(No Model.)

D. E. DARNELL.

PUMP.

No. 336,039. Patented Feb. 9, 1886.

Fig. 1.

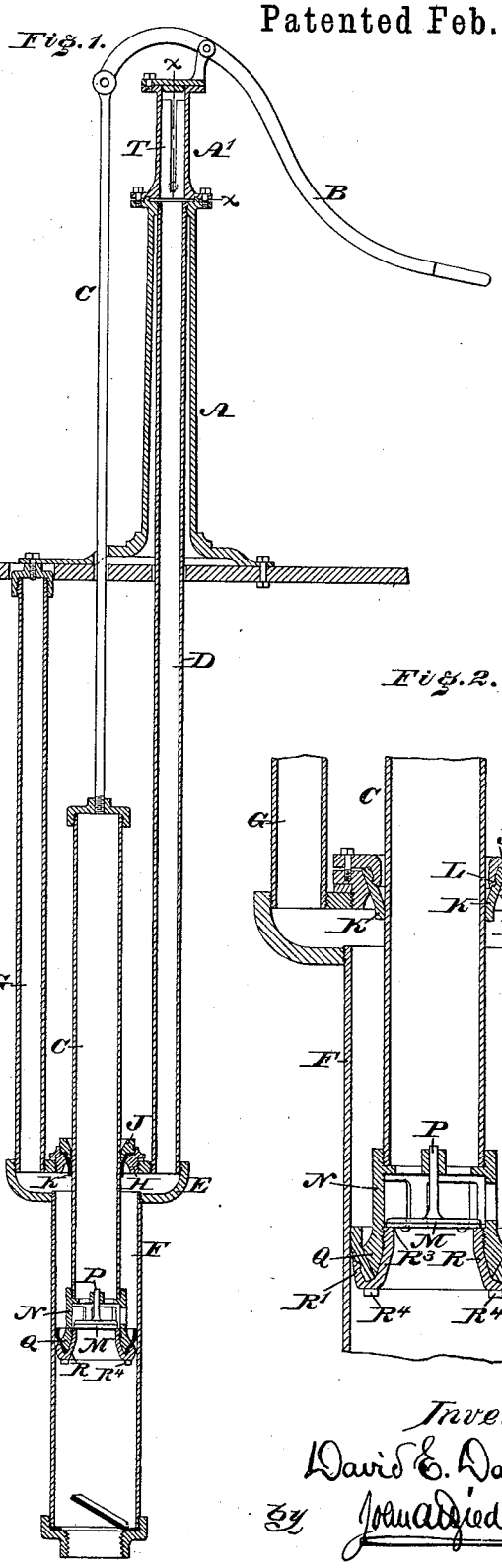


Fig. 3.

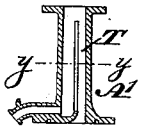


Fig. 4.

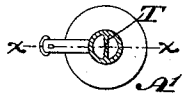


Fig. 5.

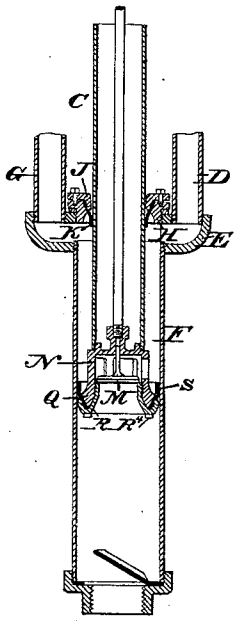


Fig. 2.

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UNITED STATES PATENT OFFICE.

DAVID E. DARNELL, OF MOORESTOWN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO EDMUND C. CRAIN, OF PHILADELPHIA, PENNSYLVANIA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 336,039, dated February 9, 1886.

Application filed July 2, 1885. Serial No. 170,435. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. DARNELL, a citizen of the United States, residing at Moorestown, in the county of Burlington, State of New Jersey, have invented a new and useful Improvement in Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a vertical section of a pump embodying my invention. Fig. 2 represents a vertical section of a portion thereof on an enlarged scale. Fig. 3 represents a section in lines *x x*, Figs. 1 and 4. Fig. 4 represents a horizontal section in line *y y*, Fig. 3. Fig. 5 represents a vertical section of a modification.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to improvements in pumps; and it consists of means for holding the packing for the pump-spear or piston-rod, whereby leakage is prevented and the packing is securely held in position and may be readily removed and renewed.

