

(No Model.)

2 Sheets—Sheet 1.

G. W. GRIMES.
OIL WELL PUMPING POWER.

No. 562,602.

Patented June 23, 1896.

Fig: 1.

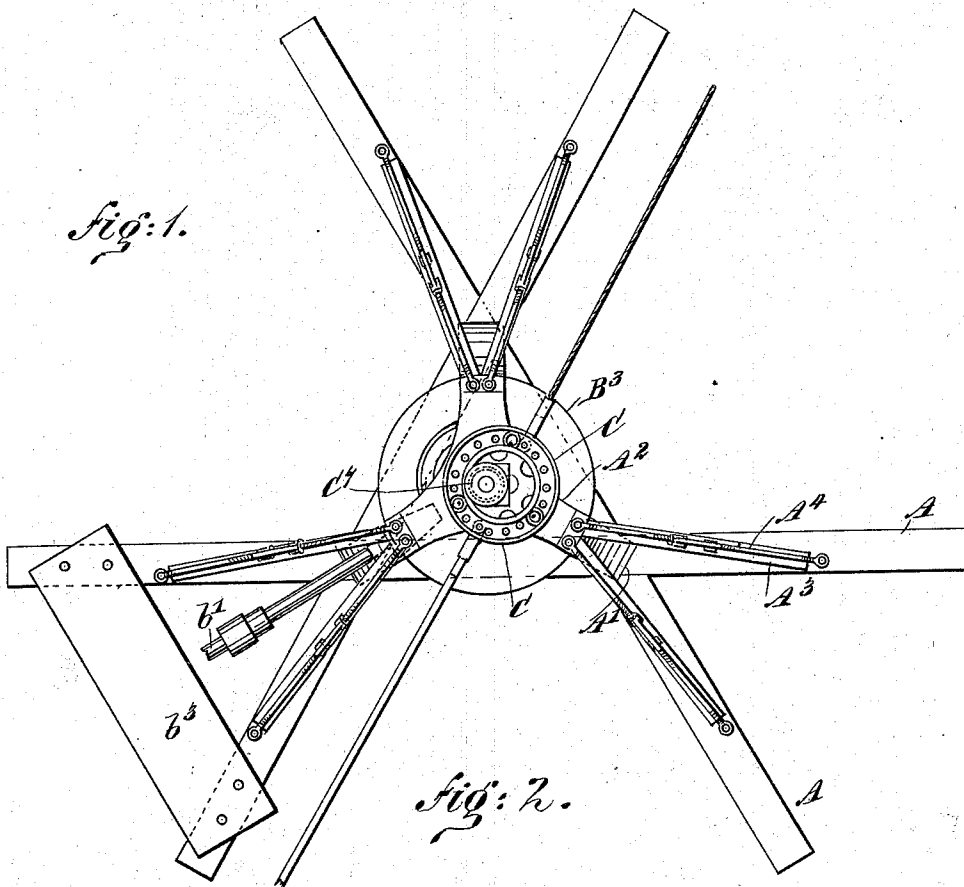
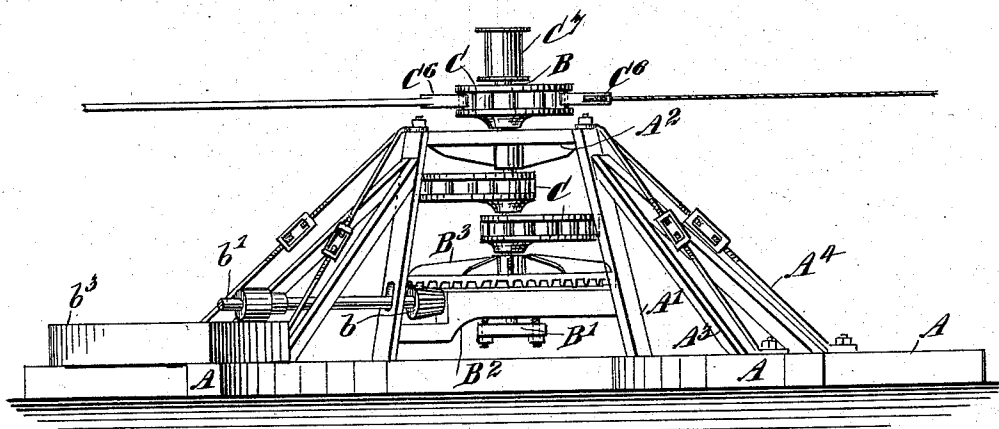


Fig: 2.



