C. S. KURTZ.

PUMP HEAD.

APPLICATION FILED SEPT. 12, 1916.

1,223,283.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 1.

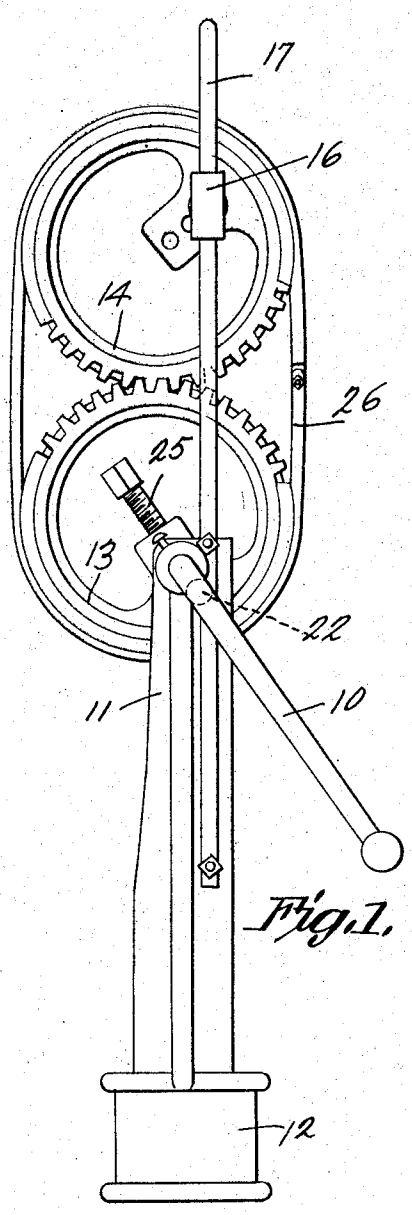


Fig. 1.

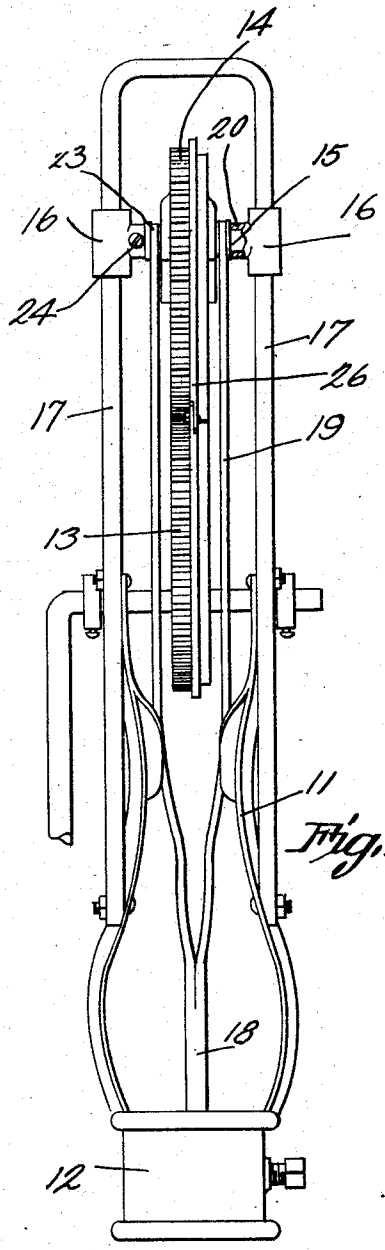


Fig. 2.

Witnesses

Ed. P. Lusby

R. Z. Parker

C. S. Kurtz, Inventor

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. S. KURTZ.

PUMP HEAD.

APPLICATION FILED SEPT. 12, 1916.

1,223,283.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 2.

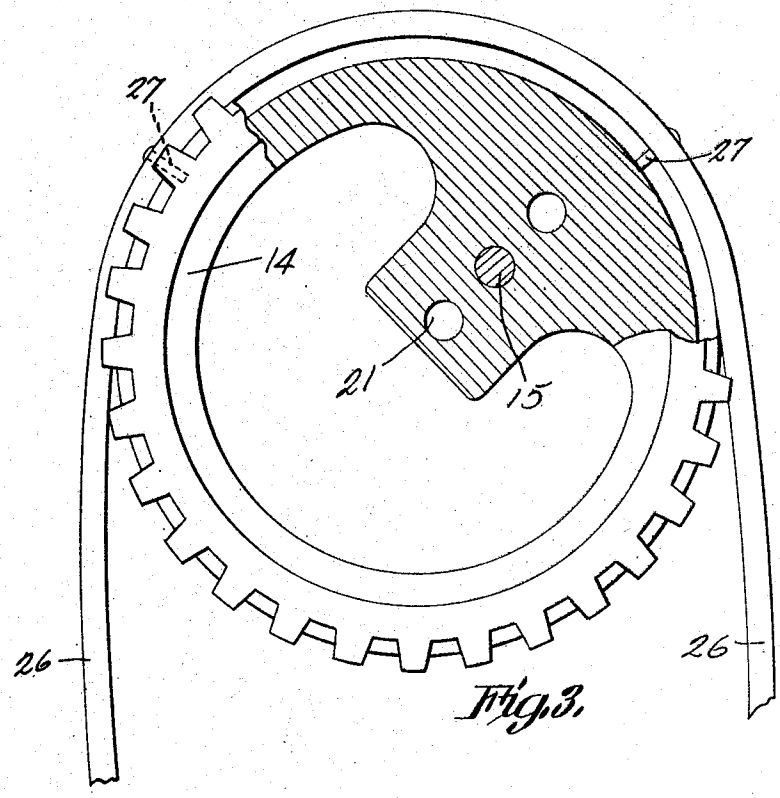


Fig. 3.

