

T. P. HANNEGAN.
PUMP OPERATING MECHANISM.
APPLICATION FILED JAN. 5, 1911.

1,039,389.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.

FIG. 1.

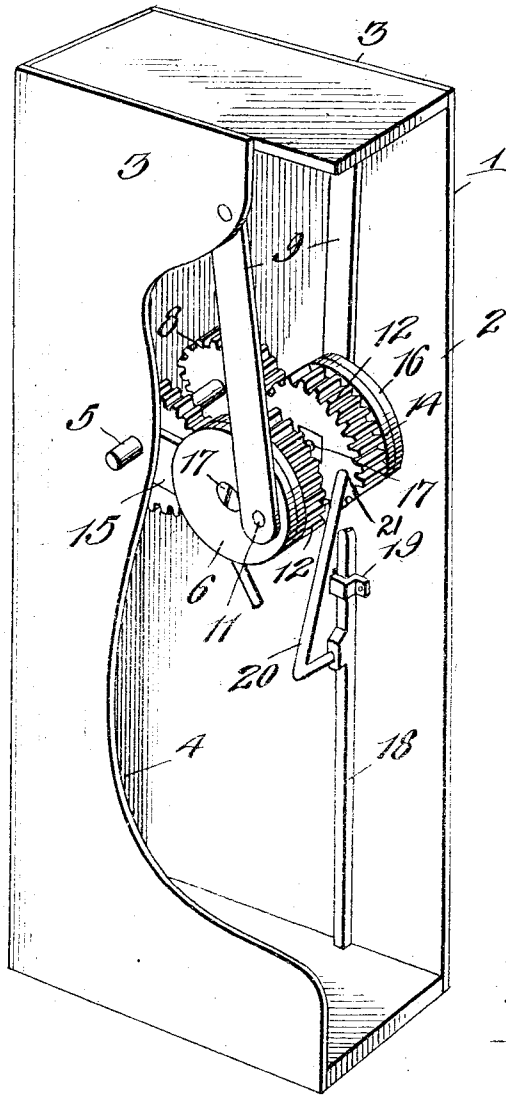
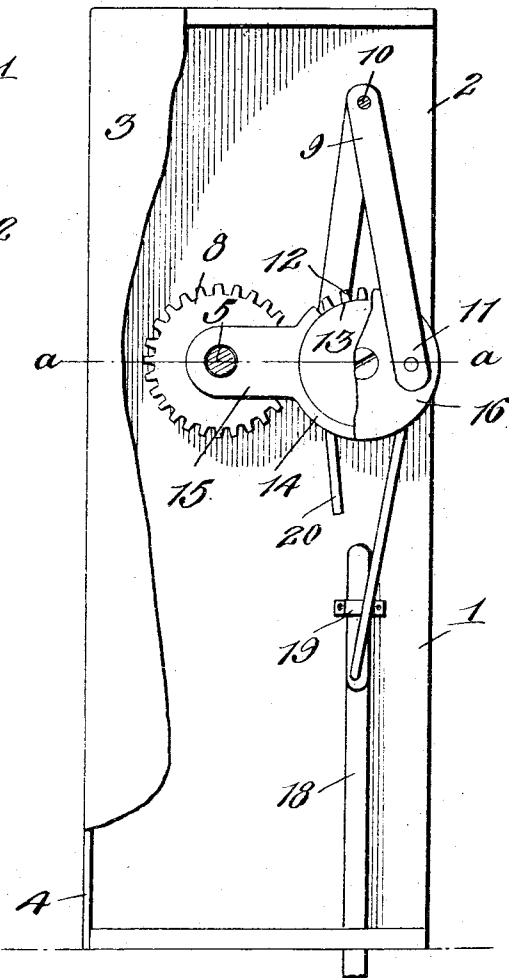