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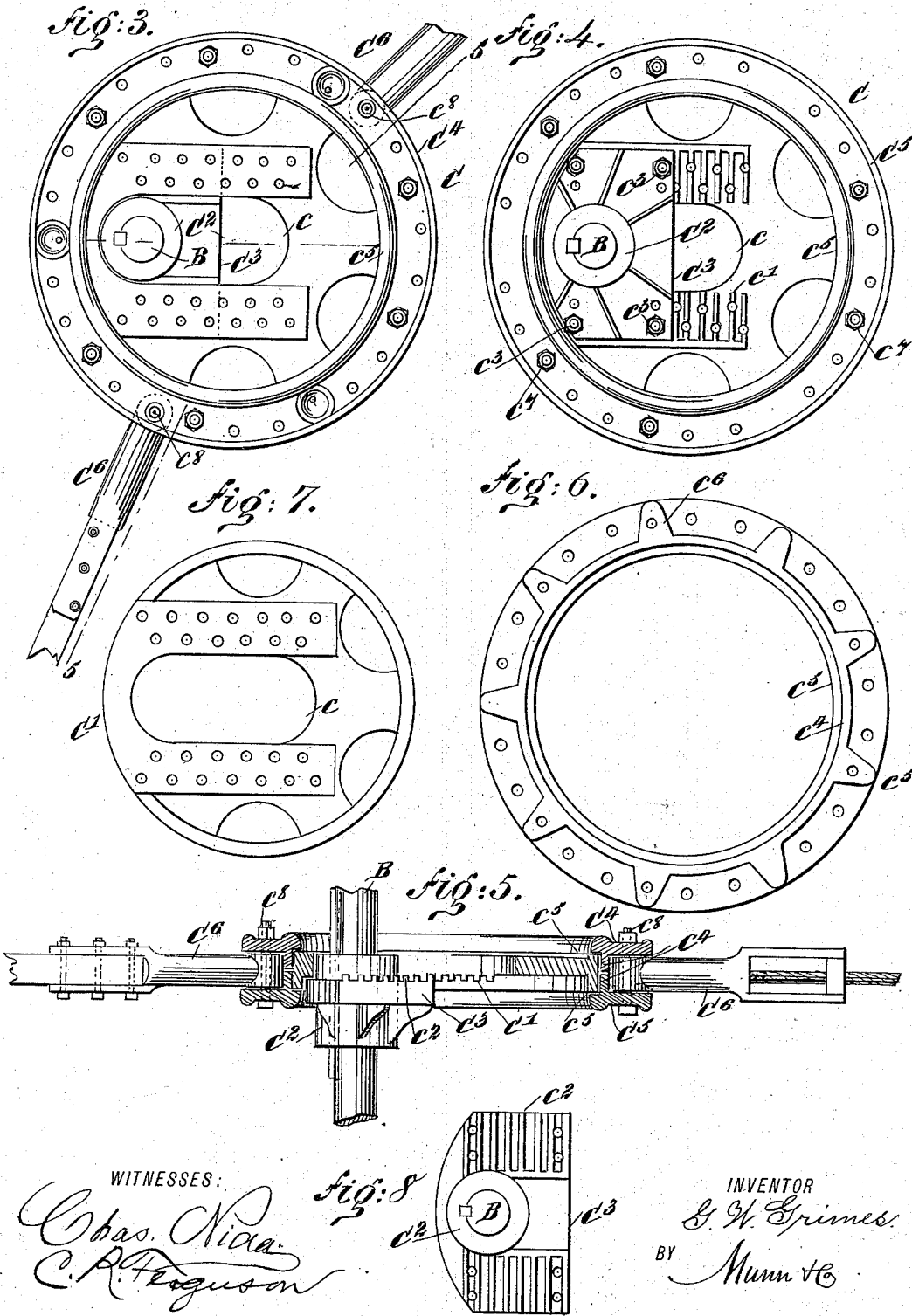
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UNITED STATES PATENT OFFICE.

