No. 787,244. PATENTED APR. 11, 1905.

D. M. WATSON.

PUMP.

APPLICATION FILED DEC. 24, 1903.

FIG. 1.

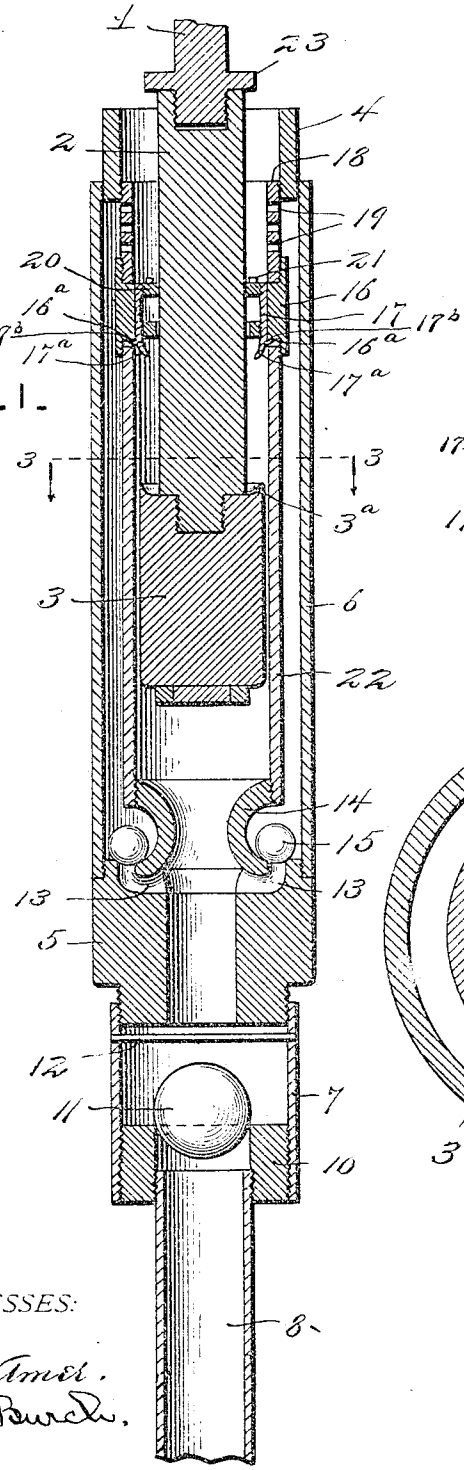


FIG. 2.

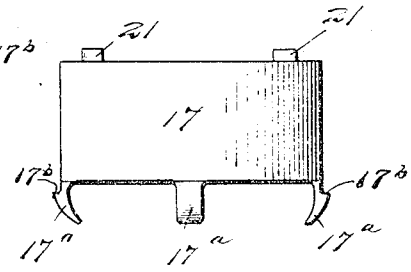
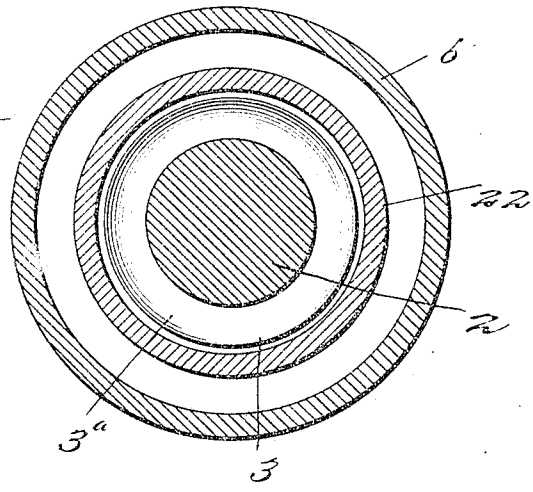


FIG. 3.



WITNESSES:

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INVENTOR

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No. 787,244. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

DANIEL M. WATSON, OF PORTLAND, OREGON.

