(No Model.)

J. M. LAING.

PUMP.

No. 337,167. Patented Mar. 2, 1886.

Fig. 1.

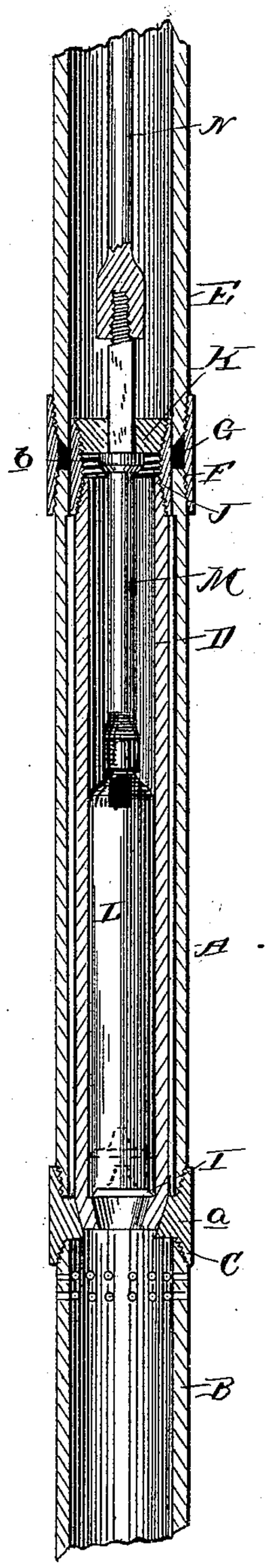


Fig. 2.

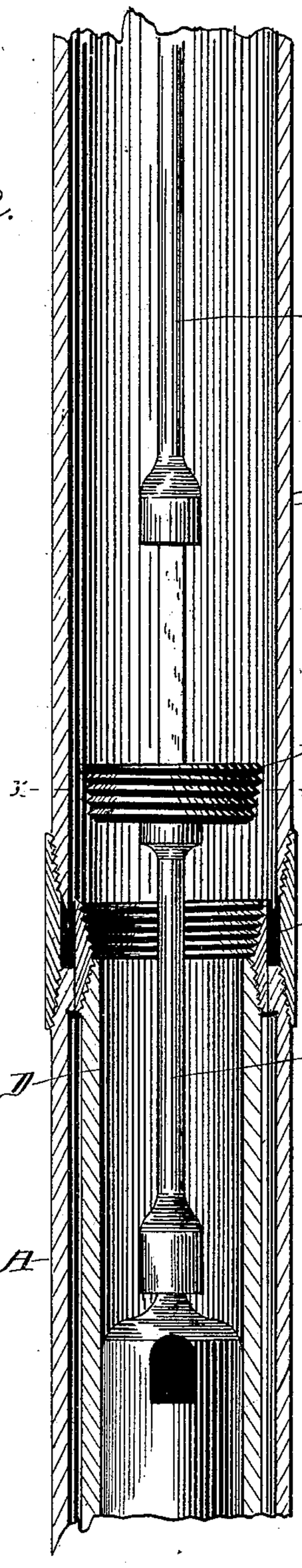
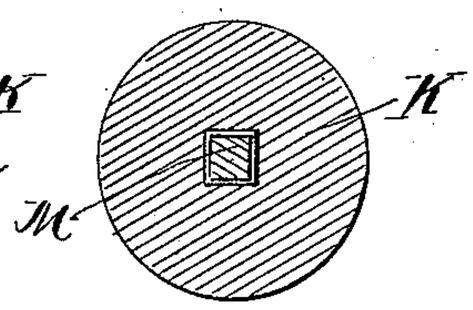


Fig. 3.



WITNESSES

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PUMP.

SPECIFICATION forming part of Letters Patent No. 337,167, dated March 2, 1886.

Application filed August 2, 1884. Serial No. 139,452. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. LAING, of Bay City, in the county of Bay and State of Michigan, have invented new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in pumps, and the peculiar construction, arrangement, and various combinations of the parts, all as more fully hereinafter set forth.

Figure 1 is a vertical section of my improved pump with the parts as connected together for the purpose of removing the pump-cylinder. Fig. 2 is a similar view showing parts disengaged, as when the pump is in operation. Fig. 3 is a cross-section on the line *x x*, Fig. 2.