GEORGE W. GRIMES, OF BLUFFTON, INDIANA.

OIL-WELL-PUMPING POWER.

SPECIFICATION forming part of Letters Patent No. 562,602, dated June 23, 1896.

Application filed October 22, 1895. Serial No. 566,473. (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 a new and Improved Oil-Well-Pumping Power, of which the following is a full, clear and exact description.

This invention relates to devices for converting motion to pump-actuating rods or lines for the purpose of pumping oil or water wells which may be distributed over a considerable territory and in any direction from the power, and to successfully operate them in numbers up to the capacity of the driving-engine. There are machines now in use for this pumping service, in which there is an upright shaft supported by a wooden frame, and on said shaft there are eccentrics, the straps of which are loosely mounted. In the construction of the eccentric with the strap loosely mounted thereon there is a great deal of trouble in retaining them in position. In fact, parties using them are compelled to slope the connecting-rods downward in order to hold the straps on the eccentrics, and by so doing the pressure on the lower end of the shaft is so great as to cause trouble by frictional cutting and heating. Owing to the great range or difference in the capacity of different wells and their liability of changing in the amount of output, the eccentrics formerly constructed with a solid or fixed throw do not properly meet the requirements in pumping wells of varying capacity. In order to overcome all of these disadvantages, I have constructed an eccentric that permits of the throw being changed to suit the requirements.

The invention consists in the construction and novel arrangement of parts, as will be hereinafter specified, and particularly pointed out 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 figures.

Figure 1 is a plan view of a mechanism embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a top plan view of an eccentric employed. Fig. 4 is a bottom plan view thereof. Fig. 5 is a section through the line 5 5 of Fig. 3. Fig. 6 is a plan view of a section of the eccentric-strap. Fig. 7 is a plan view of the eccentric with the strap omitted,

and Fig. 8 is a top plan view of a hub and plate employed in connecting the hub to the eccentric.

The frame of the device comprises, as here shown, three base-sills A, so arranged and secured together as to intersect, one with each of the others, forming a triangular central portion. From each intersecting point a standard A' extends upward and a three-armed plate or spider A² is secured to the upper ends of the standards. Brace-rods A³ extend from near the upper end of the standards to the base-sills, and tie-rods A⁴, provided with turnbuckles, extend from the sills to the upper end of the standards.

All of the parts above described, excepting the sills and braces A³, are preferably made of iron, as, on account of hard usage and changes of weather, the wooden frames employed soon wear out.

B is a vertical shaft having a bearing through the plate A² and a step-bearing B', supported, adjustably, by a spider B², secured to the uprights A'. To the lower portion of the shaft B a crown-gear B³ is attached, and this crown-gear meshes with a pinion b on a tumbler-rod b', to which rotary motion is imparted by a suitable motor, which may be placed on a platform b³.

The shaft B carries one or more eccentrics C. I have here shown three eccentrics, one above the plate A² and two below it, but the number and arrangement is immaterial to the invention, and as they are of like construction I will describe but one, referring particularly to the enlarged views, Figs. 3 to 8, inclusive.

C' is the eccentric-plate, having upwardly and downwardly extending peripheral flanges, and having a transverse slot-opening c through it.

