

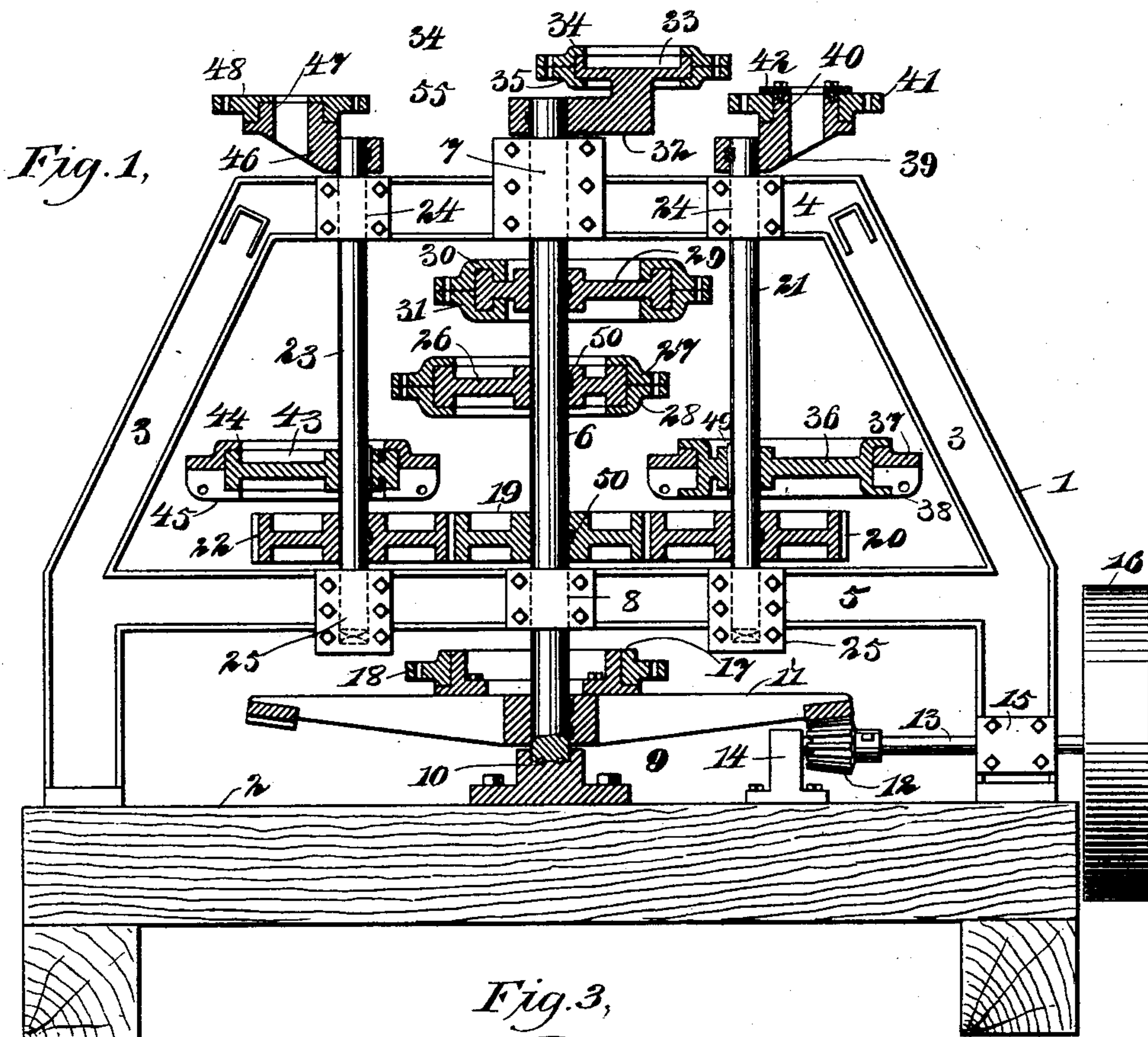
(No Model.)

2 Sheets—Sheet 1.

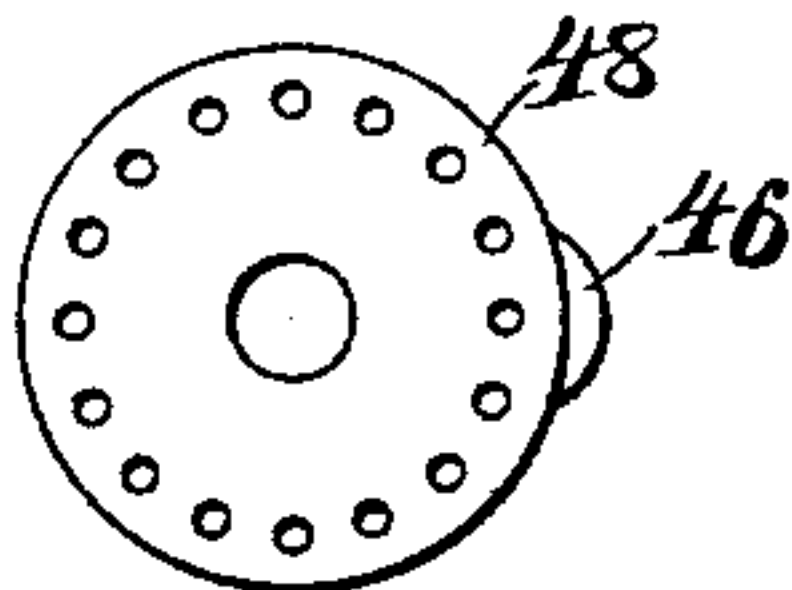
G. W. GRIMES.  
WELL PUMPING POWER.

