

No. 775,117.

PATENTED NOV. 15, 1904.

J. W. PARK.
PUMP.

APPLICATION FILED OCT. 18, 1902.

NO MODEL.

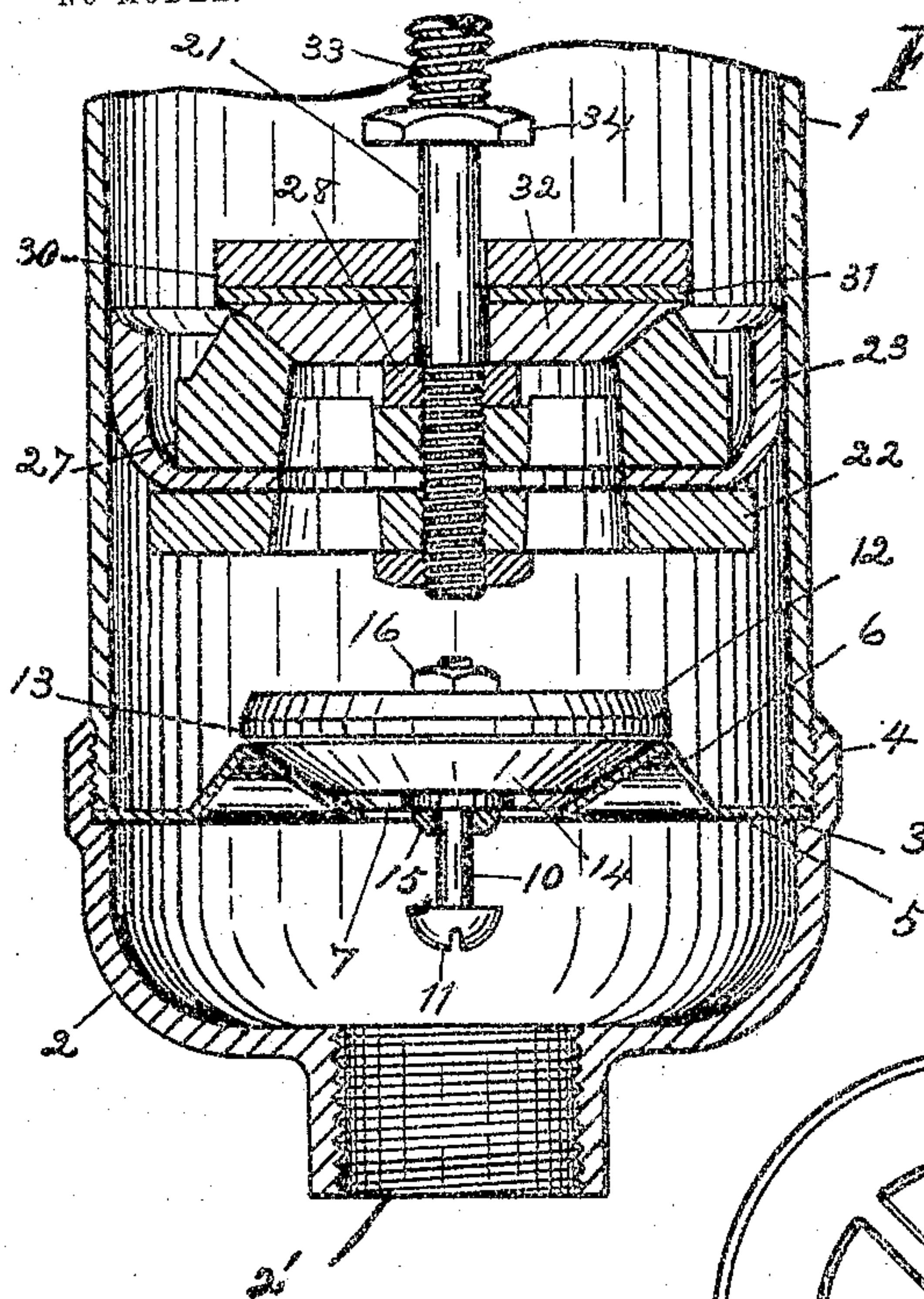


Fig. 1.

