

No. 691,957.

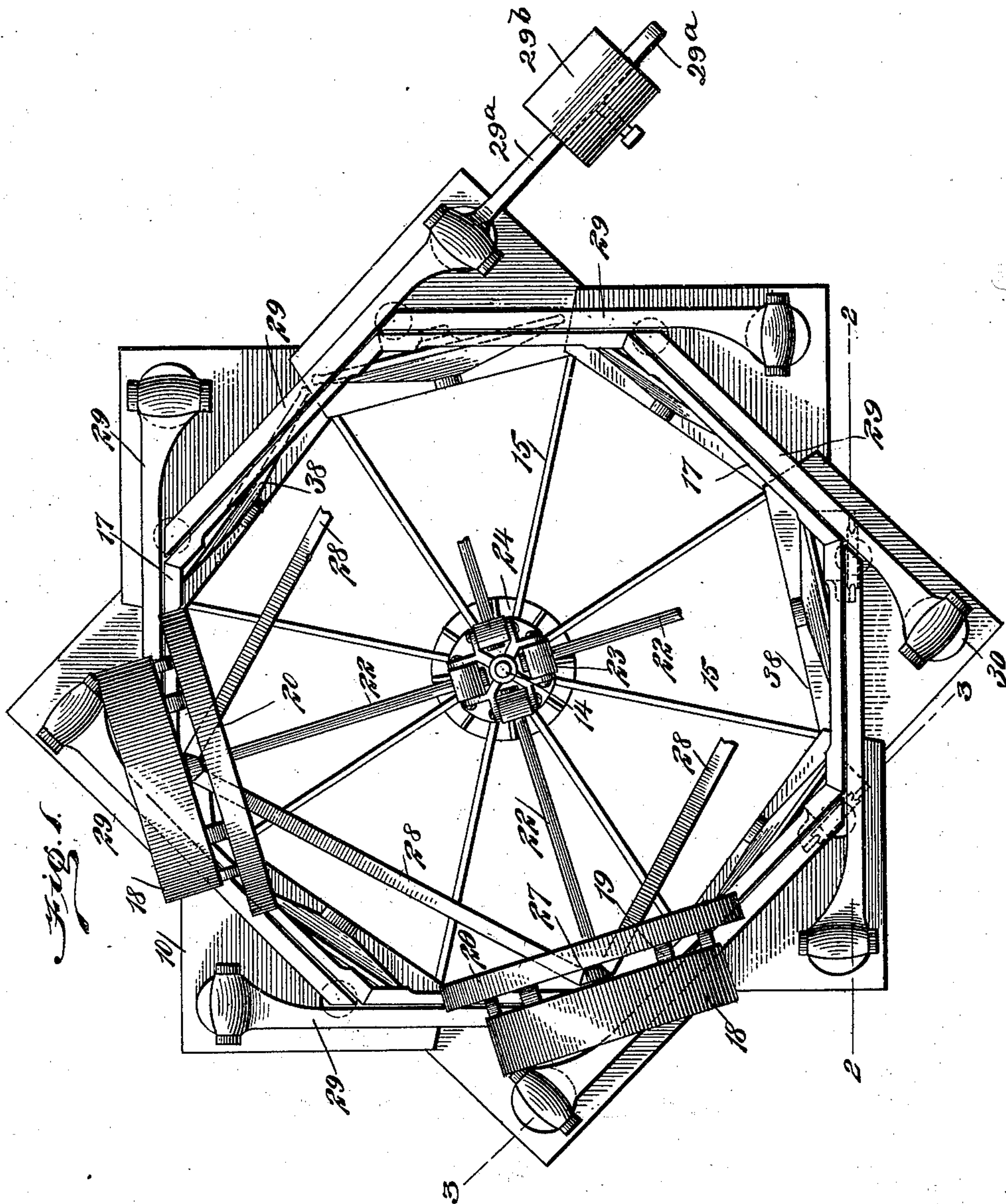
Patented Jan. 28, 1902.

J. B. MILLER.  
PUMP OPERATING MECHANISM.

(Application filed May 5, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:  
*H. G. Dietrich*  
*C. R. Ferguson*

INVENTOR  
*Jacob B. Miller.*  
BY *Mumford*  
ATTORNEYS



No. 691,957.

