

(No Model.)

J. N. MOEHN.
LIFT PUMP.

No. 505,276.

Patented Sept. 19, 1893.

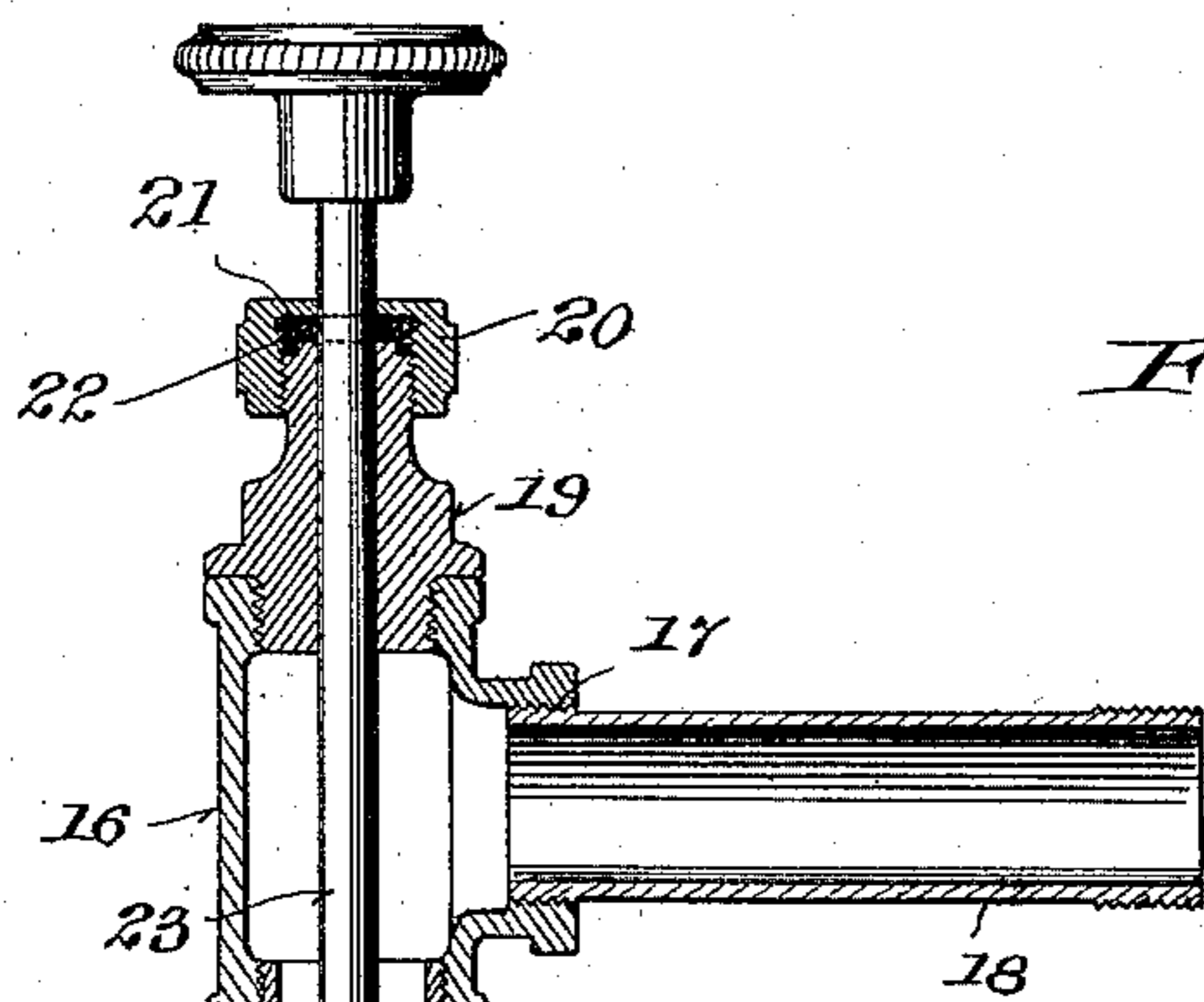


Fig. 1.