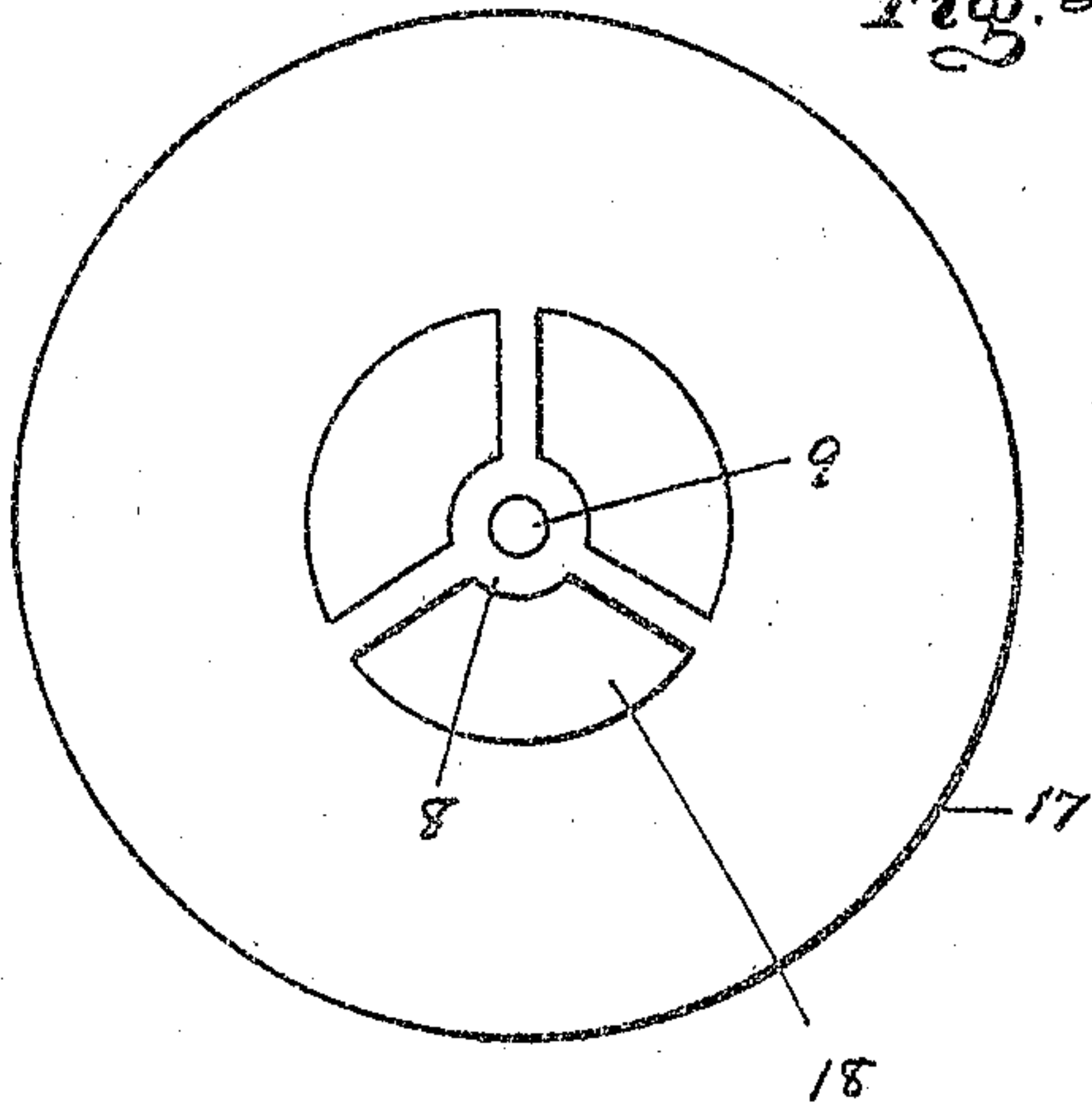


Fig. 2.

