

L. L. PRATT.
PUMP.
APPLICATION FILED DEC. 31, 1908.

Patented May 18, 1909
2 SHEETS—SHEET 1.

922,189.

Fig:1.

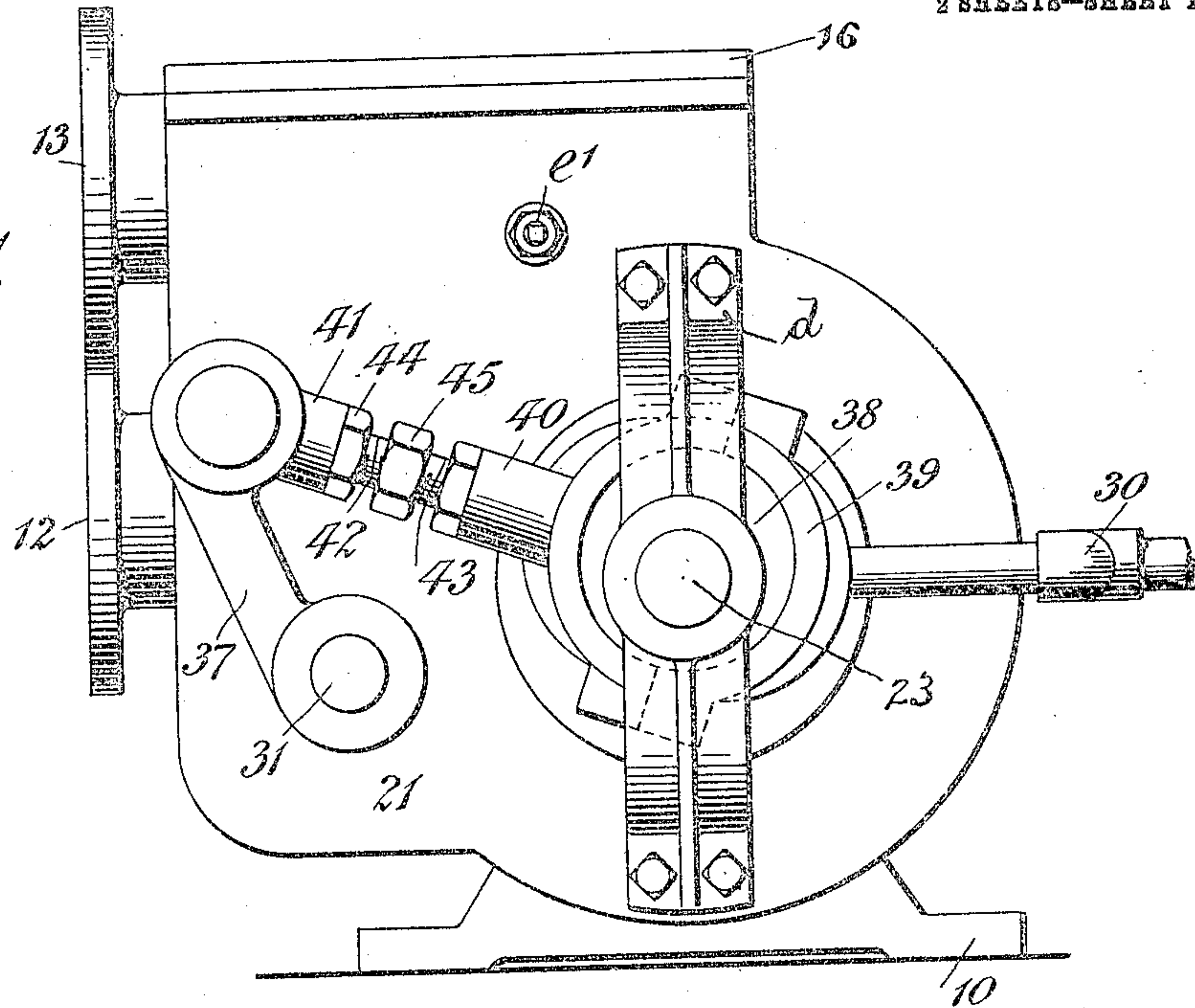
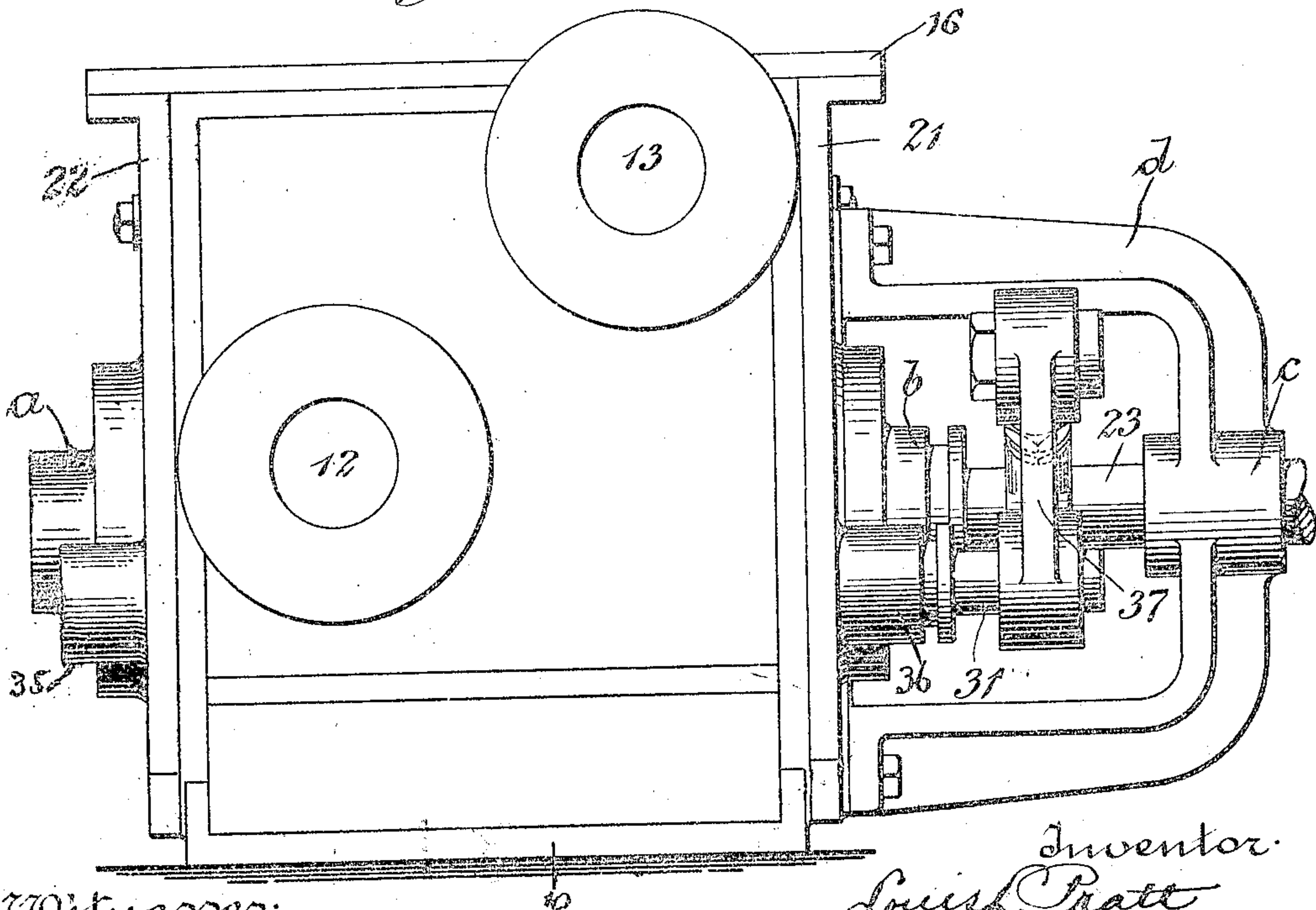