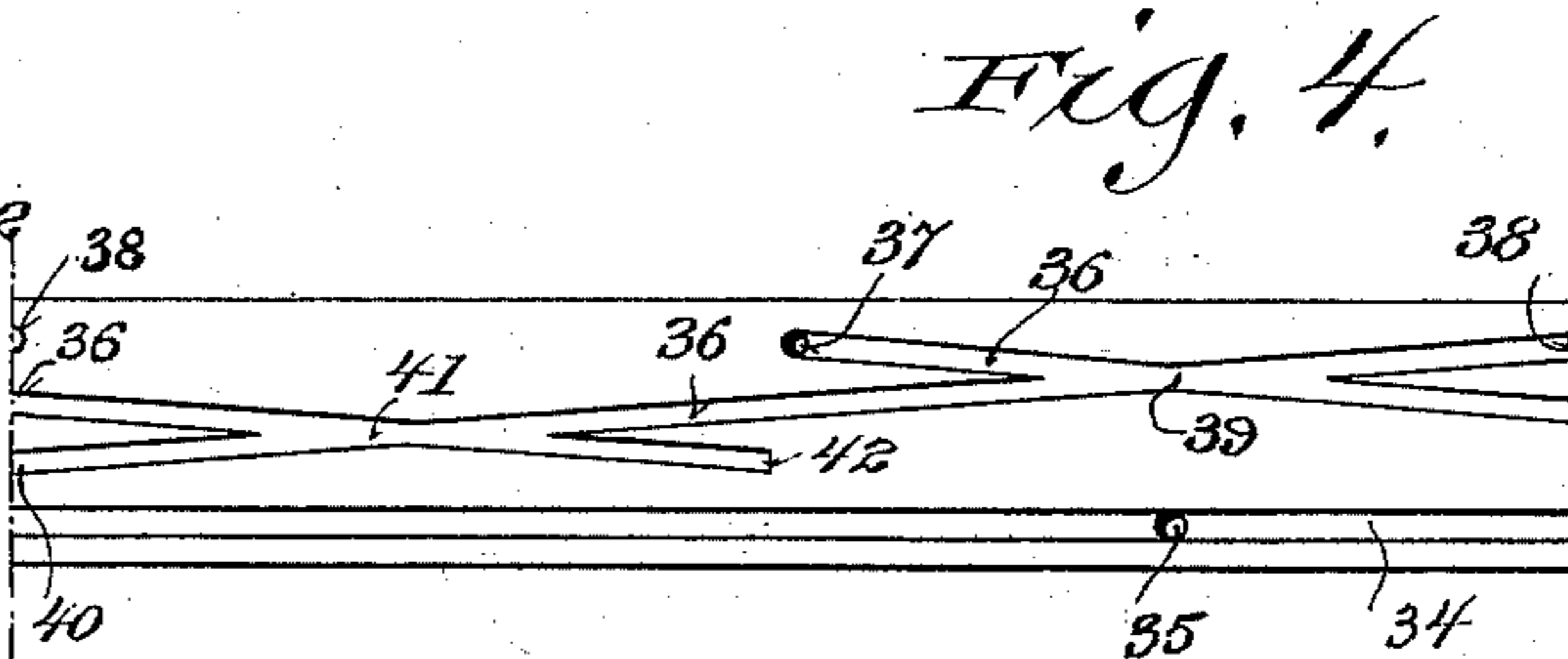


Fig. 4.