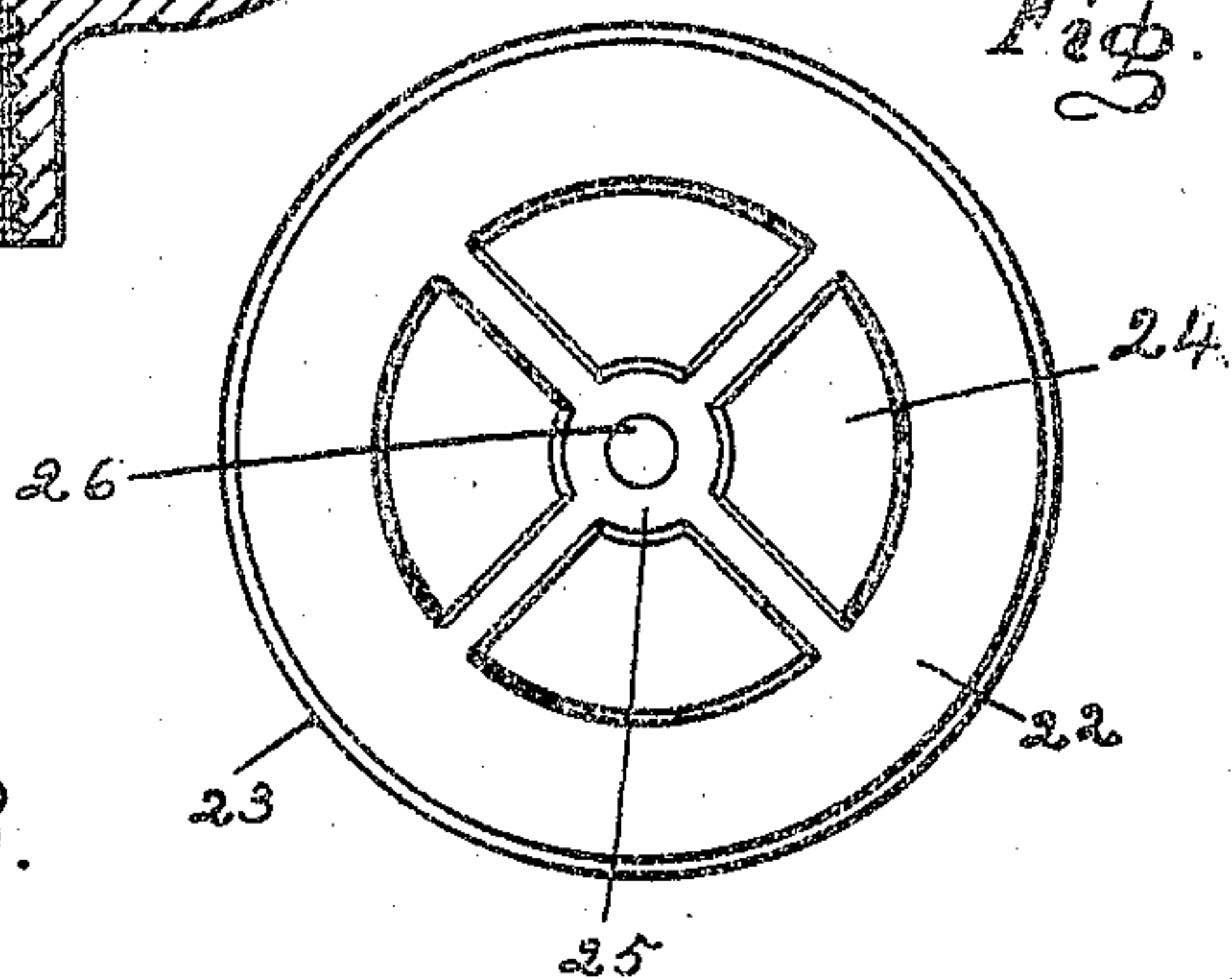


Fig. 3.