Patented Jan. 28, 1902.

J. B. MILLER.  
PUMP OPERATING MECHANISM.

(Application filed May 5, 1900.)

(No Model.)

3 Sheets—Sheet 2.

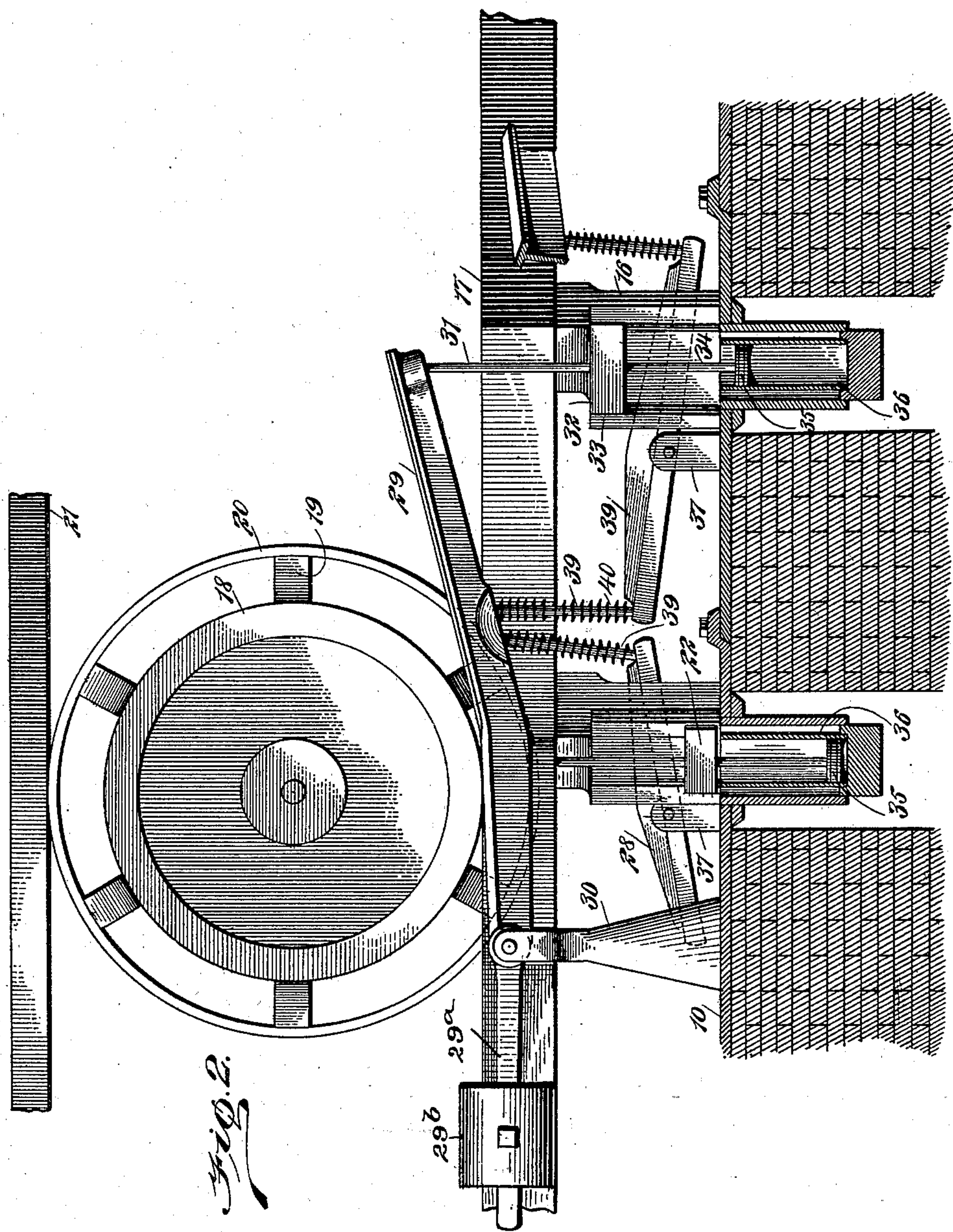


Fig. 2.

WITNESSES:

H. G. Dieterich  
C. R. Ferguson

INVENTOR

Jacob B. Miller.