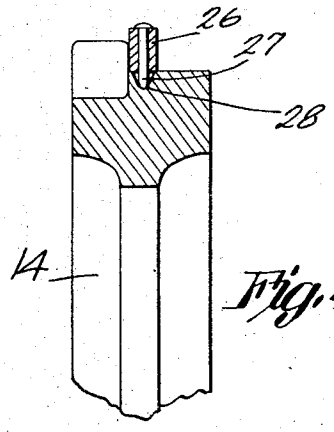


Fig. 4.

Witnesses

Ed. R. Ruby

R. I. Parker.

C. S. Kurtz, Inventor

by C. A. Snow & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHRISTIAN S. KURTZ, OF EPHRATA, PENNSYLVANIA.

PUMP-HEAD.

1,223,283. Specification of Letters Patent. Patented Apr. 17, 1917.

Application filed September 12, 1916. Serial No. 119,683.

To all whom it may concern:

Be it known that I, CHRISTIAN S. KURTZ, a citizen of the United States, residing at Ephrata, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Pump-Head, of which the following is a specification.

The object of the invention is to provide a simple, efficient and powerful pump lift having its parts so related as to insure smoothness of operation with the minimum expenditure of driving energy, and wherein side or crank motion is eliminated, provision being made for varying the length of the stroke to suit the condition of operation.

With the foregoing and further objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein described can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—

Figure 1 is a side view of a pumphead constructed in accordance with the invention.

Fig. 2 is an edge view of the same.

Fig. 3 is a detail view partly in section of one of the eccentric gears and a portion of the bridle.

Fig. 4 is a detail transverse sectional view of a portion of one of the eccentric gears showing the bridle seated therein.

The lift embodying the invention consists essentially of a drive shaft 10 mounted in bearings in a suitable supporting frame 11 and adapted to be operated either manually or by other suitable power, said frame being carried by a sleeve or collar 12 adapted for engagement with the well tubing or other suitable support; an eccentric gear 13 carried by said drive shaft and meshing with a similar eccentric gear 14 having its spindle 15 mounted in a slide consisting of members 16 mounted to reciprocate upon a guide 17 rising from said frame; and a lift rod 18 adapted to be attached at its lower end to a pump rod and being bifurcated to form a yoke 19 of which the arms are connected at their extremities with the spindle of the upper eccentric gear or the slide actuated thereby.

In the construction illustrated, the guide 17 is of looped form, with its arms bolted or otherwise rigidly secured to the side members of the supporting frame, the drive shaft being mounted in bearings offset laterally from the vertical plane of the guide whereby the lift rod, operating in the plane of the guide and controlled in its movement by the slide, operates in a true vertical plane to dispense with side motion or deflection of said lift rod, and hence of the pump rod to which it may be attached. The members of the slide consist of sleeves engaging the arms of the looped guide and are provided with inwardly extending bearings 20 for the reception of the extremities of the spindle 15 of the upper eccentric gear. Moreover said gear may be provided with a plurality of spindle seats 21 arranged at different distances from the center of the gear to provide for varying the eccentricity of the gear, and hence the throw of the lift rod.

The lower or driving gear may similarly be provided with a plurality of seats 22, and to minimize the wear upon the eyes 23 on the extremities of the arms of the yoke 19, a set screw 24 may be provided to hold the spindle 15 stationary with reference to the slide. Obviously the driving gear 13 must be locked to the drive shaft, and for this purpose a set screw 25 is employed.

To prevent accidental relative displacement of the gears, a bridle 26 is extended around them and has pins 27 engaged with peripheral seats 28 in the gears.

Having thus described the invention, what is claimed is:

1. In a pump lift, the combination with a drive shaft of intermeshing eccentric gears, one of which is operated by said drive shaft, a guide, a slide mounted upon said guide and having the other of said gears mounted therein, means carried by the gears for adjusting the eccentricity of said gears, and a lift rod connected with the slide.

2. In a pump lift, the combination with a drive shaft of intermeshing eccentric gears, one of which is operated by said shaft, a guide, a slide mounted upon the guide and having the other of said gears mounted thereon, a bridle encircling said gears and seated thereon, and a lift rod connected with said slide.

3. In a pump lift, the combination with a drive shaft of intermeshing eccentric gears,

a guide, a slide mounted upon the guide, one of said gears being secured to the drive shaft and the other being mounted on said slide, said gears being provided with continuous peripheral seats, a bridle encircling said gears, and fitted in the seats thereof, and a lift rod connected with the slide.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHRISTIAN S. KURTZ.

Witnesses:

ANNIE GEHR,

JOHN W. GEHR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."