C² is a hub keyed on the shaft B, and having integral with it a horizontally-disposed plate C³. The upper end of the hub C² projects through the slot c in the plate C', and an adjustable locking device is provided between the eccentric-plate and the hub-plate. For this purpose I provide the lower side of the eccentric-plate, at the sides of the opening c, with corrugations c', between which corrugations on the upper side of the hub-plate C³ may engage. Clamping-bolts c³, passing through holes in the respective plates C' C², serve to

secure the parts as adjusted. Obviously, by this construction the eccentric may be adjusted and secured relatively to the axis of the shaft B to provide for the proper throw.

5 The eccentric-strap consists of two separable ring-plates C^4 C^5 . Each ring-plate has an inwardly-extended annular flange c^4 to engage against the periphery of the eccentric-plate C' , and each has an inwardly-extended
10 annular portion c^5 to engage, respectively, with the upper and lower edges of the eccentric-plate or the flanges thereon.

Outside the flange c^4 the ring-plates C^4 C^5 are provided at suitable intervals with lugs c^6 ,
15 the lugs of one ring-plate registering with the lugs of the other plate. Certain of the lugs c^6 are perforated for the passage of fastening-bolts c^7 . When the two strap-sections are secured together, to form the complete strap,
20 the adjacent faces of the ring-plates, the flanges c^4 , and the lugs c^6 form the three walls of outwardly-opening pockets.

The plates C^4 C^5 , between the lugs c^6 , are provided with holes through which the pivot-
25 bolts c^8 for the pump-rod or line-clips C^6 may extend. Accommodation is here made for eighteen pump rods or lines, but if there are not so many pumps to be operated from one eccentric the required number only is to be used.

30 When it is desired to disconnect a pump rod or line from the eccentric, a rope may be fastened to the rod or line and then turned once or twice around a drum C^7 on the upper end of the shaft B. While the drum is
35 rotating, the rope will draw the rod or line toward the eccentric, thus relieving the outward strain on the pivot-bolt c^8 , so that it may be easily removed.

It will be noticed that the clips C^6 are so
40 constructed that either rigid rods or cables may be connected therewith. That is, the shank portion of the clip is longitudinally perforated so that the end of a wire cable may be placed therein and secured by tamped
45 lead or similar material. At the right-hand side of Fig. 5 it will be seen that a wire cable is passed through a block in the end of the clip and into the shank portion thereof.

Having thus described my invention, I claim as new and desire to secure by Letters 50 Patent—

1. In a well-pumping power, a vertical rotary shaft, and an eccentric on the shaft consisting of an eccentric-plate, two strap-sections having flanges to engage the periphery 55 of the plate and having spaced lugs outside of said flange, the lugs of one section being coincident with the lugs of the other section, and fastening-bolts passing through certain of the lugs, substantially as specified. 60

2. An eccentric for an oil-well-pumping power, comprising an eccentric-plate, an eccentric-strap consisting of two ring-shaped sections having flanges to engage the periphery of the plate, flanges to engage the 65 edges of the plate, and spaced lugs on the said sections, substantially as specified.

3. The combination with a vertical rotary shaft, of a corrugated plate arranged horizontally thereon, an eccentric-plate having a 70 slot-opening through which the shaft passes, corrugations on the eccentric-plate to engage between corrugations on the plate extended from the shaft, the clamping-bolts and eccentric rings or straps on the plate and provided with pockets opposite walls of which are 75 formed by spaced lugs, substantially as specified.

4. In an oil-well-pumping power a frame therefor, comprising the three base-sills, each 80 sill intersecting with the others, the metal uprights, the metal spider, the brace-rods, and the adjustable metal tie-rods, substantially as specified.

5. In an oil-well-pumping power the combination with a supporting-frame, of a vertical rotary shaft, an eccentric carried by said shaft, a gear-wheel mounted on the shaft adapted to engage with a driving-gear, and a winding-drum on the shaft, substantially 90 as specified.

GEORGE W. GRIMES.

Witnesses:

JOHN S. GILLILAND,
CHAS. H. PLESSENGED.