(No Model.)

J. H. KESTER.

PUMP.

No. 581,936. Patented May 4, 1897.

Fig. 1

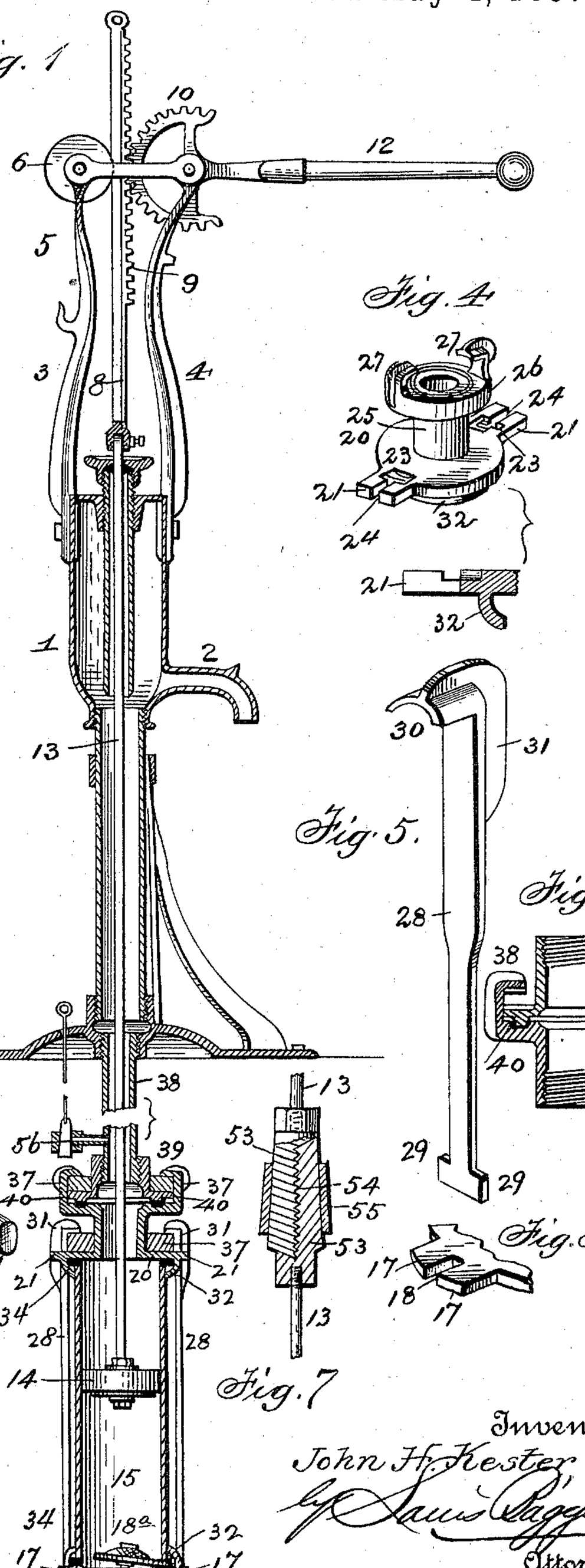

Fig. 3.

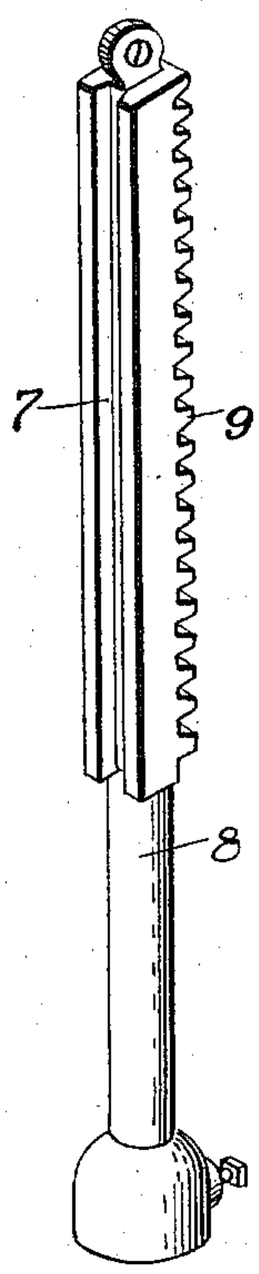

Fig. 4

Fig. 5.

