

974,694.

Patented Nov. 1, 1910.

2 SHEETS—SHEET 2.

Fig. 3.

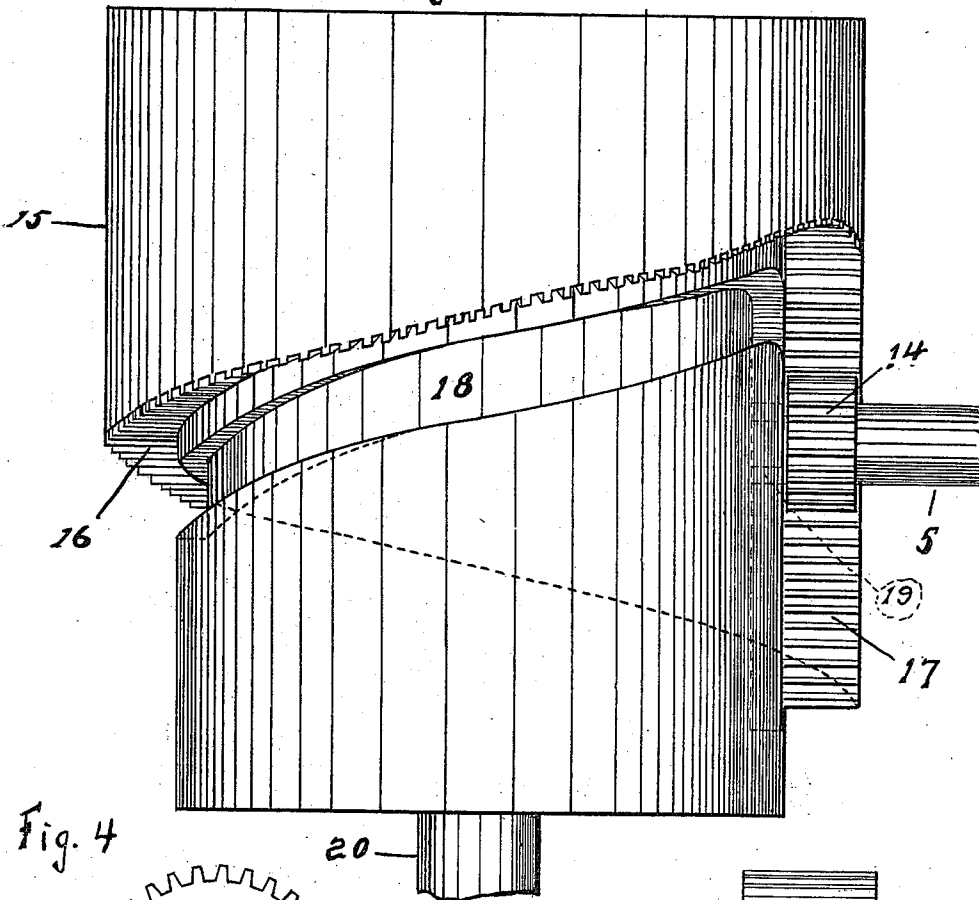


Fig. 4

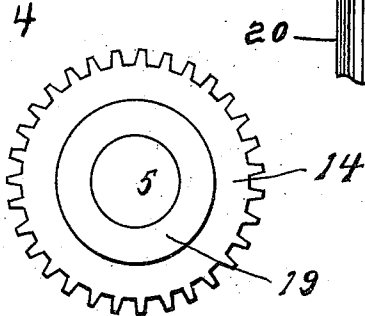
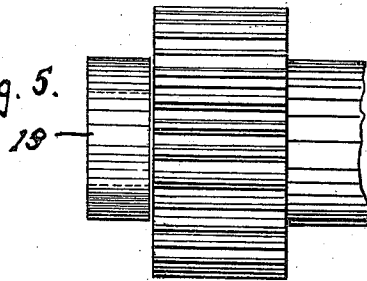


Fig. 5.



Witnesses.
Goswell P. Rogers.
L. H. Miller

Inventor
James W. Myer, by.

Charles P. Griffin Att'y.

UNITED STATES PATENT OFFICE.

JAMES W. MYER, OF SAN FRANCISCO, CALIFORNIA.

PUMP DRIVING-GEAR.

974,694.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed February 28, 1910. Serial No. 546,486.

