 32, somewhat
50 similar to the ring-plate 14, heretofore described. On this ring-plate 32 is mounted a pump-line plate 33, which carries antifriction-rollers 34, which in this example of my improvement are shown as engaging the outer
55 surface of the ring-plate 32. Above this pump-rod-actuating mechanism is another eccentric pump-rod-actuating mechanism similar to the upper one shown in Fig. 2. In this example I have also shown a winding-drum 35
60 as secured to the upper portion of the sleeve 7, by means of which a pump-line may be drawn inward when desired to disengage it or to attach one to a clip.

The operation for drawing in the rod consists in attaching a rope or other similar connection to the pump-line and then giving the rope a turn or two around the drum. Then by

setting the drum in rotation the line may be drawn inward.

In Figs. 1 and 2 I have shown another means
70 of drawing a line inward when it is desired to connect the same to a clip or detach it therefrom. This means consists of two rods 35^a 36, having their adjacent ends screw-threaded and engaged by the interior thread of a sleeve
75 or nut 37. Of course these threads must extend in opposite directions, that is, one a left-hand thread and the other a right-hand thread. To the central portion of the sleeve or nut 37 is attached a hand-wheel 38, by
80 means of which the sleeve or nut may be turned. The inner end of the rod-section 35^a is provided with a hook adapted to engage around the post or shaft 6 or around the sleeve
85 7, as occasion may require. Adjustably mounted on the rod-section 36 is a dog 39, adapted to engage with the outer side of a coupling-block 27^a, as plainly shown in the
90 drawings. The rod-section 36 extends loosely through an opening in the dog 39, and the parts may be secured as adjusted by means of a pin passing through perforations in said
95 dog and rod-section.

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

1. A pumping power comprising a bed-plate, a post extending upward from the bed-plate, a sleeve mounted to rotate on said post, the said sleeve having an annular flange at its
100 lower end provided with a groove registering with a groove in the bed-plate, antifriction-balls in said grooves, a drive or master wheel secured to the lower end of the sleeve, a ring-plate mounted on the master-wheel eccentrically to its axis, a pump-line plate on said
105 ring, and antifriction-rollers carried by the pump-line plate and bearing against the periphery of said ring, substantially as specified.

2. A pumping power, comprising a base-plate, a post or shaft extended upward therefrom, a sleeve mounted to rotate on said post
110 or shaft, a driving-wheel for said sleeve, a ring-plate mounted on said wheel eccentrically to its axis, a pump-line plate mounted on said ring-plate, and antifriction-rollers carried by the pump-line plate and engaging with the ring-plate, the said antifriction-rollers being mounted to rotate on a vertical axis,
115 substantially as specified.

3. For use with a pumping power, tension devices for a pump-line, consisting of a rod made in two sections having their adjacent
120 ends threaded, a threaded sleeve or nut engaging therewith, a hand-wheel on said sleeve or nut, a hook on the end of one of the rod-sections for engaging with a fixed portion of the pumping power, and a dog adjustably
125 mounted on the other section of said rod, substantially as specified.

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Witnesses:

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