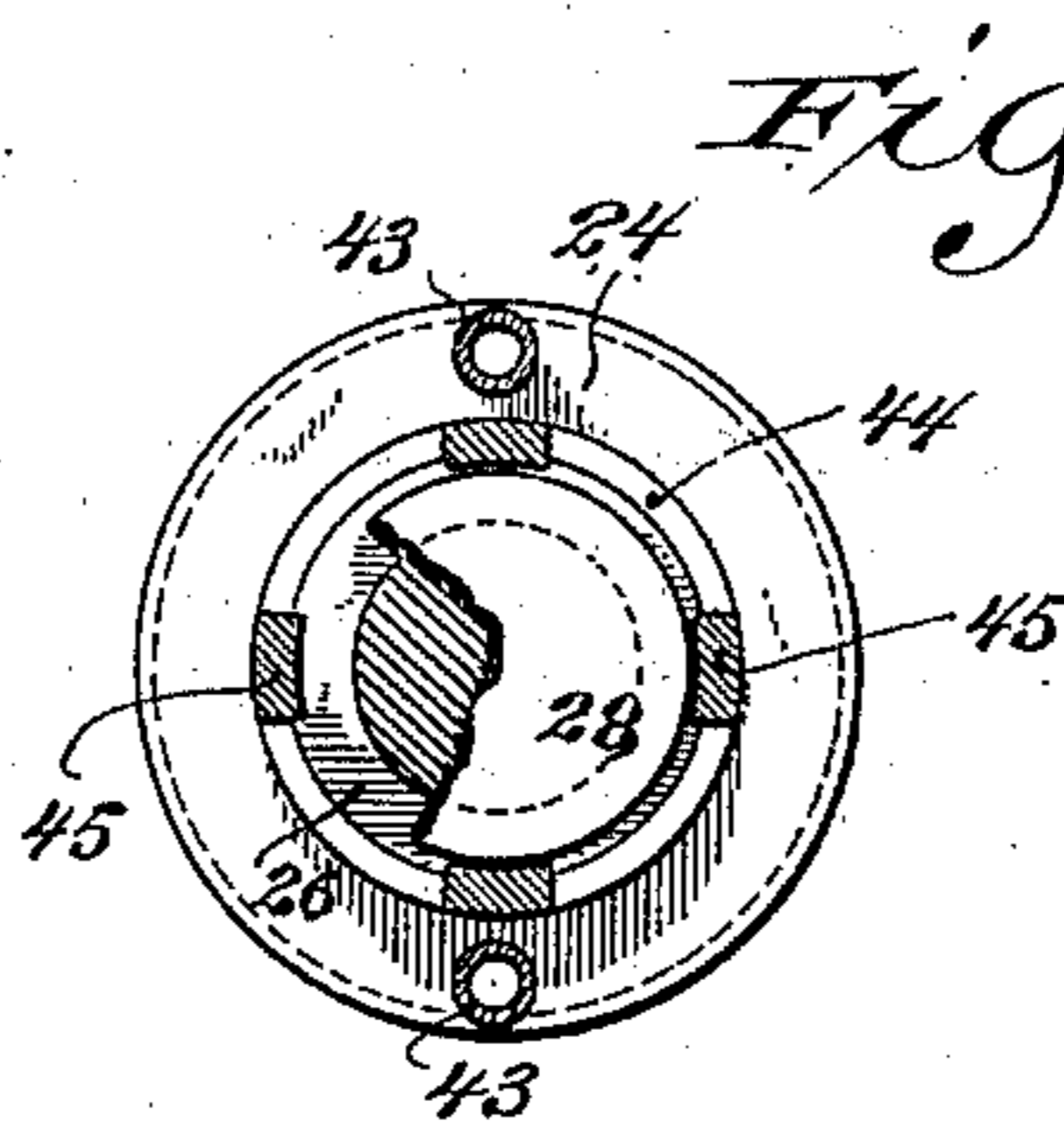


Fig. 2.