BY

Mumford

ATTORNEYS

No. 691,957.

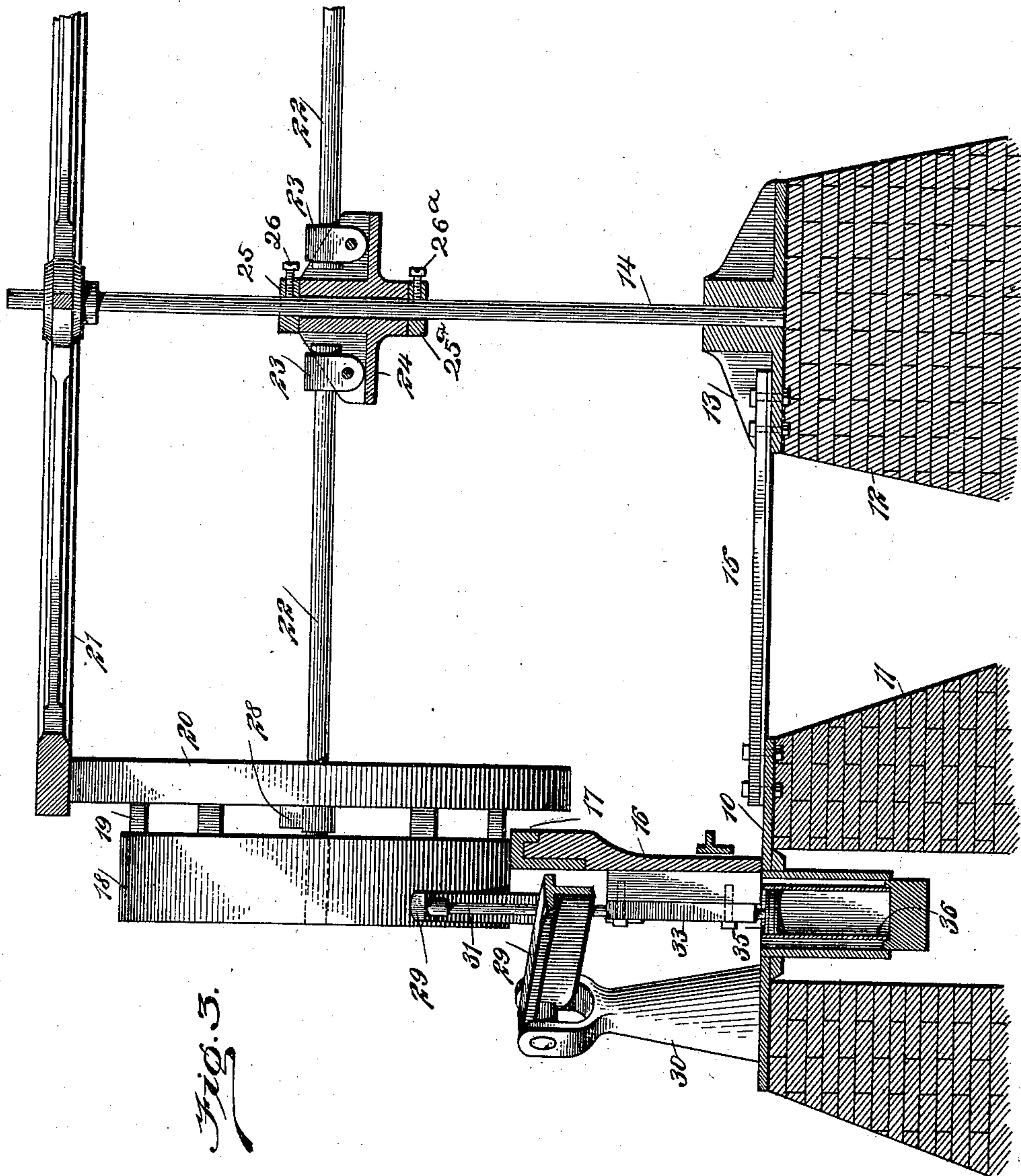
Patented Jan. 28, 1902.