PUMP.

SPECIFICATION forming part of Letters Patent No. 787,244, dated April 11, 1905.

Application filed December 24, 1903. Serial No. 186,465.

To all whom it may concern:

Be it known that I, DANIEL M. WATSON, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in deep-well pumps, and has for its object to provide a pump having a two-pipe cylinder in which is arranged a detachable stuffing-box and means upon the piston for operating packing-rings and also means for releasing the stuffing-box from its position.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of the pump. Fig. 2 is a detail view of the stuffing-box. Fig. 3 is a horizontal section on line 3 3 looking in the direction of the arrows.

In the drawings, 1 is a piston-rod secured to the solid piston 2, having an enlarged piston-head 3, which fills the inner barrel of the cylinder and the outer edge of which is raised. The top of said piston-head 3 is depressed, forming the inwardly-curved surface 3^a.

4 is a short joint of pipe secured to upper end of cylinder 6, which cylinder has the joint 5 at its lower end, said joint being connected, by means of the union 7 through valve-seat 10, to the pipe 8. In the union 7 is secured the valve-seat 10, which receives the ball 11, held in position by the bar 12.

In the joint 5 are openings 13, which allow the liquid to pass into the space between the pipes 6 and 22 of the cylinder, and the upper portion of said joint is reduced and extended and is externally screw-threaded, so as to connect with pipe 22. Below the union of joint 5 with pipe 22 is a recessed portion 14, adapted to receive the check-valves 15.

Secured to the upper end of pipe 22 is a joint 16, provided with the recess 16^a, and the joint 18, which is provided with exit-ports 19, connects said union 16 with pipe 4.

17 is a detachable stuffing-box provided with spring-fingers 17^a, on which are the lugs 17^b for engagement in the recess 16^a. The upper portion of the stuffing-box is internally screw-threaded to engage the packing-ring 20, upon which ring are lugs 21. Upon the piston-rod are lugs 23, which are adapted to engage with lugs 21, by means of which the packing may be tightened or loosened, as desired.

In operation the downward stroke of the piston forces the liquid through openings 13 and out through ports 19.

As stated above, by operating the piston-rod the lugs thereon may be placed in engagement with the lugs on the packing-ring, and by turning to the right or left the packing may be made tight or loose, as the case requires.

When the packing should be renewed, the piston is raised. The inclined surface 3^a engaging the spring-fingers of the stuffing-box forces them inwardly, releasing said stuffing-box, when it will be raised out along with the piston.

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

1. In a deep-well pump, a cylinder provided with an annular recess, a stuffing-box within the cylinder having spring-fingers depending therefrom, which incline inwardly and lugs on said spring-fingers projecting outwardly for engaging in said recess, substantially as specified.

2. In a deep-well pump, a cylinder provided with an annular recess, a stuffing-box within the cylinder and a piston operating therein, a packing-ring at top of said stuffing-box, lugs projecting laterally from the piston for engaging said packing-ring, spring-fingers depending from the stuffing-box, the ends of which incline inwardly and lugs on said fingers projecting outwardly for engaging in said recess, substantially as specified.

3. In a pump, the combination of the outer cylinder 6, the inner cylinder 22 connected therewith, the piston 2 operating therein and provided with the piston-head 3, having the inwardly-beveled upper surface, with the detachable stuffing-box 17 arranged at the top of said cylinder, substantially as specified.

4. In combination, a cylinder, a piston operating therein, said piston being provided with a piston-head having greater diameter than the piston, the upper surface of which piston-head is depressed toward its center, a removable packing-box provided with means for holding it in position, said means being in position to be engaged by the upper edge of said piston-head, a packing-ring arranged about the piston having lugs thereon, and lugs on the piston for operating said ring, substantially as specified.

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

DANIEL M. WATSON.

Witnesses:
E. E. HOLCOMB,
H. B. BETTY.