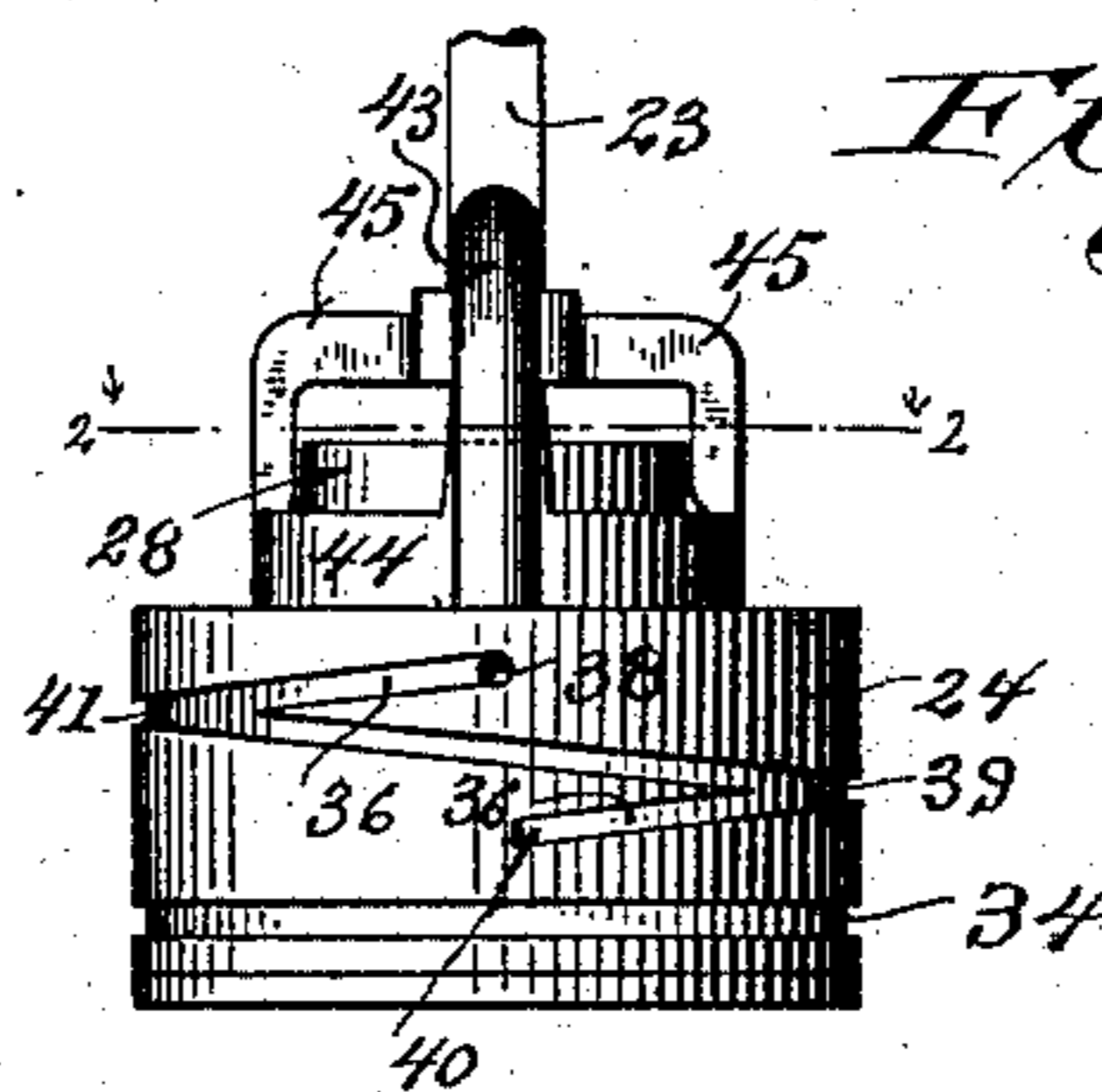


Fig. 3.

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JOHN N. MOEHN, OF DRUECKER, ASSIGNOR OF TWO-THIRDS TO ERNST A. WEIDNER AND JACOB MERGENTHALER, OF MILWAUKEE, WISCONSIN.

LIFT-PUMP.

SPECIFICATION forming part of Letters Patent No. 505,276, dated September 19, 1893.

