

H. JONES.
PUMP PLUNGER.
APPLICATION FILED AUG. 25, 1910.

1,005,976.

Patented Oct. 17, 1911.

Fig. 1.

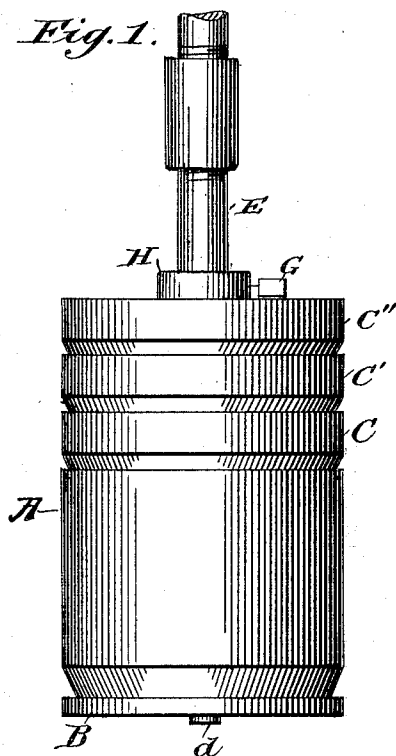


Fig. 2.

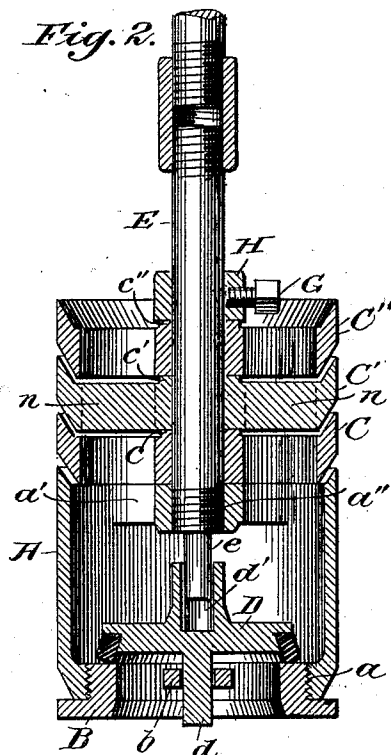


Fig. 3.

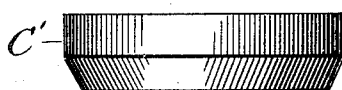
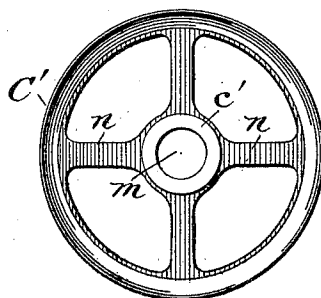


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY JONES, OF RICHMOND, INDIANA.

PUMP-PLUNGER.

1,005,976.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed August 25, 1910. Serial No. 578,894.

To all whom it may concern:

Be it known that I, HARRY JONES, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented a new and useful Improvement in Pump-Plungers, of which the following is a specification.

My invention relates to improvements in water-packed pump plungers or buckets; and my objects are, 1st, to provide a pump plunger with annular peripheral slots, the number of slots being increased by adding sections thereto as may be desired, according to the depth of the well from which water is to be raised: 2nd, to provide a plunger of less weight than those now in use and thereby save much material and expense in its construction: 3rd, to provide a plunger in the manufacture of which machine work is reduced to a minimum, thereby reducing the cost to about one half that of the same style of plunger now in use. I attain these objects by the means described in the following specification and illustrated in the accompanying drawings, which form a part of this specification and in which—

Figure 1 is an elevation of my plunger; Fig. 2 is a vertical longitudinal section thereof; Fig. 3 is an edge view of one of the parts or sections, and Fig. 4 is a top plan view of Fig. 3.

Similar letters of reference, refer to similar parts throughout the several views.