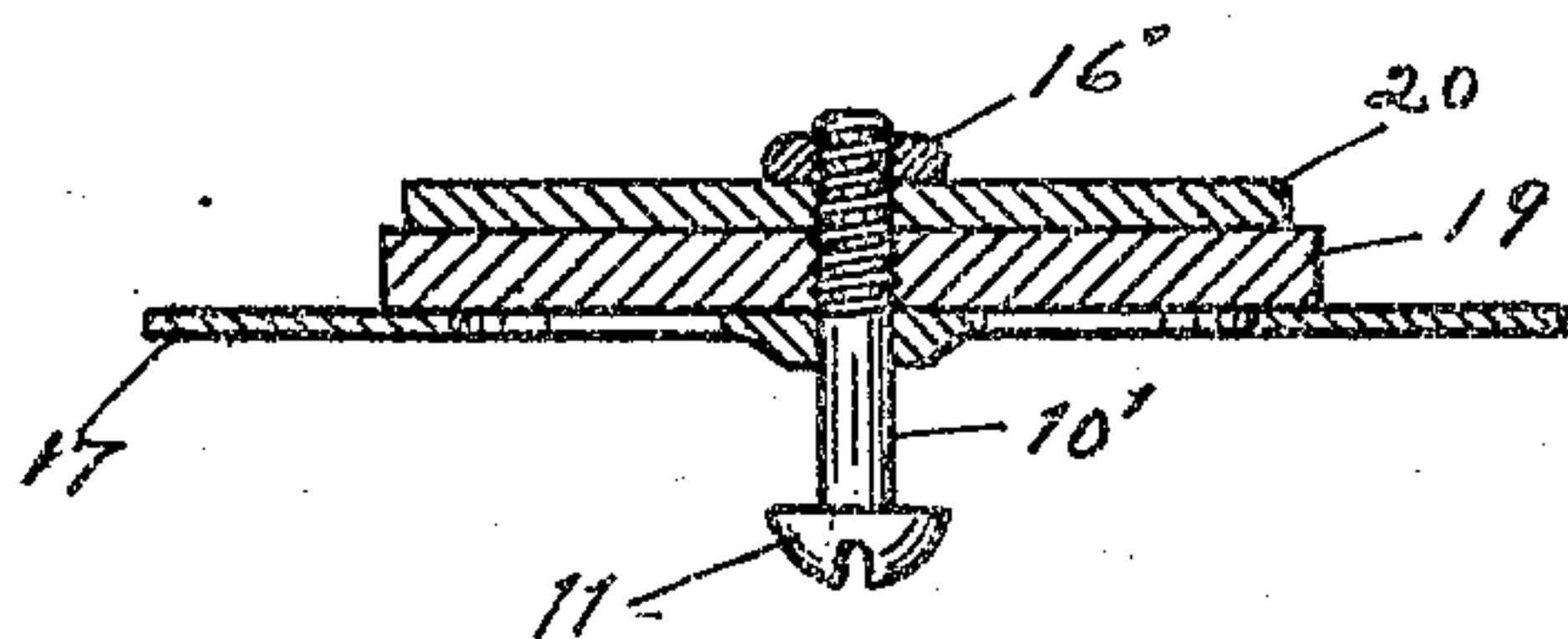


Fig. 4.