No. 587,525.

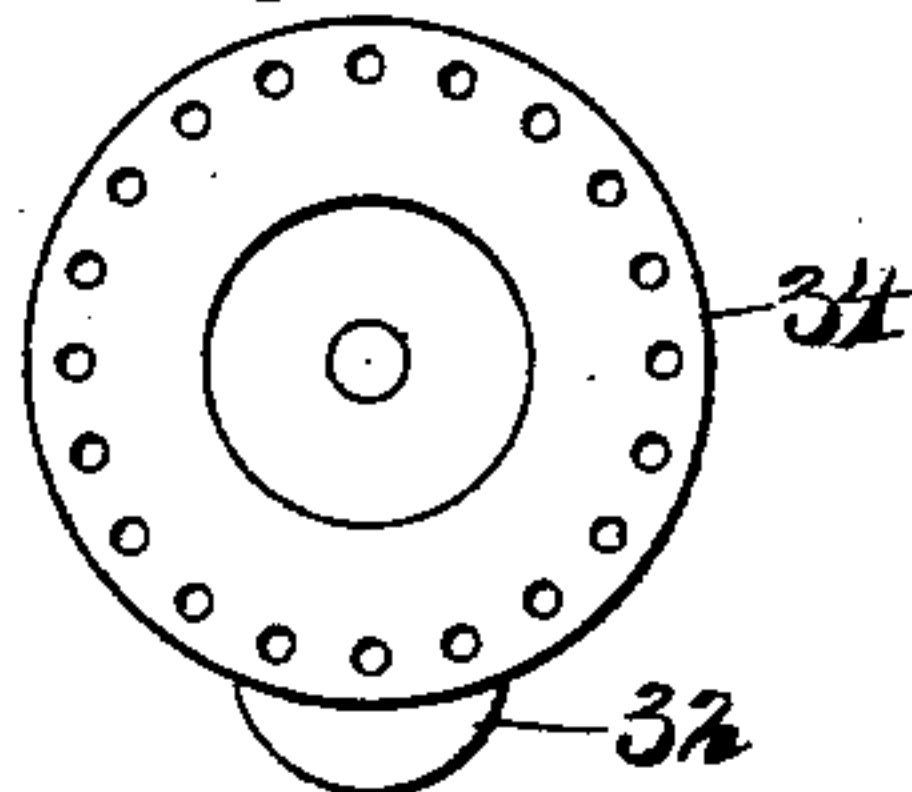
Patented Aug. 3, 1897.