In the accompanying drawings, which form a part of this specification, A represents the pump-case, to the lower end of which is secured the strainer, section B, by means of the shoe C, which projects inwardly, forming a seat, *a*, for the lower end of the pump barrel or cylinder D.

E is the first section of tubing above the pump-case, and is secured thereto by the threaded ring or thimble F, which also holds in place against outward displacement a packing-ring, G, of gun-rubber, preferably, or a soft-metal packing may be used, if desired. The lower end of the tubing E is beveled off upon the outer face, as shown, so that when the sections are screwed into the ring F the packing G will be compressed and held in place against accidental displacement.

The lower end of the pump-barrel is provided with a valve, I, while its upper end is threaded to engage with the lower end of the ring J, while in the upper end of this ring J is threaded a nut or disk, K, which ring and disk in this instance form a removing-cap.

L is a hollow plunger, piston, or bucket, of the ordinary construction, provided with a valve in its lower end, and having its reciprocating movement within the pump-barrel. To the upper end of this cylinder is secured the pump-rod M, which is provided with the flange *b*, the pump-rod above this collar being squared and passing through the disk K, the upper end of the rod being threaded to engage with the lower end of another section of pump-rod, N.

In former constructions, when it has been found that the pump was not properly performing its duties and it was desired to ascertain what portion needed repair, the entire pump had to be removed, including the pump-cylinder, and none of the constructions, to my knowledge, have been such that in case of the breaking of the pump-rod such pump-rod could be removed without the cylinder and its necessary connection.

In this construction, when lowering the pump into the pump-case, the disk K is engaged with the ring J upon the upper end of the pump barrel or cylinder which contains the plunger and pump-rod. The necessary number of lengths of pump-rod being secured to place in section the whole device is inserted in the tubing and lowered until the lower end of the pump seats itself upon its seat in the shoe C, while at the same time the ring J passes through the packing G, firmly expanding and compressing it between the periphery of such ring and the joint between the tubing E and the pump-case, as shown, effectually closing at that point all communication between the tubing and the pump-case, and preventing the ingress or sifting through of sand or any other matter. The operator, having seated his pump, now turns the pump-rod so as to unscrew the disk K from the ring J, and this having been done, the pump-rod, with its plunger, is withdrawn, so as to give the desired stroke to the piston without having it come in contact with the lower valve, and so that the disk K will not come in contact with the ring J, as shown in Fig. 2, and the parts being in the described position, the pump is free to be operated, and the pump-rod in its reciprocation will cause the disk K to slide up and down upon the squared portion of the pump-rod, where it will be continually lubricated by the water or fluid that is being pumped, and which will prevent its becoming seated or rusted to place and prevent it from performing its proper functions. Should the pump-rod break, or it be desired to remove the same without removing the pump-cylinder, it is simply withdrawn, together with the piston and plunger, leaving

the pump in its proper position, while it can readily be seen that by lowering the pump-rod sufficiently the disk can be again engaged with the ring or collar, as shown in Fig. 1, then the entire pump can be withdrawn.

I am aware of the Patents Nos. 90,157 and 138,477, and make no claim to the constructions shown therein as forming part of my invention.

What I claim as my invention is—

1. In a pump, substantially as described, the combination, with a stationary tubing and a removable pump-cylinder, of a pump-rod, the ring J, and disk K, said disk and ring being constructed to engage said cylinder and formed to revolve with said rod for the purpose of removing said cylinder, as set forth.

2. In a pump, substantially as described, the combination, with the tubing E, pump-case A, cylinder D, and thimble F, of the packing G and the ring J, interposed between said case and cylinder to hold them concentric and engaging with said cylinder, whereby said packing is compressed between the periphery of said ring and the joint between the tubing and the pump case, substantially as described.

3. The combination, with the pump-case A, tubing E, cylinder D, pump-rod M, having flange *b*, and the thimble F, of the packing G, the ring J, adapted to compress said packing between its periphery and the pump-case, and the nut K, sleeved on said pump-rod above said flange and adapted to engage with said ring, whereby the cylinder and its attachments may be lowered to its seat and the nut then raised independent of the ring, substantially as and for the purposes specified.

4. The combination, with the pump-case A, ring J, pump-rod N, and the pump-rod M, having a flange, *b*, an angular projection above said flange, and threaded, as shown, of the nut K, sleeved on said rod M above said flange, substantially as and for the purposes specified.

JAS. M. LAING.

Witnesses:
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