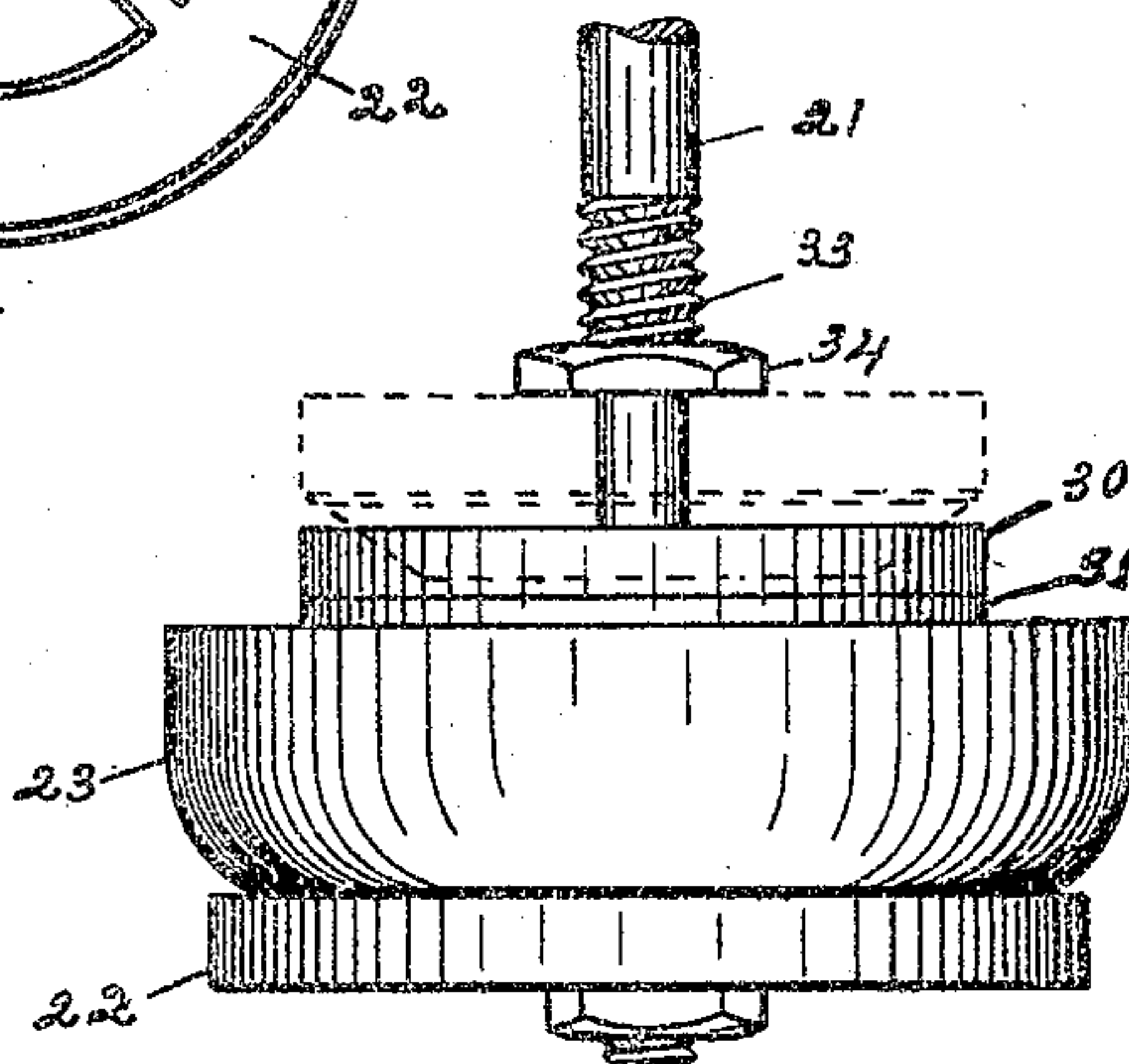


Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN W. PARK, OF KENDALLVILLE, INDIANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 775,117, dated November 15, 1904.

Application filed October 16, 1902. Serial No. 127,528. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PARK, a citizen of the United States, residing at Kendallville, in the county of Noble, in the State of Indiana, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in pumps.