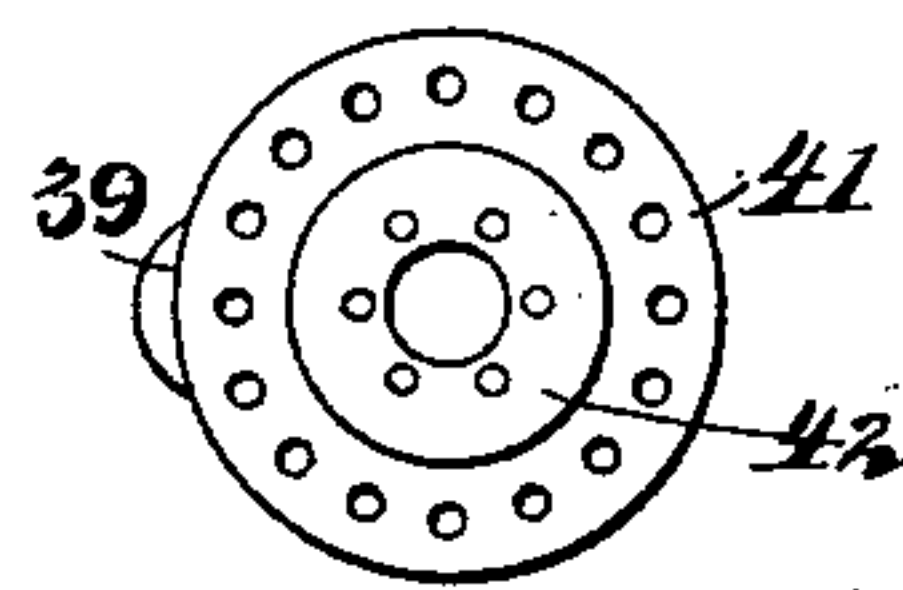
*Fig. 2,*



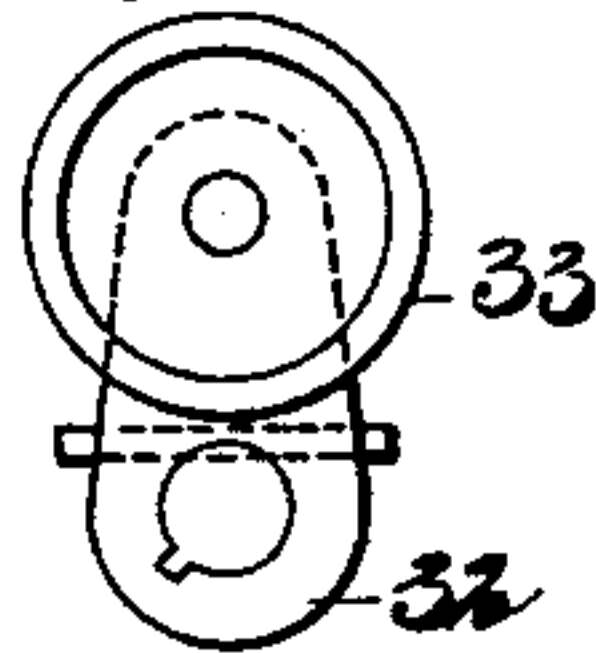
*Fig. 3,*



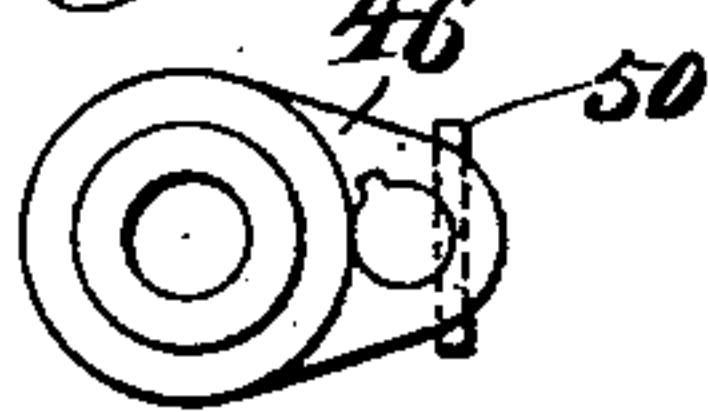
*Fig. 4,*



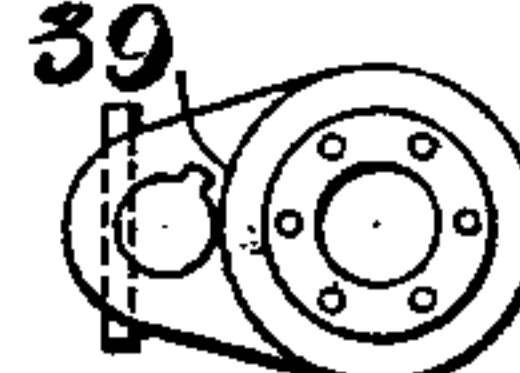
*Fig. 6,*



*Fig. 5,*



*Fig. 7,*



WITNESSES:

Edward Thorpe.  
C. R. Ferguson

INVENTOR

G. W. Grimes

BY

muny

ATTORNEYS.

(No Model.)

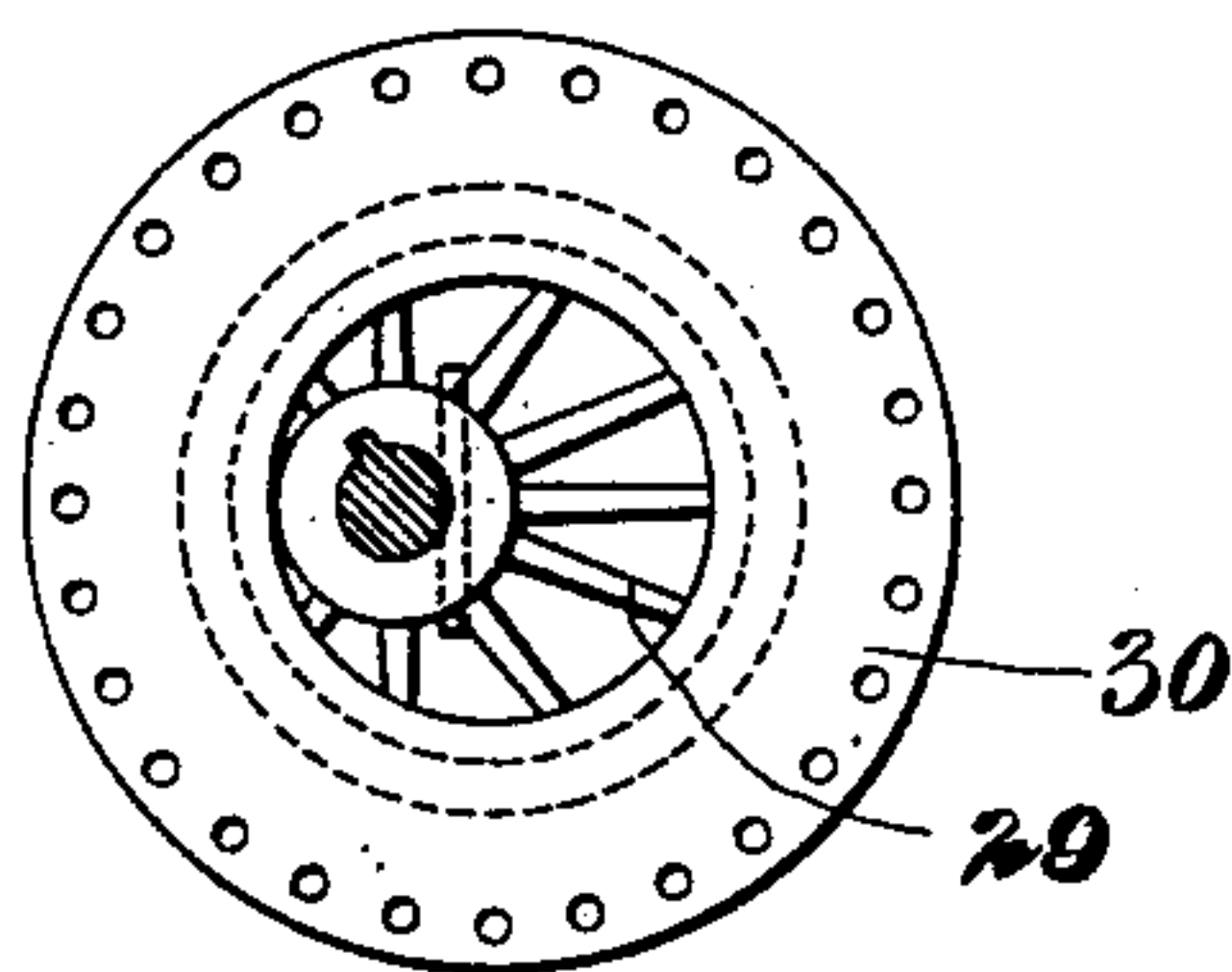
2 Sheets—Sheet 2.