Fig. 9.

Fig. 2

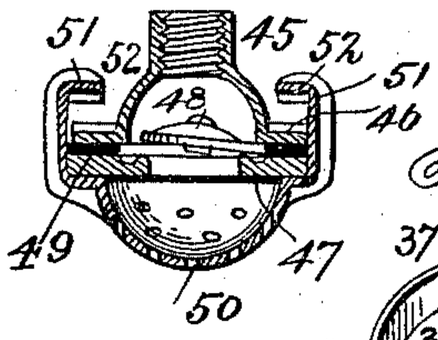

Fig. 6.

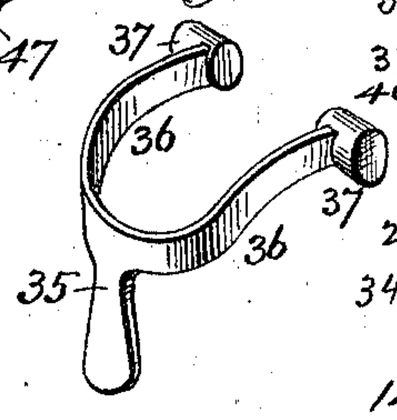

Fig. 7

Fig. 8.

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UNITED STATES PATENT OFFICE.

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PUMP.

SPECIFICATION forming part of Letters Patent No. 581,936, dated May 4, 1897.

Application filed August 3, 1896. Serial No. 601,526. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. KESTER, a citizen of the United States, and a resident of Winston, in the county of Forsyth and State of North Carolina, 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 a part of this specification.

My invention relates to lift or force pumps; and its object is to provide an improved construction of coupling or joint whereby the use of screws or bolts is dispensed with for connecting the different parts together, so that they can be readily detached and the pump taken apart when desired. It is also an object to provide an improved connection for the pump and plunger rods and improved means for reciprocating the pump-rod to operate the plunger.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a lift-pump constructed in accordance with my invention. Fig. 2 is a similar view of the foot-valve at the lower end of the suction-pipe. Fig. 3 is a detail perspective view of the rack-bar for operating the pump-rod. Fig. 4 is a detail perspective view of the coupling for securing the upper head of the pump-cylinder in place. Fig. 5 is a detail perspective view of the connecting-rod. Fig. 6 is a perspective view of the eccentric-lever. Fig. 7 is a detail sectional view of the plunger-rod connection. Fig. 8 is a detail perspective view of the lugs of the lower cylinder-head. Fig. 9 is a detail sectional view of the pump barrel or pipe and the pump-cylinder connection or coupling.

In the said drawings, the reference-numeral 1 designates the pump-barrel, the lower end of which is adapted to be secured to a well-platform, and is provided with a spout 2. At the upper end are secured two standards 3 and 4, connected together at the upper ends by a cross-piece 5. Pivoted to the standard 3 is a roller 6, which engages with a groove 7 in the upper end of the pump-rod 8, the opposite side of which is provided with rack-teeth 9. Engaging with these rack-teeth is a cogged segment 10, pivoted to the upper end of standard 4 and provided with a handle 12, by oscillating which the rod 8 is moved up and down. The lower end of the rod 8 is pivoted to the plunger-rod 13, provided with a plunger or piston 14, located in the pump-cylinder 15.

The numeral 16 designates the lower head of the cylinder, formed with diametrically opposite lugs 17, slotted or formed with a space 18. This head is provided with a check-valve 18ª with a screw-threaded aperture, with which is connected the suction-pipe 19.

The numeral 20 designates the upper cylinder-head, having diametrically opposite lugs 21, with a rectangular aperture 23 and an intersecting slot 24. It is also formed with a cylindrical portion 25, with an annular flange 26 at its upper end, formed with inwardly-extending curved lugs 27.

The numeral 28 designates connecting-bars for connecting the two heads and holding them in position. The lower ends of these rods are formed with lateral lugs 29, while the upper enlarged end is provided with an inwardly-extending curved lug 30, formed with a strengthening-rib 31. The inner sides of both the cylinder-heads are formed with flanges 32, and in connecting the heads together they are applied to the cylinder with washers 34 between them and the ends thereof.