This invention relates to improvements in pump plungers or buckets which have no rubber, leather or other solid packing to make the plunger fit snugly in the cylinder, but which depend upon films of water passing through annular slots in the wall of the plunger for packing, and hence are known as "water-packed plungers." This style of plunger is adapted alike to force and lifting pumps, either single or double acting.

The accompanying drawings illustrate a plunger constructed for use in a well about eighty feet in depth.

My invention consists in constructing a plunger of one large or main cylindrical part which contains a spider into which the pump rod is fastened, a valve and valve seat: and placing above this main part a series of rings or cylindrical sections between the edges of which films of water pass to serve as packing for the plunger in the cylinder. The number of sections to be

varied according to the depth of the well from which water is to be raised.

In the accompanying drawings A represents the large or bucket portion of the plunger, in the bottom of which the valve seat B is fastened by means of the screw-threaded opening *a*. In the upper portion of the bucket A is cast a spider *a'* into which the pump rod E is fastened by means of screw threads, as shown at *a''*. The valve D is held in vertical alinement by means of guide *b* through which a downwardly extending lug *d* of the valve D passes; and by the extended end *e* of the pump rod E which works loosely in a socket *d'* in the valve D.

The sections C, C', C'' are alike in construction and as are desired are placed on the pump rod E. The upper faces of these sections are countersunk or beveled inwardly while the under faces are beveled outwardly. On the upper side of these sections at the center of the spider are bosses *c*, *c'*, *c''* for the purpose of keeping the faces of the sections from coming together; thus forming annular slots which slope downward and inward from the exterior of the plunger.

In Fig. 2 the intermediate section C' is illustrated as being cut through the spider arms *n. n.* lengthwise, while in the sections C and C'' the arms are not in the line of section. This is done to show that the sections are merely dropped in place on the pump rod by means of the holes *m* in the center of the spiders and offer a free passage for the water in whatever manner they may be placed.

When the desired number of sections have been placed on the pump rod a collar H is slipped on above them and fastened to the pump rod by means of the set screw G, which also holds the sections C, C' and C'' rigidly in place.

Formerly water-packed plungers have been cast in one piece and the slots had to be cut and the finishing had to be done by machine; which was very expensive; while in my device the sections may be used just as they are cast, with the exception of drilling a central hole through the spider, through which the pump rod is to pass. This minimizing the machine work lessens the cost of production about one half; and also enables the whole structure to be made much lighter, thus causing a profitable saving of material.

Knowing that prior to this invention

plungers have been constructed which provide for an annular film of liquid passing from the interior of the plunger through a slot in the wall of the plunger, against the wall of the encircling cylinder; I do not
5 claim this feature as part of my invention: but

What I do claim and desire to secure by Letters Patent is,

10 1. A water-packed plunger composed of a series of cylindrical sections or parts, the lowest part containing a valve and valve seat and all the other sections, constructed
15 alike, separated by annular slots and connected by a rod passing centrally through a spider in each part; said like sections being separated by means of bosses at the center of each whereby an annular slot is formed between the peripheries of each pair
20 or adjacent sections; thus leaving the interior of the plunger free for the passage of water; substantially as shown and described.

2. A water-packed plunger composed of a series of cylindrical sections or parts, the
25 lowest part containing a valve and valve seat and all the other sections constructed

alike, separated by annular slots and connected by a rod passing centrally through a spider in each part; said like sections being separated by means of bosses at the center
30 of each whereby an annular slot is formed between the peripheries of each pair of adjacent sections; the upper like parts having no machine work or finish except a hole drilled in the center for a rod to pass
35 through.

3. A water-packed plunger composed of a series of cylindrical sections or parts, the lowest part containing a valve and valve seat and all the upper sections constructed
40 alike, said like sections being separated by means of bosses at the center of each section, whereby an annular slot is formed between the peripheries of each pair of adjacent sections, substantially as shown and described.
45

In testimony whereof I have signed my name to this specification in the presence of the two subscribing witnesses.

HARRY JONES.

Witnesses:

CORA C. WOLTZ,

GEO. S. LIVINGSTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."