G. W. GRIMES.  
WELL PUMPING POWER.

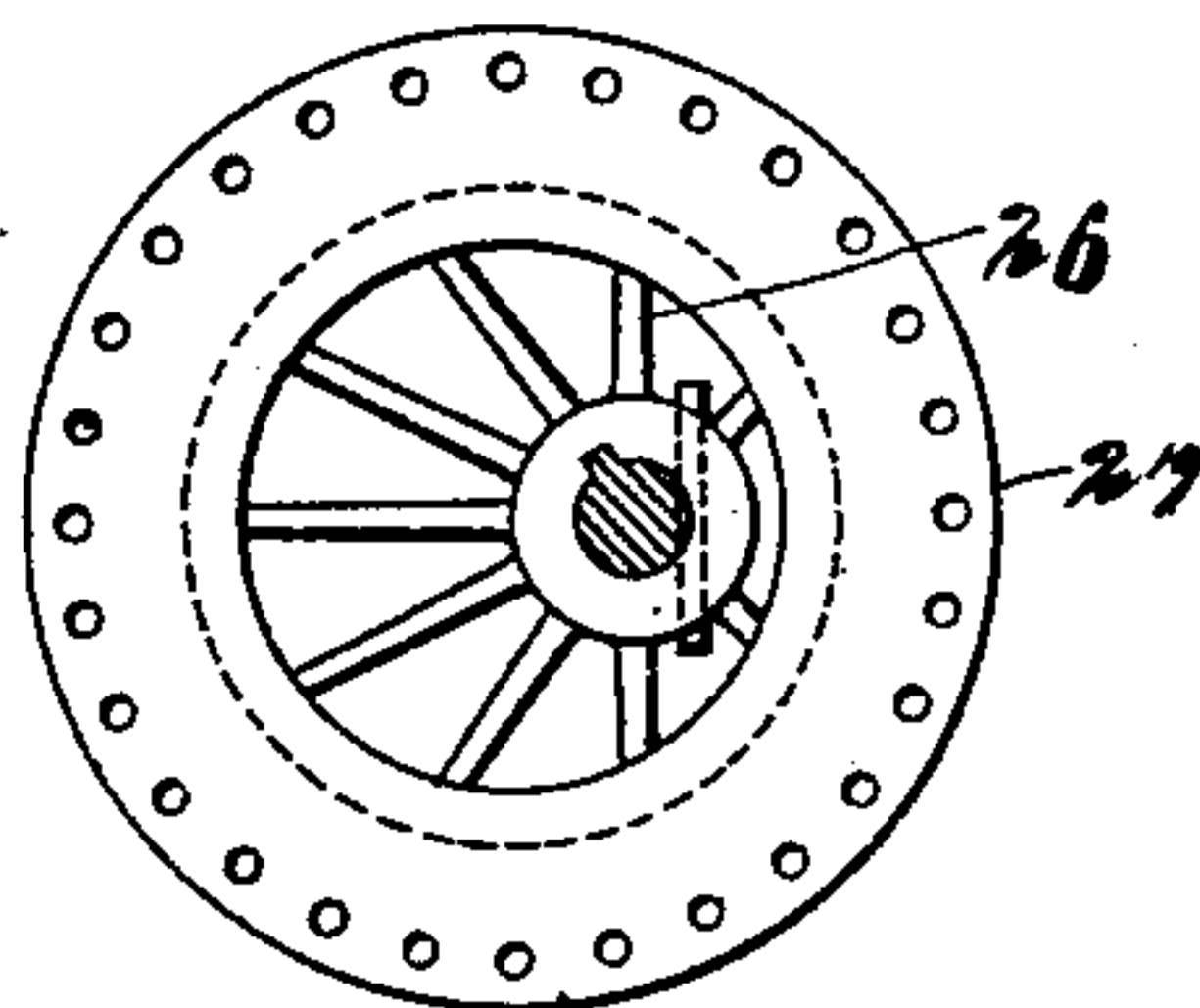
No. 587,525.

Patented Aug. 3, 1897.