It further consists of means for holding the packing of the valve-cage, &c.

It further consists of the combination of parts forming an improvement in pumps.

It also consists of an air-chamber at the top of the pump provided with a slotted partition, whereby a steady flow of water or fluid is maintained and abrupt discharge of the water is prevented.

Referring to the drawings, A represents the standard of a pump; A′, an air-chamber at the top thereof; B, the handle; C, the spear or pump rod; D, the discharge-pipe, passing through the standard and secured at top to the standard and at bottom to an annular casting, E, which is secured or otherwise fastened to the top of the barrel F, said casting being hollow and having a central opening, through which is passed the spear and two side openings, one for connection of the pipe D and the other for connection of an air-chamber pipe, G.

Screwed or bolted to the wall of the central opening of the top of the casting E is a nut, H, to which is screwed or bolted a clamping ring or box, J, between which and the bevel or inclined face of the nut H is fitted an annulus or band, K, formed of leather or other suitable packing material, it being noticed that the packing depends from its place of connection and bears tightly against the spear, being firmly held in position by wedging action, the hold of the box being increased by means of a rib, L, which is formed on the inner face of the box and pressed into said band or packing when the box is screwed or bolted to the nut, the packing being thereby compressed between the two parts.

M represents a valve, which is fitted within a cage, N, and has a stem, P, which is guided in the top plate of said cage, the inner side of the cage guiding the valve in its opening and closing motions. The portion of the cage below the valve has a collar, Q, formed with or secured to it, the outer face of which is wedge-shaped, and the inner face is screw-threaded for the engagement of a cupped nut, R, between the outer rim, R′, of which and the outer face of the collar is fitted an annulus or band, S, of leather or other suitable packing material, it being noticed that said packing rises from its seat between the nut and collar and flares outwardly at top against the inner wall of the barrel F. When the nut R is screwed to the collar Q, the packing is clamped between the outer rim of the nut and the wedge-shaped face of the collar, and thus tightly held by wedging action, the hold of the rim R′ on the packing being increased by means of a rib, R^2, which is formed on the inner face of said rim and pressed into the packing when the nut is screwed up. The upper end of the inner rim of the cupped nut R forms the seat R^3 of the valve M, and when said nut is unscrewed the packing S is released and the valve M may be removed. The under side of the nut has lugs R^4 for engagement of a proper tool or implement for screwing and unscrewing purposes of said nut. When the nut H is unscrewed from the casting E, and the box J and packing K are thereby removed with the nut from the casting E, the cage N, with its connected parts, may be withdrawn at

the upper end of the barrel or cylinder F, this being accomplished by raising the spear until the cage, &c., clear the top of the casting E, it being noticed that when the parts of the pump are in operative position the spear and the surrounding packing L, nut H, and box J close the central opening at the top of the casting.

Within the air-chamber A′ is a vertical partition, T, reaching to nearly the top of the said chamber, said partition being slotted, so that as the flow of water increases it rises in half of the chamber and finds an enlarged opening or slot in the partition, through which it escapes, thus maintaining an equable discharge of water through the nozzle or spout, avoiding abruptness in the discharge heretofore occasioned in force-pumps.

In Figs. 1 and 2 the lower portion of the spear C is hollow, and opens into the cage N, forming an air-chamber. In Fig. 5 the air-chamber is avoided, and the spear-rod proper is passed through a hollow portion and connected with the valve-cage.

In Fig. 1 the box J and nut H are shown screw-threaded for connection with each other. In Fig. 2 said parts are shown connected by bolts or screws.

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

1. A spear-rod, in combination with a cage having a packing secured thereto by a nut, a barrel having two pipes connected to the same, one of said pipes having an air-chamber, in which is a slotted diaphragm, and a handle attached to said spear-rod, substantially as described.

2. A pump having a barrel, F, air-chamber G, discharge-pipe D, air-chamber A′, having slotted diaphragm T, rod C, and handle, and cage N, secured to the rod C and having a valve within the same, said parts being arranged, combined, and operating substantially as described.

3. The spear or pump rod C, in combination with casting E, nut H, having a beveled face, packing K, and box J, having a rib, L, substantially as described.

4. A pump-standard having in its discharge portion a slotted partition or diaphragm, the same dividing the standard into chambers, one of which is in communication with the discharge-pipe, substantially as and for the purpose set forth.

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