J. B. MILLER.  
PUMP OPERATING MECHANISM.

(Application filed May 5, 1900.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES:

*H. S. Dieterich*  
*C. R. Ferguson*

INVENTOR

*Jacob B. Miller*

BY

*Minny D.*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

JACOB B. MILLER, OF MUNCIE, INDIANA, ASSIGNOR OF THREE-FIFTHS TO  
JACOB A. MEEKS, ROBERT M. BALL, WILLIAM H. MORELAND, ORLANDO  
J. LOTZ, AND WILLIAM H. HICKMAN, OF MUNCIE, INDIANA.

## PUMP-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 691,957, dated January 28, 1902.

Application filed May 5, 1900. Serial No. 15,636. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB B. MILLER, a citizen of the United States, and a resident of Muncie, in the county of Delaware and State of Indiana, have invented a new and Improved Pump-Operating Mechanism, of which the following is a full, clear, and exact description.

This invention is an improvement in the class of mechanism for operating air or water pumps in which a series of pistons are successively depressed by a wheel or roller that travels in a circle.

The features of novelty and improvement are as hereinafter described.

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 power-machine embodying my invention. Fig. 2 is a partial elevation and partial section on the line 2 2 of Fig. 1, and Fig. 3 is a partial elevation and partial section on the line 3 3 of Fig. 1.

Referring to the drawings, 10 designates the bed-plate of the machine, made substantially in the form of a ring and supported on foundation-pillars 11. Arranged in the center is a foundation-pillar 12, upon which is secured a stand or casting 13 for an upright shaft 14. This stand or casting 13 is rigidly held in position by brace-bars 15, fastened at one end to the base-plate and at the other end to the stand or casting, as clearly indicated in Fig. 3. Extended upward from the base-plate is a series of standards 16, here shown as eight in number, and supported on these standards is a track 17, consisting of eight sections so placed together as to form a continuous octagonal track, as plainly illustrated in Fig. 1. It is to be understood, however, that the track may be made circular without departing from the spirit of my invention.

Mounted to travel around upon the track 17 is a series of weights or wheels 18. I have here shown four of these weights or wheels; but a greater or less number may be employed. Attached to each weight or wheel 18 by means of arms 19 is a friction-rim 20, engaged by a friction-wheel 21, mounted to rotate on the shaft 14, and to which motion may be imparted by any suitable motor. Instead of the friction-gearing it is to be under-

stood that I may employ a toothed gearing. The weights or wheels 18 and the friction-rims 20 are mounted on shafts 22, which at their inner ends are mounted to rotate in blocks 23, having swinging engagement with a collar 24, mounted to slide vertically and to rotate on the shaft 14. To hold such collar 24 as adjusted in its vertical position, I employ two clamping-collars 25 and 25<sup>a</sup>, which are arranged on the shaft above and below the sliding collar 24 and secured by screws 26 26<sup>a</sup>, respectively. The outer ends of the shafts 22 are connected one with another by brace-bars 28. The object in making the collar 24 movable vertically on the shaft 14 is to practically hold the weights or wheels 18 in a vertical line or to change their vertical angle as may be required to overcome centrifugal action under a high degree of speed, whereby the top portions of said wheels tend to be thrown outward.

Arranged at suitable distances apart around the outer side of the track 17 are actuating-levers 29, designed to be engaged consecutively by the weights or wheels 18. I have here shown eight of these actuating-levers 29, and they are pivoted at one end to pillow-blocks 30, extended upward from the bed-plate 10. Having swinging connection with the forward end of each actuating-lever 29 is a rod 31, the lower end of which connects with a cross-head 32, movable in guides 33, attached to the uprights 16. Also connecting with the cross-head 32 is one end of a piston-rod 34, the other end being connected to a piston 35, operating in a cylinder 36. Pipes may lead from these several cylinders 36 to any desired receiver for compressed air or gas or to any well or the like.

Fulcrumed on posts 37, attached to the bed-plate 10, are returning-levers 38 for the actuating-levers 29. Adjacent ends of returning-levers 38 have rod connections 39 with the levers 29, and to prevent shock upon an upward or return movement of the actuating-levers springs 40 are coiled around the rods 39, engaging at one end against the levers 38 and at the other end against the actuating-lever. There will be a sufficient amount of lost motion between the levers and the rods to permit the springs to act.