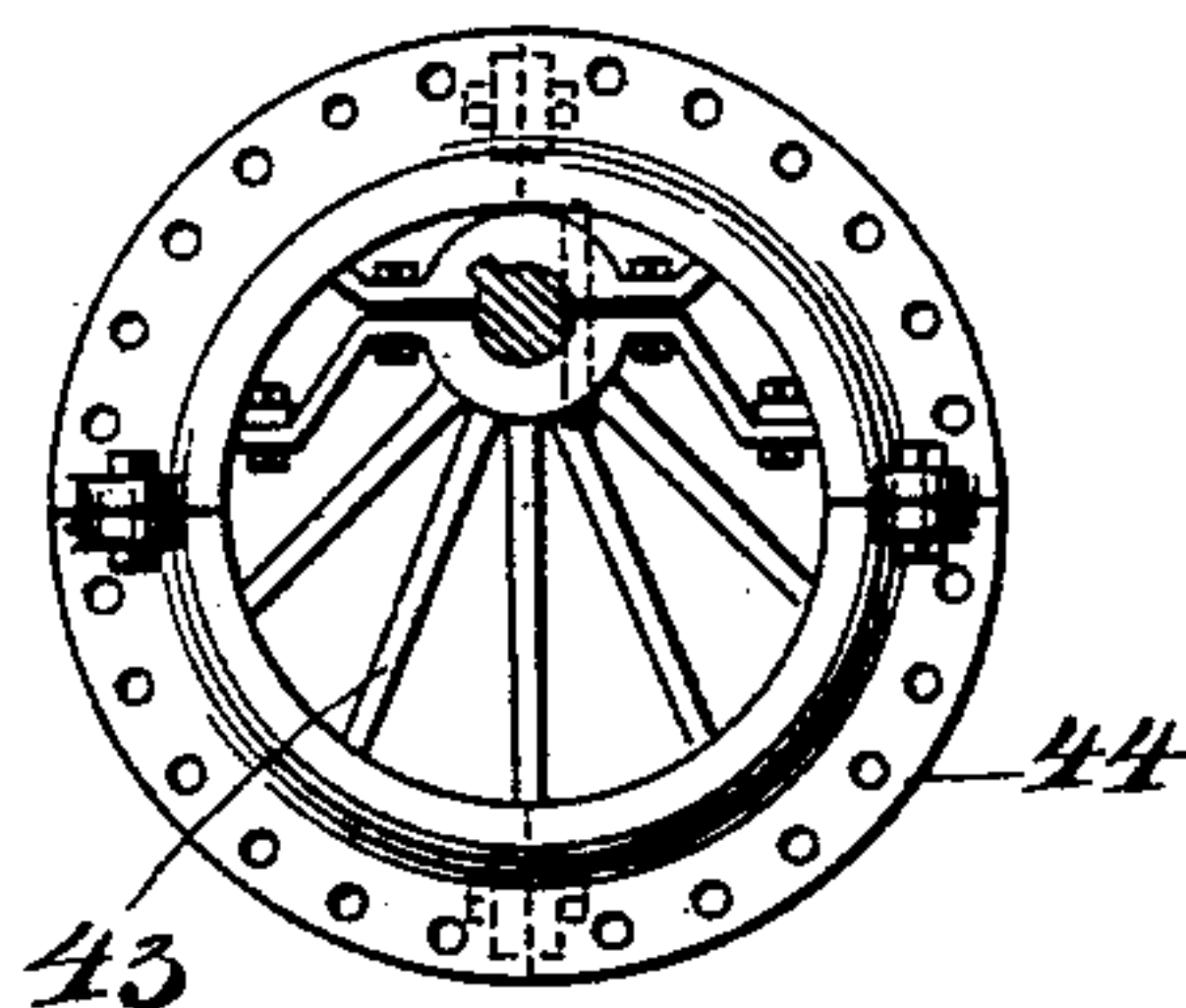
*Fig. 8,*



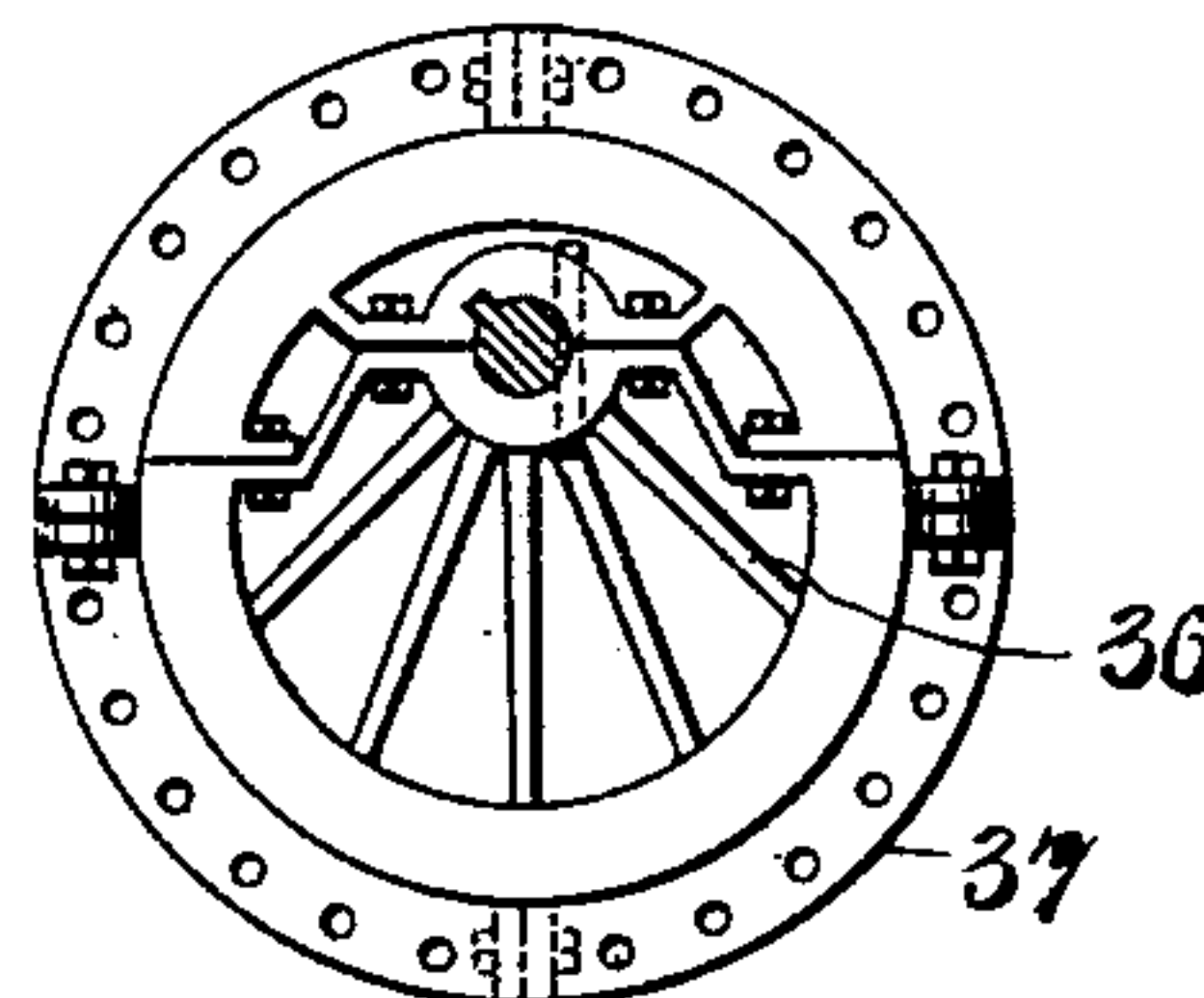
*Fig. 9,*



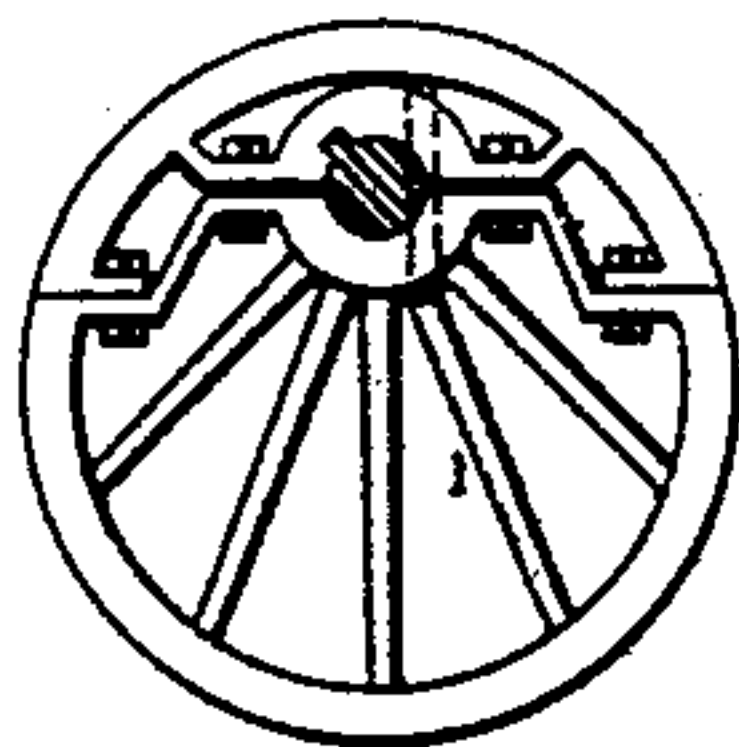
*Fig. 10,*



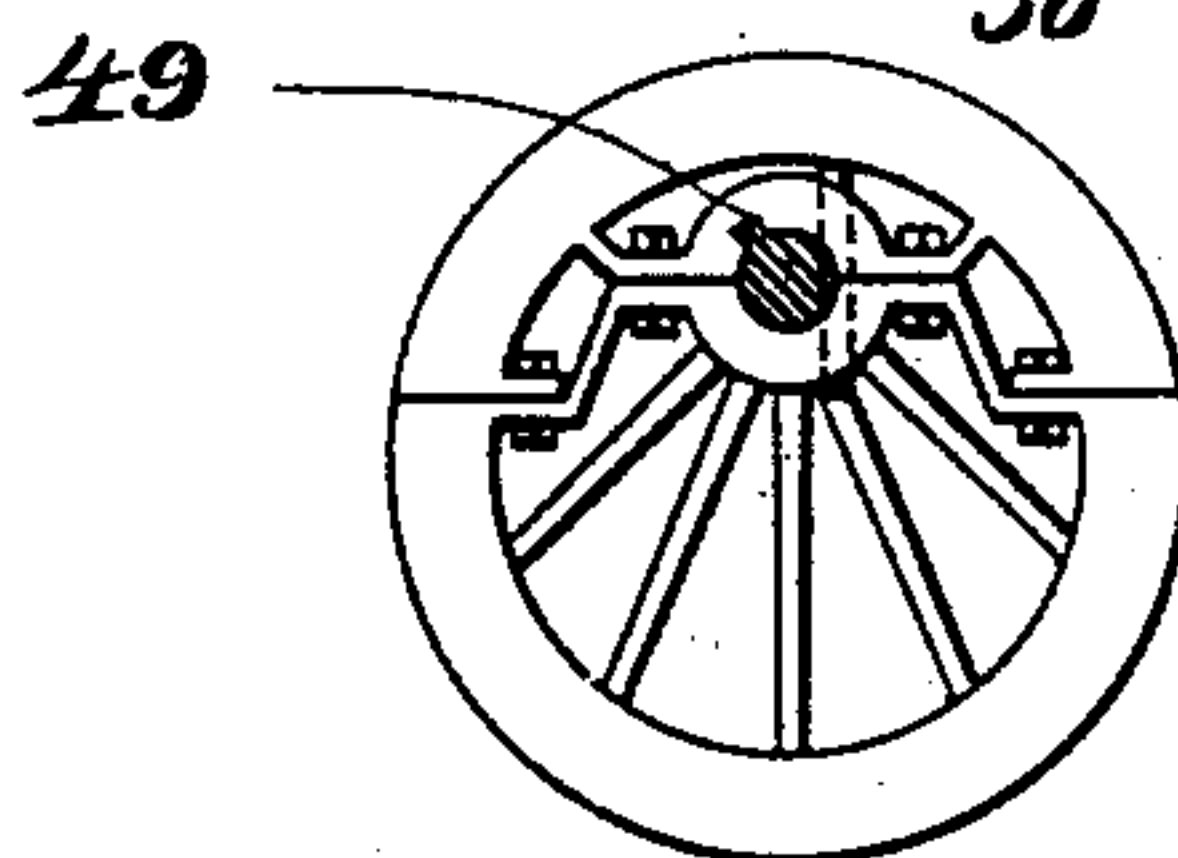
*Fig. 11,*



*Fig. 12,*



*Fig. 13,*



WITNESSES:

*Edward Thorpe.*  
*C. R. Ferguson*

INVENTOR

*G. W. Grimes.*

BY

*Wm. H. Grimes*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GEORGE W. GRIMES, OF BLUFFTON, INDIANA.

## WELL-PUMPING POWER.

SPECIFICATION forming part of Letters Patent No. 587,525, dated August 3, 1897.

Application filed June 5, 1896. Serial No. 594,388. (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 particularly to devices designed to be placed at a central station to operate a series of surrounding pumps for oil or water wells; and a main object of this invention is to provide a power of very large capacity whereby a greater number of wells may be operated than has heretofore been accomplished from one power.

I will describe a well-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 partial elevation and partial section of a pumping-power embodying my invention. Fig. 2 is a plan view of one form of rod-plate and crank employed. Fig. 