Application filed April 1, 1893. Serial No. 468,638. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. MOEHN, of Druecker, in the county of Ozaukee and State of Wisconsin, have invented a new and useful
5 Improvement in Lift-Pumps, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements
10 in lift pumps for conducting or removing water from a cistern, or other reservoir.

The object of the device is to provide a pump of the above character which will perform its work in an efficient and expeditious
15 manner, and at the same time provide an automatic water packing for the piston.

With the above primary object in view the invention consists in the improved construction hereinafter more fully set forth.

20 In the accompanying drawings, Figure 1, is an elevation of the device, parts being sectioned and broken away to show interior construction. Fig. 2, is a horizontal sectional view on the line 2—2 Fig. 3, part of the valve
25 top being broken away. Fig. 3, is a detail elevation of the piston. Fig. 4, is a plan view showing the cylindrical piston spread out as a flat surface, to illustrate clearly the arrangement of the grooves therein.

30 Like numerals of reference denote like parts in the several views of the drawings.

Referring to the drawings, the numeral 1 indicates the outer cylinder, and 2 and 3, respectively, the top and bottom caps of said
35 cylinder, the former provided with a centrally apertured screw-threaded boss 4. The lower cap is of approximately conical form, and is provided with a threaded flange 5 for attachment to the cylinder. The cap is also
40 provided with a central conical aperture 6, and upon its top surface is formed with an annular groove 7, which receives a suitable washer 8. A conical valve 9 is fitted in the conical opening and the upper end of this
45 valve is provided with an enlarged headed portion or shoulder 10, which is adapted to rest upon the central annular shoulder 11 formed by the groove 7.

Connected to the lower end of cap 3 by
50 threads is a pipe 12, which extends up into the cap in such manner as to form a seat for

the lower end of the valve. From the construction just described, it will be seen that valve 9 has a seat at its upper end by reason of the headed portion 10 resting upon the annular shoulder 11, also a seat at its lower end
55 on the upper end of pipe 12, and a seat formed by the contacting conical surfaces intermediate the two extremities. The upward movement of valve 9 is limited by a cap, which
60 consists of an annular band or ring 13, with arms 14, 14 crossing each other centrally, the ends of said arms being bent down and connected with the upper edge of the band or ring at diametrically opposite points. It will be
65 noticed that the ring 13 is threaded to engage threads upon the annular shoulder 11. The arms 14, 14 not only afford a convenient means for screwing the cap into place, and unscrewing the same, but furthermore act as
70 a limiting stop to the upward movement of the valve. A pipe 15 having its opposite ends threaded is adapted to engage at its lower end with the threaded opening of the boss 4 of cap 2. The upper threaded end of this
75 pipe is connected to the lower threaded opening of a cylinder 16, said cylinder having a lateral passage or opening 17 to which a discharge pipe 18 is secured by a threaded connection. A cap or cover 19 fits the upper
80 threaded opening of cylinder 16, and this cap or cover in turn has secured to its upper end a nut 20, in which is arranged a chamber 21 for receiving a suitable packing 22.

Passing through a central opening in the
85 nut 20, through a registering opening in the cap or cover 19, through the cylinder 16, through the pipe 15, and entering the cylinder 1 for a suitable distance, is a piston-stem 23. This stem carries on its lower end, within
90 the cylinder, a piston 24 of the peculiar form which will now be fully described. This piston is provided with a central conical opening 25, and upon its top with an enlarged exteriorly-threaded boss or shoulder 26. A
95 conical valve 27, similar in all respects to valve 9, and provided upon its upper end with a headed portion 28, rests upon the boss or shoulder 26. The under side of the piston is provided with an annular packing cham-
100 ber 29, in which a suitable packing material 30 is placed, the annular chamber being