The object of my present invention is to provide a pump having an improved form of cylinder check-valve and provided with an improved form of plunger having a check-valve which by its perpendicular action clears its seat of sand or other foreign substances at each stroke of the plunger.

My invention consists of a pump having a check-valve of the puppet-valve type whose valve-seat is removable and provided with a cooperating plunger of common form having a vertically-movable check-valve which clears its seat at each operation thereof.

The principal novel features of my present invention reside in the construction and arrangement of the check-valve and the cooperating plunger.

Similar reference-numerals indicate like parts throughout the accompanying drawings, in which—

Figure 1 is a vertical central section of a pump-cylinder in which my invention is operatively mounted, showing the check-valve seat and the plunger also in vertical central section. Fig. 2 is a plan view of the modified form of valve-seat shown in Fig. 3, showing the concentric spider in which the check-valve stem is loosely mounted. Fig. 3 is a vertical central section of a slightly-modified form of my improved check-valve. Fig. 4 is a bottom plan of my improved plunger, showing the radial inlet-openings therein with the holding-nut removed. Fig. 5 is a side view of the same, showing the valve in

dotted outline in the upper limit of its movement.

The cylindrical valve-casing 1 has its open lower end closed by a removable cap 2 of common form, secured in position by a screw-threaded connection, as shown. This cap 2 has an annular shoulder 3 upon its inner face to support the circular valve-seat plate hereinafter described and has an upright internally-screw-threaded flange 4, which is detachably connected to the lower end of the cylinder 1.

The cap 2 has a proper inlet-opening 2' at its lower end, as usual. The upper end of the cylinder 1 is closed by a similar or other proper cap, as usual.

Referring now particularly to Fig. 1, the valve-seat plate 5, preferably stamped from a single piece of sheet metal, has a concentric raised bead 6, whose inner inclined face forms the valve-seat, is provided with a central opening 7 of proper size, in which is arranged an integral spider 8, Fig. 2, having a central opening 9, adapted to loosely receive the valve-stem 10. This valve-stem 10 is preferably a screw loosely mounted in the said spider-opening 9, having a head 11 upon its lower end and has fixed upon its upper screw-threaded end the puppet-valve, shown in two modified forms, the preferred form being the one shown in Fig. 1, consisting of the circular brass plate 12, the rubber packing-disk 13, and a second rubber disk 14, having an inclined face coincident with the valve-seat 6, on which it normally rests. The disks 13 and 14 may of course be made of one piece instead of two pieces. These rubber disks and the metal plate 12 are firmly secured in position by means of a nut 15 on the bottom thereof and a nut 16 on the top thereof. The spider 8 is preferably thickened about the opening 9 to aid in guiding the vertically-movable valve-stem 10.

The modified form of valve is shown in Fig. 3 and consists of a circular plate or disk 17, of any suitable material, and having a spider 8, above described, in a central opening 18 therein. In the central opening in said spider is loosely arranged the vertically-movable

valve-stem 10'. On the upper screw-threaded end of the stem 10' is fixed a solid-rubber disk 19 of proper size to normally close the said spider-openings of the plate 17. This disk 19 is then surmounted by a solid-metal plate 20. Both of these plates are fixed on the stem by a screw-threaded connection and are secured thereon by a proper holding-nut 16'.

It is obvious that either form of my improved valve can be readily secured in position by placing the valve-seat plate 5 or 17 upon the annular shoulder 4 and then screwing the barrel or cylinder down to its position, as shown. In use my improved valve thus has a free vertical play which is limited in its upward movement by the head 11 of the guiding-stem.

The construction of valve just described is substantially the same as illustrated, described, and claimed in my prior patent, No. 701,607, dated June 3, 1902.