3 is a plan view showing another form of rod-plate and crank employed. Fig. 4 is a plan view showing still another form of rod-plate and crank employed. Fig. 5 is a plan view of the crank shown in Fig. 2. Fig. 6 is a plan view of the crank shown in Fig. 3. Fig. 7 is a plan view of the crank shown in Fig. 4. Fig. 8 is a plan view of an eccentric or crank and rod-plate. Fig. 9 is a plan view showing another form of eccentric or crank and rod-plate. Fig. 10 is a plan view of still another form of eccentric or crank and rod-plate employed. Fig. 11 shows still another form of eccentric or crank and rod-plate. Fig. 12 is a plan view of the eccentric or crank shown in Fig. 10, and Fig. 13 is a plan view of the eccentric or crank shown in Fig. 11.

The power comprises a metal frame 1, supported on a base-sill 2 and consisting of upright members 3 and horizontal members 4 and 5. This frame may be made integral, or it may be made in parts bolted together. A master-shaft 6 extends through a boxing 7, secured to the frame portion 4, and through a boxing 8, secured to the frame portion 5, and which has a step-bearing in a block 9,

bolted to the sill 2. Antifriction rollers or balls 10 will preferably be employed in the step-bearing. Mounted on the master-shaft 6, just above the step-bearing 9, is a master-gear 11, meshing with a pinion 12, mounted on a shaft 13, having a bearing at one end in a pillow-block 14, secured to the sill 2, and also having a bearing in a boxing 15, secured to a vertical member of the frame, and on the outer end of the shaft 13 is attached a power-wheel 16.

Secured to the upper side of the master-gear 11 and arranged eccentrically to the master-shaft 6 is an eccentric ring 17, having an outwardly-extended annular base-flange, and loosely mounted on this ring and supported on said flange is a pump-rod-actuating ring 18, provided with a row of annular perforations through which bolts may pass to secure the rod-clips thereto.

Above the frame portion 5 and rigidly mounted on the master-shaft 6 is a gear-wheel 19, meshing with a gear-wheel 20 on an auxiliary shaft 21 and also meshing with a gear-wheel 22 on an auxiliary shaft 23. These auxiliary shafts have bearings at their upper ends in boxes 24, secured to the frame member 4, and at their lower ends have step-bearings in boxes 25, secured to the frame portion 5.