closed, and the packing held in place, by means of a disk or plate 31, having a central aperture bordered by an inwardly-extending annular threaded flange 32, which takes into
 5 threads formed upon a central boss 33. The circular or circumferential surface of the piston is provided with an annular groove 34 in which an aperture 35 is formed, said
 10 aperture leading to the packing chamber 29. Above this annular groove are arranged inclined grooves 36, 36. Particular attention is called to Fig. 4 of the drawings for an understanding of this construction, said
 15 figure representing the cylindrical surface of the piston spread out flat. The initial points of these grooves start with apertures 37 and 38. From these apertures said grooves extend at inclines and cross each other first at
 20 the point 39. If now, we trace the groove running from aperture 38, we will find that it winds around the piston at an incline and terminates at the point 40. The other groove starting from the aperture 37 winds around
 25 the piston in a similar manner, first crossing at 39, as above explained, and next crossing near the terminal end 40 of the other groove, at 41, and having its terminal point at 42. Communicating with the apertures 37 and 38
 30 are two pipes 43, 43, which extend up into the cylinder from the top surface of the piston, their upper ends being curved inward slightly. An annular band or rim 44, similar to 13, has a screw-threaded connection with the boss 26, while crossed arms 45, 45 have their ends
 35 bent down to connect at diametrically opposite points with the upper edge of the band or ring. At the point where the arms 45, 45 cross, they are provided with a threaded aperture 46 which receives therein the lower
 40 threaded end of the piston stem, and is the means for securing said piston stem to the piston. The horizontal portions of arms 45, 45 serve as a limiting stop to the upward movement of valve 27. By unscrewing the
 45 threaded band or ring 44 access may also be obtained to the valve.

In the operation of my device, after the pipe 12 has been inserted in the reservoir, or other receptacle, the first uplifting of the piston will
 50 cause the lower valve 9 to be opened, and the water to be drawn into cylinder 1. On the down stroke of the piston, valve 9 will be closed, thus shutting off the inflow of water, and valve 27 opened, thus allowing for the
 55 free passage of the water above the piston. The next upstroke of the piston will close valve 27 and at the same time open valve 9, and elevate the water a sufficient distance for its discharge through the pipe 18. Contin-
 60 ued manipulations of the piston stem will, in

this manner, cause a rapid outflow of the water through the discharge pipe. When the water above the piston has reached a certain height it will pass down the pipes 43, and as these
 65 pipes communicate with the grooves 36, said water, by reason of the inclinations of the grooves, will pass freely around the same, and thus afford a tight water packing for the piston. Any water that may pass between the circum-
 70 ferential edge of the piston and the inner side of the cylinder on the down-stroke of the piston will be caught by the annular groove 34, and from said groove it will pass through the aperture 35 into the chamber 29 and thus
 75 thoroughly moisten the packing contained therein. This is advantageous inasmuch as it serves, to some extent, to lubricate the piston, which is often desirable at the outset of the operation of pumping. The packing be-
 80 ing kept continually wet the water from the same will have a tendency to ooze out of the aperture 35 into the groove 34.

The valve 27 besides having a seat at its upper end on the shoulder 26, and a seat formed by its conical surface contacting with
 85 the metal surrounding the conical opening of the piston, may also have a seat for its lower end, on an annular shoulder 47. In case of valve 9 instead of its lower end seating itself upon the upper end of pipe 12, an annular
 90 shoulder similar to 47 may be provided. It is to be understood, however, that this lower seat for both valves may be omitted if preferred.

Having thus described my invention, what I claim, and desire to secure by Letters Pat-
 95 ent, is—

1. In a lift pump, the combination, of a cylinder, a piston and piston stem, the former provided with an exterior apertured annular
 100 groove, and with a bottom chamber to receive packing, the aperture communicating with said chamber, and inlet and outlet openings for the cylinder, substantially as set forth.

2. In a lift pump, the combination, of a cylinder, a piston and piston-stem, the former provided with inclined grooves, said grooves communicating with openings or recesses at
 105 their initial or starting points, pipes extending upwardly from the piston and having their lower ends communicating with the openings or recesses leading to the grooves, and inlet and outlet pipes for the cylinder, substantially as set forth.

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

JOHN N. MOEHN.

Witnesses:

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