Fig:2.



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2 SHEETS—SHEET 2.

Fig. 3.

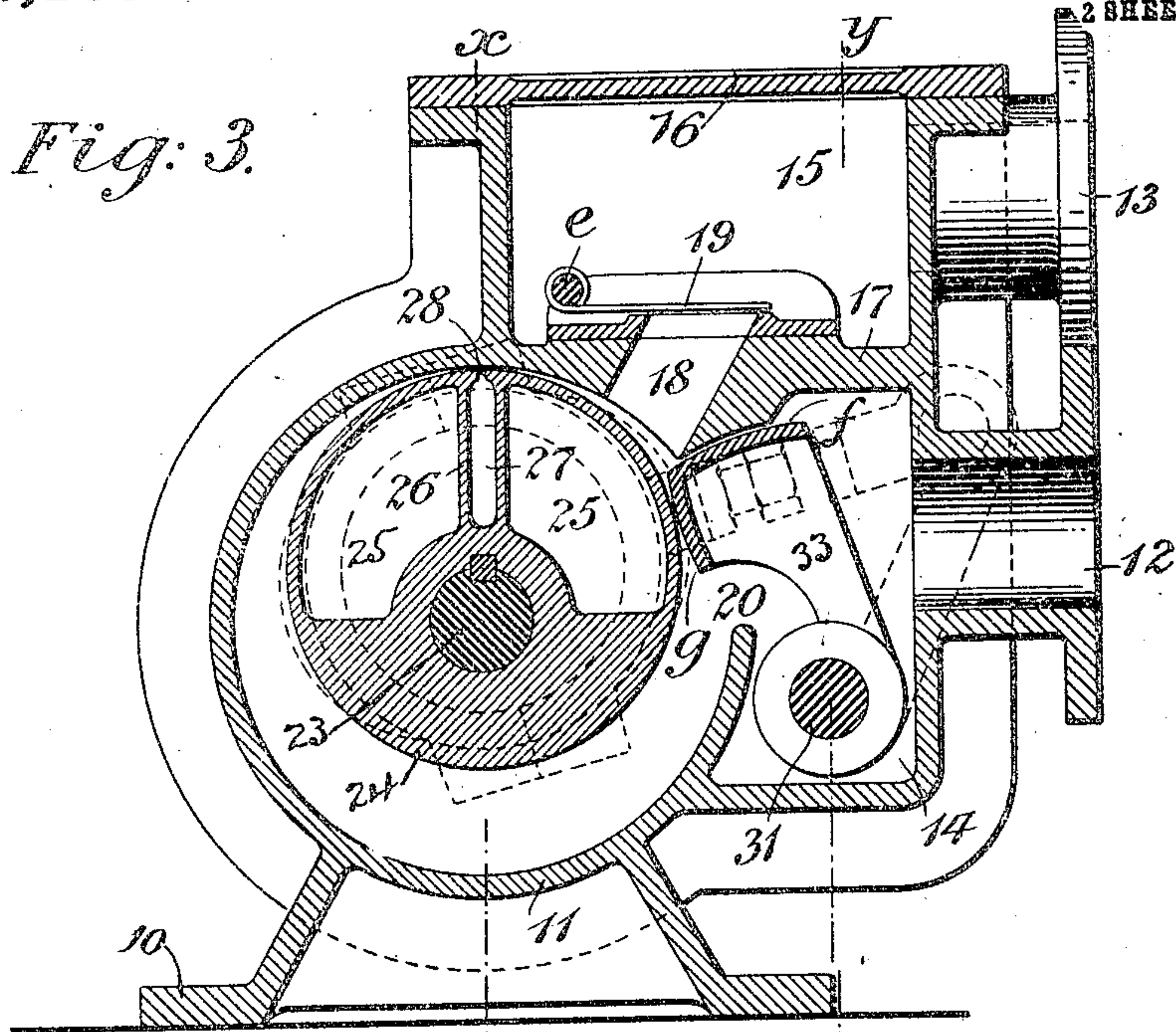
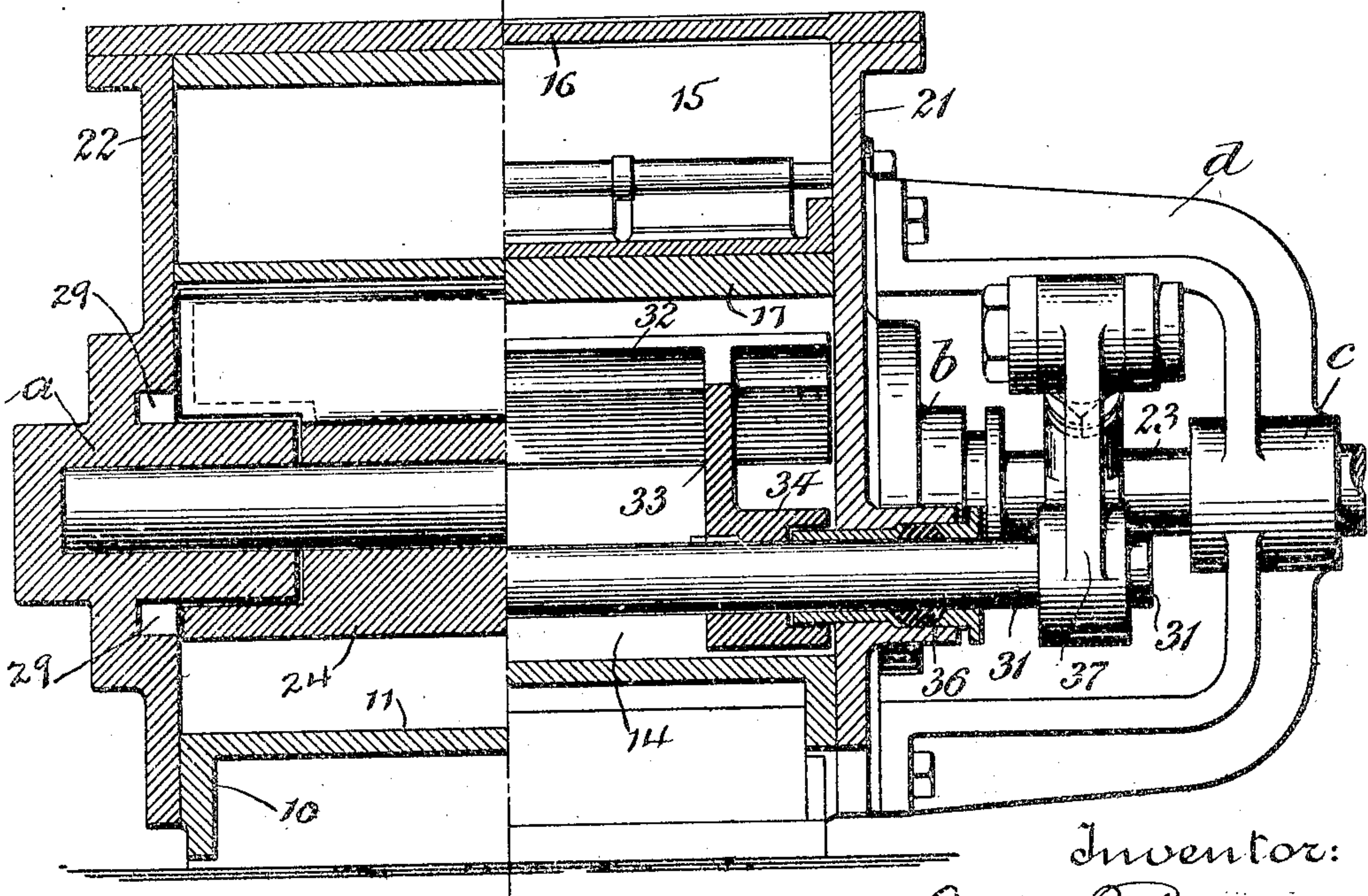


Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS L. PRATT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO C. H. WHEELER MANUFACTURING CO., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PUMP.

No. 922,139.

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Patented May 18, 1909.

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To all whom it may concern:

Be it known that I, LOUIS L. PRATT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Pumps, of which the following is a specification.

My present invention relates to pumps and particularly to rotary pumps of the revoluble drum type, and the primary object of the invention is the provision of a pump of the class to which this invention relates, in which there is an appreciable clearance between the actual moving working parts, thereby eliminating the friction between these parts in all cases, whether the pump is used as a wet vacuum pump or a blower, or a compressor, to and for all of which purposes it may be employed.

In carrying out my invention, I provide a base and body member comprising a pump cylinder and having suction and discharge connections and suction and discharge chambers, a rotary drum and a movable means following the periphery of the drum and adapted to form a partition between the said suction and discharge chambers; and in my improved pump I may also employ means for forming a liquid seal between the surface of the bore of the cylinder and the adjacent portion of the revoluble drum, all of which will be hereinafter more particularly described.

In the drawing, Figure 1 is a side elevation of my improved pump. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical section taken through the center of the suction connection and Fig. 4 is a divided section, the right hand portion of which is taken on the line y, y , Fig. 3, while the left hand portion thereof is taken on line x, x , Fig. 3.

Referring particularly to the drawing, 10 designates a base connected to which and made integral therewith, is the body of the pump comprising a cylinder 11, a suction connection 12, a discharge connection 13, a suction chamber 14 and a discharge chamber 15. Secured to the upper portion of the body member and inclosing the discharge chamber 15 is a cover 16. Between the suction chamber 14 and discharge chamber 15 there is a horizontally disposed wall 17 preferably provided with a series of discharge parts 18 normally closed by a series of discharge valves 19, which may be of any de-

sired type and which as illustrated are 55 mounted on a valve-rod e passing through the sides 21 and 22 of the pump and secured in position by means of the nuts e^1 or otherwise, and communication is provided for between the suction chamber 14 and the interior of the cylinder 11 by means of a passage 20.

23 designates a shaft which at one end is journaled in a bearing a provided therefor in the side member 22 of the pump; the side member 21 being provided with a packing gland b through which the shaft 23 passes, and the opposite end of this shaft is journaled in a bearing c provided therefor in a bracket d which is suitably connected to and supported from the side member 21 of the pump.

Interiorly of the cylinder 11 a drum 24 is mounted eccentrically on the shaft 23 and is secured in position thereon by a suitable key or otherwise. This drum 24 is preferably closed at its ends and is partially hollow, having cavities 25 therein which are so constructed that when the drum is placed in position on the shaft it will be equally balanced thereon. Centrally disposed between the cavities 25 in the drum 24, I preferably provide a pair of parallel walls 26 between which there is formed a chamber 27 and running along the surface of the drum there is a slot 28 which communicates with the chamber 27. At each end of the drum 24 there is provided—preferably in the sides of the pump—an annular recess or space 29 to which supply pipes 30 are connected. The annular space 29 is of such height as to communicate with the base of the chamber 27 and by means of the supply pipes 30 the water or other liquid is conveyed to the annular space 29 to effect a liquid seal at the end of the drum, the water or other liquid then passing from the said space 29 to the chamber 27 and by the centrifugal action of the rotating drum 24 this water or other liquid is ejected through the slot 28. against the surface of the bore of the cylinder in order to provide a liquid seal between the same and the drum, between which as hereinbefore indicated, there is an appreciable clearance, that is to say, the radius of the bore of the cylinder is slightly greater than the longest radius of the drum 24 which, as will be understood, passes through the slot 28. 31 designates an auxiliary shaft, one end

of which is journaled in a bearing 35 provided therefor in the side member 22 of the pump, and this auxiliary shaft 31 also passes through a gland or stuffing-box 36 provided therefor in the side 21.

32 designates a swinging partition, the operative faces *f g* of which are preferably at an angle to one another and the surface of each of which is slightly curved. This swinging partition 32 is provided with arms 33 and hub members 34 which are keyed or otherwise secured to the auxiliary shaft 31, and on that portion of the auxiliary shaft extending beyond the gland 36 there is mounted a crank arm 37.

On the shaft 23 and in alinement with the crank arm 37 there is mounted an eccentric 38 provided with the customary eccentric straps 39 on the exterior of which there is a head 40, and 41 is a head pivotally mounted on the free end of the crank-arm 37 and connecting the heads 40 41 is a right and left screw-threaded pin 42 connected in and to the said heads 40 and 41 and provided with the nuts 43, 44, and 45 as shown, whereby the distance between the heads 40 and 41 may be regulated or adjusted.

It will be understood that there is an appreciable clearance between the face *f* of the swinging partition and the adjacent surface of the depending portion of the wall 17 and also that the nuts on the pin 42 are so adjusted that there is also a clearance between the face *g* of the swinging partition and the adjacent surface of the drum 24, and that by means of the eccentric 38 and the connection therefrom through the head 40 41, the pin 42, crank-arm 37 and the auxiliary shaft 31, the swinging partition is caused to follow the eccentric movement of the drum so that this clearance space is constant at all points in the revolution of the drum; it being understood that I may employ means other than those hereinbefore described and shown in the drawings for accomplishing this purpose without departing from the nature and spirit of my invention.