To all whom it may concern:

Be it known that I, JAMES W. MYER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Pump Driving-Gears, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to a pump head the object of which is to produce a continuous flow of water from the pump cylinders one of two pistons always rising during more than the time required to move the other piston to the bottom of its stroke.

In the drawings, in which the same numeral of reference is applied to the same portion throughout the several views, Figure 1 is a side elevation of the pump head a portion of the guide frame being broken away to show the two lifting heads. Fig. 2 is a plan view of one of the lifting heads and a portion of the guide frame illustrating the means for holding the head in its proper place. Fig. 3 is a view of one of the lifting heads on a larger scale. Fig. 4 shows one of the small pinions and the roller for holding the head in contact with the pinion at all times, and Fig. 5 is an elevation of one of the pinions and the roller which holds the head in contact with the pinion.

The numeral 1 is applied to the pump cylinder which may be placed at any desired depth below the pumping heads.

The numeral 2 represents the base of the pump standard 3, and 4 indicates the bracket supporting the shafts 5 and 6 on the latter of which is the driving pulley 7. The two shafts are driven in the same time by means of a sprocket chain 8 which passes over two gears 9 and 10.

The pump standard is provided with two guide rails 11 and 12 which hold the heads in a fixed relation with the pinions 13 and 14. The heads 15 are each provided with guide plates 16 which permit the free rotation of the heads, but which prevent them from moving away laterally from the pinions on the ends of the drive shafts. Each head has a gear 16' passing around the same spirally, the ends of the spiral gear being connected by means of a straight rack 17, and each head has a cam groove 18 therein immediately adjacent the gear teeth, said cam groove being for the purpose of pre-

venting the head from rotating out of mesh with the pinion driving the same, a small roller 19 being secured on the end of each shaft adjacent the driving pinion.

It will be noted that the complete rotation of each head will take place in the same time, but during a portion of the time one head is rising the other head will be rapidly descending, and it will complete its descent in about one third of the time it will take the other head to complete the ascent. The result of this construction is that there will be at all times one piston rising and at some portions of the stroke both pistons will be rising at the same time.

Each head is provided with a piston rod, the upper one having a rod 20 which passes within the rod 21 secured to the lower head. The pistons are not shown for the reason that they form no part of the present invention, any suitable form of piston being used as may be desired.

The direction of travel of the drive chain is shown by the arrow on Fig. 1.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. In a piston drive gear, a pinion, a cylindrical head having a spiral gear and a straight gear parallel to the axis of the head connecting the ends of the spiral and also having a cam groove adjacent the said gears, a drive shaft on which said pinion is carried, and a roller adjacent said pinion and traveling in the cam groove of the head, as set forth.

2. In a piston drive gear, a pair of heads each having a spiral gear and a straight gear connecting the ends of the spirals, a pinion in mesh with the gear teeth of each head, means to hold the heads in mesh with each pinion, and means to drive the pinions at the same rate, as set forth.

3. In a piston drive gear, a pair of heads each having a spiral gear and a straight gear connecting the ends of the spiral gears, a guide in which both heads slide, a pinion in mesh with the teeth of each head, a shaft supporting each pinion, and means to drive each pinion at the same rate, as set forth.

4. In a piston drive gear, a pair of heads each having a spiral gear and a straight gear connecting the ends of each spiral and also having a cam groove adjacent the teeth, a shaft adjacent each head, a pinion carried

by each shaft and in mesh with the teeth of the adjacent head, a roller adjacent the pinion on each shaft and which coöperates with said cam groove to hold the heads in mesh
5 with the teeth of their respective pinions, and means to drive each pinion at the same rate, as set forth.

5. In a piston drive gear, a pair of heads each having a spiral set of gear teeth, and
10 having a straight set of gear teeth connecting the ends of the spiral set of teeth, a guide for the heads, a shaft adjacent each head, a pinion on each shaft and in mesh with the teeth of each head, a roller carried

by each shaft and adapted to prevent the head from getting out of mesh therewith, means to drive each pinion at the same rate, and a piston rod connected with each head, as set forth. 15

In testimony whereof I have hereunto set my hand this 19th day of February A. D. 1910, in the presence of the two subscribed witnesses. 20

JAMES W. MYER.

Witnesses:

A. K. DAGGETT,
ROSWELL P. ROGERS.