Above the gear-wheel 19 and secured to the shaft 6 is an eccentric or crank wheel 26, and on this eccentric or crank wheel pump-rod-actuating plates 27 and 28 are secured. These plates 27 and 28 engage, respectively, with the upper and lower sides of the eccentric-wheel and also engage the periphery of said eccentric-wheel. These plates 27 and 28 are securely bolted together, and their outwardly-extended flanges are provided with perforations through which fastening-bolts may pass to secure a pump-rod clip-plate.

Above the eccentric mechanism just described and secured to the shaft 6 is an eccentric or crank wheel 29 similar in construction to the eccentric-wheel 26. The pump-rod-actuating plates 30 and 31, however, for this eccentric-wheel have inwardly-extended flanges at their inner circumference, which engage against the inner side of the lateral flanges on the wheel.

On the upper end of the shaft 6 is secured



a crank-arm 32. On this crank 32 is a disk formation 33, which is engaged at the upper and lower sides and on the periphery by pump-rod-actuating plates 34 and 35, bolted together in a manner similar to that of the plates 27 and 28.

On the auxiliary shaft 21 above the gear 20 is an eccentric or crank wheel 36, having an annular channel formed in its periphery, within which pump-rod-actuating rings or plates 37 38 engage. The eccentric 36 is made in two sections, as plainly indicated in Fig. 11, a division being made transversely through the hub of the eccentric, and the sections are suitably bolted together. The plates or rings 37 and 38 are also each made in two sections, the adjacent ends of the two sections of a ring having outwardly-extended lugs through which bolts may pass to secure the parts together. It will be seen that the joints of one plate are arranged at right angles to the joints of the other plate. By this construction it is obvious that the actuating mechanism may be placed on or removed from a shaft without removing the shaft from its bearings. Preferably the rings or plates 37 and 38 will be bolted together, thus making practically a solid ring.

On the upper end of the shaft 21 is secured a crank-arm 39, having at its outer end an annular flange portion 40, upon which is mounted a rod-actuating ring or plate 41. This ring or plate 41 is held from upward movement relatively to the flange by means of a ring 42, bolted to said flange and engaging over the top of the ring or plate.

Mounted on the shaft 23 above the gear-wheel 22 is an eccentric or crank wheel 43, around which engage the rod-actuating rings or plates 44 45. These rings or plates 44 45 engage the periphery of said wheel, and also have inwardly-extended flange portions to engage the upper and lower sides of said wheel. This wheel 43 is made in sections similar to those of the wheel 36, and the plates 44 45 are also made in sections similar to the rings or plates 37 38, and these rings or plates 44 45 are securely bolted together. On the upper end of the shaft 23 is a crank-arm 46, having an annular flange portion 47, upon which is mounted a pump-rod-actuating ring or plate 48. This ring or plate 48 has an inwardly-extended flange extending over the top of the annular flange, and as this ring or plate is loosely mounted on the bearing it may be removed upwardly therefrom.

Owing to the enormous load to be handled in pumping oil and water wells there is a certain amount of vibration in the rods or line that becomes centralized at the power and has a tendency to jar loose the splines, keys, or set-screws, as ordinarily employed for securing the actuating devices to shafts. Thus the gearing and pump-rod-actuating

devices are allowed to drop down out of position. To overcome this difficulty, I have successfully put into use the principle of attaching the gearings, the eccentrics, and cranks to their respective shafts with a feather or key placed longitudinally on the shaft and engaging in a groove in the hub, as indicated at 49 in Fig. 13, and then placing transversely through a notch in the shaft and through the hub a key 50, the said key 50 being of a greater width than thickness. By this construction it will be seen that the actuating mechanism is firmly attached to the shaft, so as to rotate with the shaft and also so as to prevent a vertical movement of the actuating devices relatively to the shaft.

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

1. A well-pumping power, comprising a frame, a master-shaft supported vertically therein, auxiliary shafts supported by said frame and having gear connection with the master-shaft, pump-rod-actuating devices on the master-shaft, pump-rod-actuating devices on the auxiliary shafts, and driving mechanism having connection with the master-shaft, substantially as specified.

2. A well-pumping power, having a frame comprising upright members and transverse members, a master-shaft extended through boxes secured to said transverse members and having a step-bearing provided with antifriction-rollers, auxiliary shafts having bearings through boxes on the upper transverse member of the frame and step-bearings in boxes on the lower transverse member of the frame, gear-wheels on said auxiliary shafts engaging with a gear-wheel on the master-shaft, crank-arms on each of said shafts above the upper transverse member of the frame, pump-rod-actuating rings or plates on said cranks, a master-gear on the lower portion of the master-shaft, and a driving-pinon engaged therewith, substantially as specified.

3. In a pumping-power for wells, the combination with a rotary shaft, of an eccentric or crank thereon consisting of two sections bolted together, the division being made transversely through the hub and transversely through the rim in a line between the hub and the center of the rim, and pump line or rod plates mounted on the eccentric or crank, each plate consisting of two sections bolted together at the ends, the joints of one plate being at right angles to the joints of the other plate, the said plates having a number of holes for line or rod fastening bolts, substantially as specified.

GEORGE W. GRIMES.

Witnesses:

JACOB J. TODD,  
ELI HENTZ.