(No Model.)

W. TREVERTON.

PLUNGER PUMP.

No. 562,939. Patented June 30, 1896.

Fig. 1.

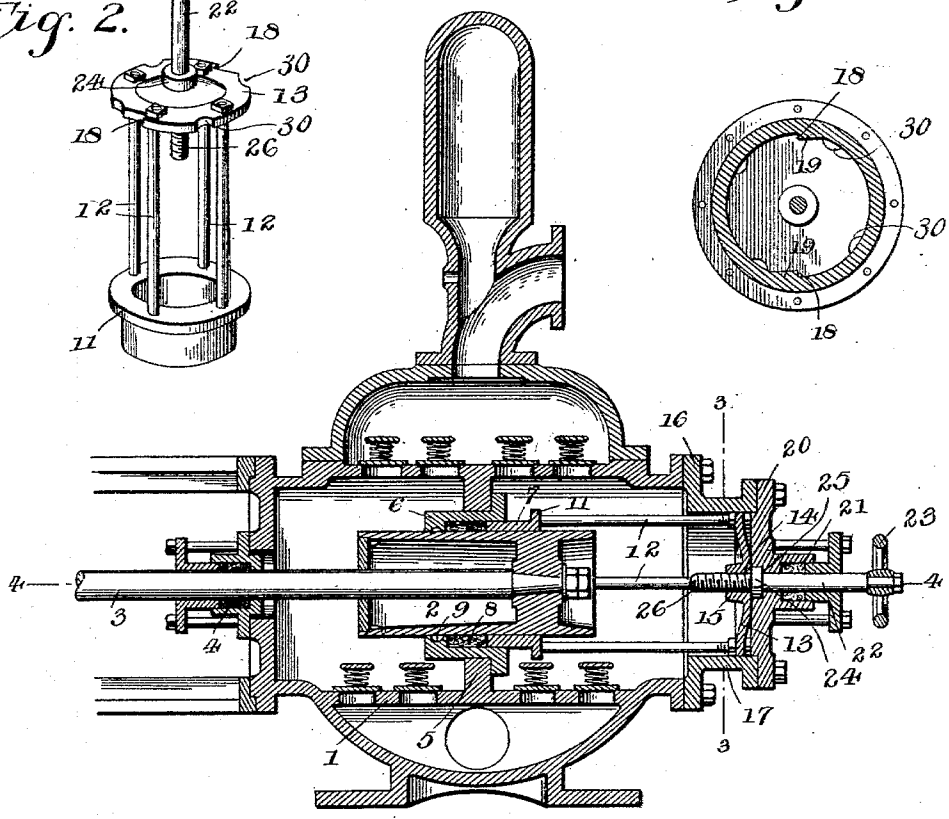


Fig. 2.

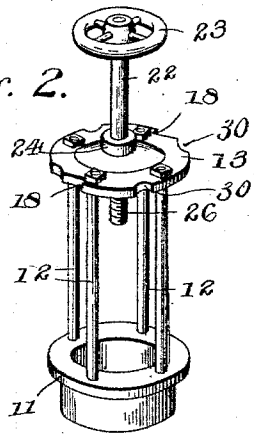
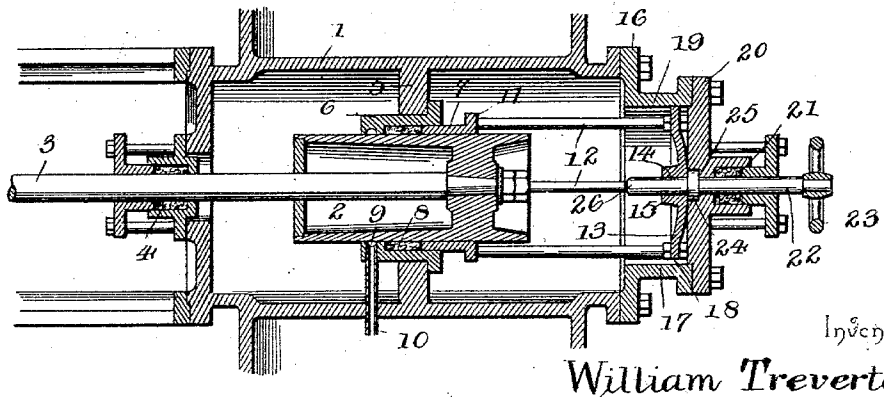


Fig. 3.

Fig. 4.



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PLUNGER-PUMP.