I claim as my invention:

1. A pump comprising a base, a body member including a cylinder and suction and discharge chambers, a revoluble drum mounted and adapted to turn within said cylinder, the said drum being provided with a longitudinal chamber and a slot in its periphery communicating with said chamber, and means for supplying a liquid to said longitudinal chamber, the said liquid effecting a seal at the end of the drum before reaching the said longitudinal chamber.

2. A pump comprising a base, a body member including a cylinder and suction and discharge chambers, a revoluble drum mounted and adapted to turn within the said cylinder, the said drum being provided with a longitudinal chamber on one side of its axis

and a slot in its periphery communicating with the said chamber, there also being provided an annular recess at the end of said drum also communicating with said chamber, and means for supplying a liquid to the said annular recess.

3. A pump comprising a base, a body member, including a cylinder and suction and discharge chambers, a revoluble drum mounted and adapted to turn within the said cylinder, the said drum being provided with a longitudinal chamber on one side of its axis and a slot in its periphery communicating with the said chamber, there also being provided an annular recess at the end of said drum also communicating with said chamber, means for supplying a liquid to the said annular recess, and a moving partition between the said suction and discharge chambers.

4. A pump comprising a base, a body member including a cylinder and suction and discharge chambers, a revoluble drum mounted and adapted to turn within the said cylinder, the said drum being provided with a longitudinal chamber on one side of its axis and a slot in its periphery communicating with the said chamber, there also being provided an annular recess at the end of said drum also communicating with said chamber, means for supplying a liquid to the said annular recess, a swinging partition between the said suction and discharge chambers, and means for actuating the said swinging partition so as to cause the same to follow the surface of the said drum in its revolution.

5. A pump comprising a base, a body member including a cylinder and suction and discharge chambers, a shaft, a drum mounted eccentrically thereon and adapted to turn within the said cylinder, the said drum being provided on one side of its axis with a longitudinal chamber and the surface of the drum being provided with a slot communicating with the said chamber, there also being provided at the ends of the said drum annular recesses communicating with the said longitudinal chamber, means for supplying a liquid to the said annular recesses, a swinging partition between the said suction and discharge chambers, and means for actuating the same from the said shaft.

6. A pump comprising a base, a body member including a cylinder and suction and discharge chambers, a shaft, a drum mounted eccentrically thereon and adapted to turn within the said cylinder, the said drum being provided on one side of its axis with a longitudinal chamber and the surface of the drum being provided with a slot communicating with the said chamber, there also being provided at the ends of the said drum annular recesses communicating with the said longitudinal chamber, means for supplying a liquid to the said annular recesses, an

auxiliary shaft, a swinging partition between the said suction and discharge chambers, the said partition being connected to and adapted to be swung by the said auxiliary shaft, and
 5 means for actuating the said auxiliary shaft to so swing the said partition as to cause the same to follow the periphery of the said drum in its revolution.

7. A pump comprising a base, a body
 10 member including a cylinder and suction and discharge chambers, a shaft, a drum mounted eccentrically thereon and adapted to turn within the said cylinder, the said drum being provided on one side of its axis
 15 with a longitudinal chamber and the surface of the drum being provided with a slot communicating with the said chamber, there also being provided at the ends of the said drum annular recesses communicating with the
 20 said longitudinal chamber, means for supply-

ing a liquid to the said annular recesses, an auxiliary shaft, a swinging partition between the said suction and discharge chambers, the said partition being connected to and adapted to be swung by the said auxiliary shaft, a
 25 crank-arm connected to the said auxiliary shaft exteriorly of the body of the pump, an eccentric mounted on the said shaft and an adjustable connection between the said eccentric and the said crank-arm whereby the
 30 said partition is swung from the said shaft and the distance between the said partition and drum may be regulated.

Signed by me this 28th day of December, 1908.

LOUIS L. PRATT.

Witnesses:

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 WM. B. SOUDER.