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

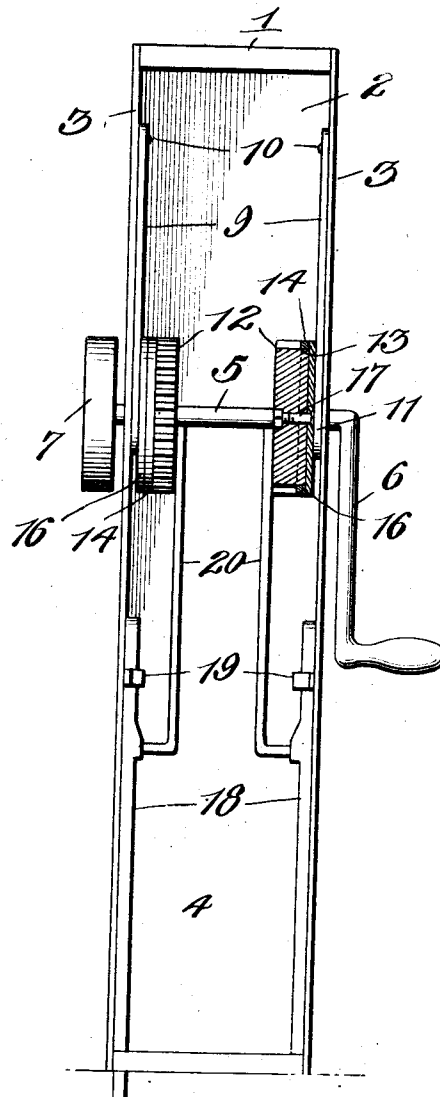


FIG. 4.

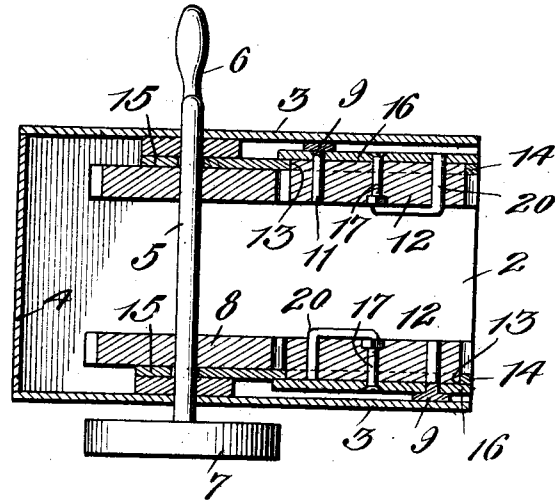
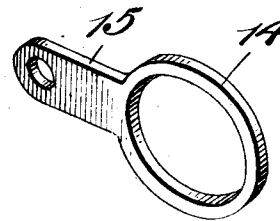


FIG. 5.



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UNITED STATES PATENT OFFICE

THOMAS PERRY HANNEGAN, OF CLEAR LAKE, WISCONSIN.

PUMP-OPERATING MECHANISM.

1,039,389.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed January 5, 1911. Serial No. 600,993.

To all whom it may concern:

Be it known that I, THOMAS PERRY HANNEGAN, a citizen of the United States, residing at Clear Lake, in the county of Polk and State of Wisconsin, have invented certain new and useful Improvements in Pump-Operating Mechanism, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention is an improved pump head or pump operating mechanism for imparting reciprocatory motion to the pump plungers and pump plunger rods, the object of the invention being to provide an improved
15 mechanism of this character which operates to raise the pump plungers comparatively slowly while they are lifting columns of water and to impart rapid movement to the pump plungers on the recovery or down
20 strokes thereof, the invention consisting in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings—Figure 1
25 is a perspective view of a pump head or pump operating mechanism constructed in accordance with my invention. Fig. 2 is a side elevation of the same with a part of the casing or standard removed so as to disclose
30 the construction and relation of the gearing. Fig. 3 is partly an elevation at right angles to Fig. 2, and partly a sectional view. Fig. 4 is a horizontal sectional view on the plane indicated by the line *a—*
35 Fig. 5 is a detail perspective view of one of the links.

The pump standard or frame 1 may be of any suitable construction. It is here shown as a casing open on one side as at 2, and comprising a pair of side walls 3, and a wall 4 which connects the said side walls. The side walls are provided at a suitable point with bearings for a shaft 5, which shaft is here shown as provided at one end with a
40 crank 6 whereby it may be manually rotated, and at the other end with a pulley 7 for engagement by a driving belt. Any suitable means may be employed to rotate the said shaft within the scope of my invention. In the present embodiment of my
50 invention, the said shaft 5 is provided at points between the side walls 3 of the frame, or casing, with a pair of spur gears 8 which are keyed or otherwise suitably secured to the said shaft for rotation therewith, and
55 are disposed near the inner sides of the said