The numeral 35 designates a lever bifurcated to form two curved arms 36, the ends of which are provided with outwardly-extending eccentrics 37. In connecting the heads together the rods or bars 28 are passed through the apertures 23 and the lower ends of the bars engaged between the lugs 17 of the lower cylinder-head, the lugs 29 of the rods engaging under the lugs 17 of the lower cylinder-head. The eccentrics of the lever 35 are then engaged with the curved lugs 30, and by pressing down upon the lever the upper cylinder-head and the said lugs will be pressed away from each other, causing the two cylinder-heads to be tightly secured to the cylinder. A reverse operation will disengage the heads from the cylinders.

The numeral 38 designates a pipe con-

nected with the pump-barrel and having at its lower end a coupling 39, provided at its lower end with a flange 40, having a circular rib 41 on its under side.

The numeral 42 designates a washer which fits in a groove 43 in the upper side of the flange 40. The said flange 40 is slipped over the flange 26 until the rib 41 coincides with the groove 43. The eccentrics of the lever 35 are then engaged between the lugs 27 and the flange 40, and the lever is then depressed, when the flange 40 will be tightly pressed upon the flange 26, making a tight joint. There will be three of these levers 35—one for the purpose just stated, one for connecting the cylinder-heads, and one for connecting the foot-valve with the suction-pipe, which will now be described.

The numeral 45 designates a coupling screwed to the lower end of the suction-pipe, provided with a flange 46, and the numeral 47 designates a disk provided with a foot-valve 48, a washer 49 being interposed between the flange and disk.

The numeral 50 designates a perforated cage having diametrically opposite curved lugs 51, with inwardly-turned ends 52. Between these ends and the flange 46 the eccentrics of lever 35 engage and by a downward movement of the latter the coupling cage and disk are securely clamped together.

In Fig. 7 I have shown means for securing the plunger-rods together when they are made in sections, as in deep wells. The numeral 53 designates a tapering semicylindrical block, one on each of the adjoining ends of the plunger-rods. These blocks are provided on their inner sides with a number of interlocking teeth 54. A band 55 encircles said blocks and by holding the teeth tightly into engagement a rigid connection is made between the two plunger-rods.

The numeral 56 designates a cock for drawing the water from the pump-barrel to prevent freezing in cold weather.

I do not wish to confine my invention to pumps, as the couplings can be used with advantage for connecting steam and other pipes and for many other purposes without departing from the principle thereof.

Having thus fully described my invention, what I claim is—

1. In a pump the combination with the cylinder, of the upper head provided with apertured and slotted lugs, the lower head provided with opposite slotted lugs with spaces therebetween, the connecting-rods having lateral lugs at the lower ends and with inwardly-extending curved lugs at the upper ends, and the eccentric-lever, substantially as described.

2. In a pump, the combination with the cylinder, the upper head provided with opposite apertured and slotted lugs, the lower head having opposite slotted lugs, curved flanges on the inner sides of said heads and the washers, of the connecting-bars having lateral lugs at the lower ends, and curved inwardly-extending lugs at the upper ends and the bifurcated lever provided with eccentrics, substantially as described.

3. In a pump the combination with the cylinder and the upper head thereof provided with a cylindrical portion, an annular flange and inwardly-extending curved lugs, of the flanged coupling seated on said flange, and the bifurcated eccentric-lever, substantially as described.

4. In a pump the combination with the cylinder and the upper head provided with a cylindrical portion, an annular flange having a groove in its upper side, and inwardly-extending curved lugs, of the coupling having an annular rib, the washer and the bifurcated eccentric-lever, substantially as described.

5. In a pump, the combination with the cylinder, the upper head provided with a cylindrical portion, an annular flange, the inwardly-extending curved lugs on said flange, the coupling having a flange, and the bifurcated eccentric-lever, of the opposite apertured and slotted lugs on said head, the lower head provided with slotted lugs, the connecting-bars having lateral lugs at the lower end and inwardly-extending curved lugs at the upper ends and the bifurcated eccentric-lever, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN H. KESTER.

Witnesses:
S. BRASHEARS, Jr.,
BENNETT S. JONES.