SPECIFICATION forming part of Letters Patent No. 562,939, dated June 30, 1896.

Application filed March 20, 1895. Serial No. 542,558. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TREVERTON, a citizen of the United States, residing at Ivanhoe, in the county of Wythe and State of Virginia, have invented a very valuable machine for the tightening of packing (from the outside) of inside-packed plunger-pumps and lubricating the same, of which the following is a specification.

My invention relates to pumps, and has for its object to provide packing devices for the plunger which are accessible for adjustment from the outside of the cylinder, whereby adjustment may be accomplished while the pump is in motion.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a longitudinal section of a packing mechanism embodying my invention applied in the operative position to a pump. Fig. 2 is a detail view of the packing mechanism detached. Fig. 3 is a transverse section on the line 3 3 of Fig. 1. Fig. 4 is a longitudinal horizontal section on the line of 4 4 of Fig. 1.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a cylinder in which operates a plunger 2 of any ordinary or well-known construction, said plunger having a rod 3 operating in a stuffing-box 4. Arranged at an intermediate part of the cylinder and held in place by the wall 5 is a stuffing-box and guide 6 with which coöperates the packing-gland 7 for maintaining the soft packing 8 in contact with the plunger. The rim of the stuffing-box is provided with an oil-channel 9, with which communicates a tube or conductor 10 for conveying the oil from the exterior of the cylinder to the oil-channel, as shown in Fig. 4.

Connected to the packing-gland 7, which is flanged at its outer end, as shown at 11, are the rods 12, and attached to the extremities of these rods contiguous to the head of the cylinder is a disk 13, provided at its center with a threaded opening 14, around which the disk is reinforced to form a boss 15.

The cylinder shown in the drawings needs no description herein, for the reason that it is of the ordinary construction, but in order to allow sufficient space for the proper arrangement of the packing mechanism I employ a cylinder-head 16, having a cylindrical guide 17 for the reception of the disk 13, said disk being provided at its periphery with guide-notches 18 to engage guide-ribs 19 and prevent rotation of the disk. The head 16 is provided at its outer side with a removable cap-plate 20, having a central stuffing-box 21, through which passes an adjusting-stem 22. This adjusting-stem or operating member is arranged coaxially with the plunger, and is provided at its outer or exposed end with a hand-wheel 23 and at an intermediate point with a collar 24, arranged in a seat or bearing 25 in the inner surface of the cap-plate 20. The inner end of the adjusting-stem is threaded, as shown at 26, to engage the threaded central opening 14 of the disk.

From the above description it will be seen that any looseness in the packing contained in the stuffing-box 6 may be taken up during the operation of the pump and without the removal of any of the parts thereof by turning the adjusting-stem, and in the same way a lubricant may be supplied to the oil-channel of the stuffing-box by means of any suitable lubricator or injector adapted to supply such lubricant under a pressure slightly in excess of the pressure of the water or other contents of the pump-cylinder.

An important feature of the present invention is to be noted in connection with the construction and operation of the disk 13. This disk is dished so as not to flatly contact with the inner side of the cap-plate 20, and, in addition to the guide-notches 18, the disk 13 is provided with a peripheral series of circulating-notches 30. The circulating-notches 30 provide for a circulation of water into the space between the disk 13 and plate 20 to form a water-cushion or water-back for the said disk to obviate the tendency thereof, after adjustment, to move toward the plate 20, under the pressure of the water in the cylinder, and thereby loosen the gland 7, as will be obvious to those skilled in the art.

It is obvious that the improved packing mechanism may be applied to various forms

of cylinders, and in adapting it for its different applications various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a pump, the combination with the cylinder having an interior stuffing-box provided with a longitudinally-slidable gland 7, and the plunger working in said stuffing-box; of a cylinder-head for one end of the cylinder provided with a cylindrical guide portion 17, having interior longitudinal guide-ribs, and a removable cap-plate having in its inner face a recessed bearing, a dished disk mounted to work in said cylindrical guide portion of the cylinder-head and provided with peripheral guide-notches engaging said guide-ribs, and with a peripheral series of circulating-notches to permit the circulation of water into the space between the disk and said cap-plate, said disk being further provided with a central threaded opening, rods connecting said disk with the longitudinally-slidable gland 7, and a rotatable adjusting-stem mounted in the cap-plate and provided intermediate of its ends with a collar loosely turning in said recessed bearing, and with an inner threaded end engaging the central threaded opening of said dished disk, substantially as set forth.

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