side walls. Swinging hangers 9 are disposed on the inner sides of the side walls, and pivotally connected thereto at their upper ends as at 10. Each hanger is provided at its lower end on its inner side with a journal 60 11 on which is mounted a gear 12, the said bearings being eccentric in the said gears and disposed near one side thereof. Each of the said gears 12 which are thus eccentrically mounted, engages one of the driving gears 8 of the shaft 5. Each gear 12 is here shown as provided on its outer side with an annular concentric shoulder 13 which is engaged by the ring or circular strap 14 of a 65 link 15, the said links being pivotally mounted on the shaft 5, and serving to hold the gear wheels 12 at all times in engagement with the gears 8. In the form of the invention here shown, the ring 14 or strap of each link 15 is held in place on the concentric 70 shoulder 13 of one of the gears 12, by means of a disk 16, the said disk being secured on the outer side of the said gear 12, between the latter and the swinging hanger 9, in 80 which it is mounted, a bolt 17 or other suitable device being employed to thus secure the said circular plate in place.

For the purposes of this specification, the upper portions of the pump plunger rods 85 are indicated at 18, and operating in guides 19 which are secured on the inner sides of the said walls 3. To each of the said plunger rods 18 or other reciprocating elements is connected the lower end of a pitman 20, the upper end of the said pitman being eccentrically connected to one of the gears 12 at the point 21. The said pivotal connection point between the upper end of the said pitman and the said gear wheel 12 95 is eccentric to the latter, and substantially diametrically opposite the eccentric journal 11 on which the said gear 12 turns, and which is carried by the swinging hanger 9.

Owing to the fact that the gears 12 to 100 which the plunger rods or reciprocating elements are connected by the pitmen, are eccentrically pivotally mounted on the supporting hangers 9, the lower ends of which are movable toward and from the shaft 5 105 forming the axle for the gears 8, with which the said gears 12 are engaged, each of the said gears 12 turns at a reduced rate of speed during that portion of its revolution when its pivotal axis is farthest from the 110 shaft 5, and more rapidly during that part of the revolution when its pivotal axis is

nearest the shaft 5, as will be understood. For this reason the pivotal connections between the pitmen and the gears 12 are practically diametrically opposite the eccentric bearings 11 of said gears, and hence each pump plunger or reciprocatory element moves comparatively slowly on its up stroke, and much more rapidly on its down stroke, the upward movement of the plunger being accomplished while the same is under load, and the downward and rapid recovery stroke thereof being accomplished when the plunger is unloaded, and hence an economy of time in the operation of the reciprocatory elements is effected and the efficiency of the operating mechanism correspondingly increased. Owing to the eccentric mounting of the gears 12, on the swinging hangers 9, said gears also move upwardly and downwardly during each rotation thereof and add to the length of stroke of the plunger or reciprocatory elements 18. The pivotal connections between the pitmen 20 and the gears 12 are preferably directly opposite each other, so that at all points of the rotation of the shaft 5, at least one of the plungers will be raised.

I would have it understood that my improved pump operating mechanism may be provided with any desired number of gears 8 and 12, according to the number of pump plungers or other reciprocatory elements which it is desired to operate. I would also have it understood that changes may be made in the construction size and propor-

tion of the various parts without departing from the spirit of my invention, and within the scope of the appended claim.

I claim:—

An apparatus of the character described, including a drive shaft, fixed bearings therefor, a gear wheel mounted on said shaft, a crank gear wheel meshing with the first named gear wheel, a hanger, a support from which said hanger is pivotally suspended from its upper end, the crank gear being formed at one side with an annular shoulder, a link pivotally mounted upon the drive shaft and provided with a strap encircling said shoulder, a disk secured to one face of the crank gear adjoining said shoulder and overlapping said strap, whereby to maintain the latter in place, an eccentric pivotal connection between the lower end of the hanger and the crank gear, a reciprocating element, in vertical alinement with said hanger support, and a pitman pivotally connected at one end to said reciprocating element and having an eccentric pivotal connection at its other end with the crank gear, the latter connection being diametrically opposite the pivotal connection between the hanger and the crank.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

THOMAS PERRY HANNEGAN.

Witnesses:

O. B. WICK,
FRANK WINTERSTELLER.