It will be observed that the heavy wheels



or weights 18 are four in number and placed quadrantly upon the track 17, which, as before stated, consists of eight sections placed to form an octagonal continuous track. As the weights or wheels 18 move on the track 17 the several actuating-levers 29 are pressed down one after another to the level of the track 17. Thus the weight of the heavy weight or wheel 18 is directed centrally upon the piston 35 of the pump-cylinders. When the heavy wheels or weights have acted upon and spent their force upon one set of levers 29, they will come in contact with another set of four levers 29, which are operated in like manner as the preceding set just described, and the first set of four levers is again brought into position by means of the returning-levers 38. Thus a group of four levers will be pressed down and released and reset alternately in a continuous manner by means of the heavy wheels or weights moving or being propelled upon the track 17.

To counterbalance the weight of levers 29, they may be provided with rear extensions 29<sup>a</sup>, on which slidable weights 29<sup>b</sup> are mounted, and secured in any adjustment by means of clamp-screws.

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

1. The improved pump-operating mechanism comprising a horizontal fixed track, a shaft set vertical and central to the track, a series of levers pivoted alongside the track exterior thereto, a series of pairs of wheels having axes that are connected with the central shaft, one of each pair of said wheels running upon the fixed track and also upon the said levers, and a rotating motor-wheel arranged horizontal and adapted to bear upon the inner wheels of each of said pairs, substantially as shown and described.

2. The improved pump-operating mechanism comprising a horizontal fixed track, a vertical shaft set central to the track, a series of actuating-levers pivoted alongside the track exterior thereto, a series of pairs of wheels held on axes connected with said shaft, the inner larger wheel of each pair being arranged to run free on the inner side of the track, and the outer one to run thereon and also upon the adjacent levers, the horizontal motor-wheel arranged concentrically upon the vertical shaft and engaging the inner wheels of each of the aforesaid pairs, and a series of cylinders corresponding to the said levers, and having pistons which are connected with the levers, as shown and described.

3. The improved pump-operating mechanism comprising the horizontal fixed track having a polygonal outer side, a series of levers (each) pivoted adjacent and parallel to one of the straight sides of said track, the free end of each being adjacent to the body of the next lever in advance of it, a series of pairs of wheels having horizontal axes and a cen-

tral shaft to which the latter are connected, the inner wheel of each pair being adapted to run free within the fixed track and the outer one to run upon the levers, the arrangement being as described, whereby said wheels pass immediately from one lever onto another, a horizontal motor-wheel that engages the inner wheels of the several pairs, and cylinders and pistons corresponding to the series of levers, as shown and described.

4. The improved pump-operating mechanism comprising a horizontal fixed track, a vertical shaft set central to the track, a series of actuating-levers pivoted alongside the track exterior thereto, a series of pairs of wheels held on axes connected with said shaft, the inner larger wheel of each pair being arranged to run free on the inner side of the track, and the outer one to run thereon and also upon the adjacent levers, the series of short returning-levers 38, pivoted beneath the actuating-levers, and having spring-encircled rods pivoted to their ends and engaging the two adjacent actuating-levers, and a horizontal motor-wheel which engages the inner wheels of the several pairs, as shown and described.

5. The improved pump-operating mechanism comprising the horizontal fixed track having a polygonal outer side a series of levers (each) pivoted adjacent and parallel to one of the straight sides of said track, the free end of each being adjacent to the body of the next lever in advance of it, said levers being provided with rear arms or extensions 29<sup>a</sup>, and a series of counterbalance-weights adapted to slide thereon, a series of pairs of wheels having horizontal axes and a central shaft to which the latter are connected, the inner wheel of each pair being adapted to run free within the fixed track and the outer one to run upon the levers, the arrangement being as described, whereby said wheels pass immediately from one lever onto another, a horizontal motor-wheel that engages the inner wheels of the several pairs, and cylinders and pistons corresponding to the series of levers, as shown and described.

6. The improved pump-operating mechanism comprising a horizontal fixed track, a shaft central thereto, a series of levers pivoted outside of but adjacent to the track, a series of cylinders and pistons, the latter connected with the levers, a series of pairs of wheels running on said track and levers, and having axes extended inward radial with said vertical shaft, a vertically-adjustable collar on the latter, and a motor-wheel engaging the inner wheel of each of said pairs, as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB B. MILLER.

Witnesses:

AMOS W. HART,  
 SOLON C. KEMON.