My improved plunger is constructed as follows: The plunger-rod 21 has its lower end screw-threaded, as shown, and has an annular plate or disk 22, preferably of metal, mounted thereon by a screw-threaded connection. Upon this plate 22 is arranged the cup-shaped annular leather washer 23 of common form. This metal plate 22 has a plurality of central openings 24, Fig. 4, and an integral spider 25, having a central opening 26 for the plunger-rod 21. Upon the washer 23 is arranged a second metallic plate 27, having central openings coincident with those of the plate 24 and is provided upon its upper face with an inclined annular face forming a valve-seat for the vertically-movable valve about to be described. This plate 27 is firmly secured in position by means of the nut 28. On the plunger-rod 21 is loosely mounted the vertically-movable check-valve consisting of a solid circular metal plate 30, centrally apertured for the rod 21, a rubber disk 31, secured to the lower face of the plate 30, and a second rubber disk 32, secured to the lower face of the disk 31 and having its lower face beveled, as shown, to snugly fit its inclined seat by a wedging action when the valve closes. The plunger-rod is provided at a proper point with a screw-threaded portion 33, on which is arranged a nut 34, adapted to limit the upward movement of the check-valve in use.

The operation of my invention thus described is obvious and requires no particular description.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a pump, the combination with a casing having a check-valve in its lower end, of a plunger arranged in said casing and comprising a rod having its lower end screw-threaded, a perforated plate arranged upon the screw-threaded end of said rod, a washer arranged

upon said plate, a second perforated plate arranged upon said washer and between which and the first-mentioned plate the washer is interposed, said second plate having an inwardly-extending beveled valve-seat upon its upper face, holding-nuts arranged upon the threaded end of said rod and above and below said plates, whereby the latter and the washer are clamped together and held upon said rod, a valve slidably mounted upon said rod and coacting with the valve-seat of the second plate, the upper holding-nut being arranged at a point upon said rod within the second plate and below the beveled valve-seat of said plate, whereby said nut is removed from the path of movement of the valve to permit the valve positively seating, and means carried by said rod above said valve for limiting movement of the latter upon said rod.

2. In a pump, the combination with a casing having a check-valve in its lower end, of a plunger arranged in said casing and comprising a rod having its lower end screw-threaded, a perforated plate arranged upon the screw-threaded end of said rod, a washer arranged upon said plate, a second perforated plate arranged upon said washer and between which and the first-mentioned plate the washer is interposed, said second plate having an inwardly-extending beveled valve-seat upon its upper face, holding-nuts arranged upon the threaded end of said rod and above and below said plates, whereby the latter and the washer are clamped together and held upon said rod, a valve slidably mounted upon said rod and coacting with the valve-seat of the second plate, the upper holding-nut being arranged at a point upon said rod within the second plate and below the beveled valve-seat of said plate, whereby said nut is removed from the path of movement of the valve to permit the valve positively seating, and a nut arranged upon said rod above said valve for limiting movement of the latter upon said rod.

3. In a pump, the combination with a casing having a check-valve in its lower end, of a plunger arranged in said casing and comprising a rod having its lower end screw-threaded, a perforated plate arranged upon the screw-threaded end of said rod, a washer arranged upon said plate, a second perforated plate arranged upon said washer and between which and the first-mentioned plate the washer is interposed, said second plate having an inwardly-extending beveled valve-seat upon its upper face, holding-nuts arranged upon the threaded end of said rod and above and below said plates, whereby the latter and the washer are clamped together and held upon said rod, a valve slidably mounted upon said rod and comprising a plate, a disk arranged beneath said plate, and a beveled disk arranged beneath the first-mentioned disk and coacting with said inclined valve-seat, the upper holding-nut being ar-

5 ranged at a point upon said rod within the second perforated plate and below the beveled valve-seat of said plate, whereby said nut is removed from the path of movement of the valve to permit the valve positively seating, and means carried by said rod above said valve for limiting movement of the latter upon said rod.

Signed by me at Kendallville, in the county of Noble and the State of Indiana, this 13th day of October, A. D. 1902.

JOHN W. PARK.

Witnesses:

LEE BARRON,
R. S. MOSES.