R. M. LAFFERTY.

Improvement in Pumps.

No. 127,173. Patented May 28, 1872.

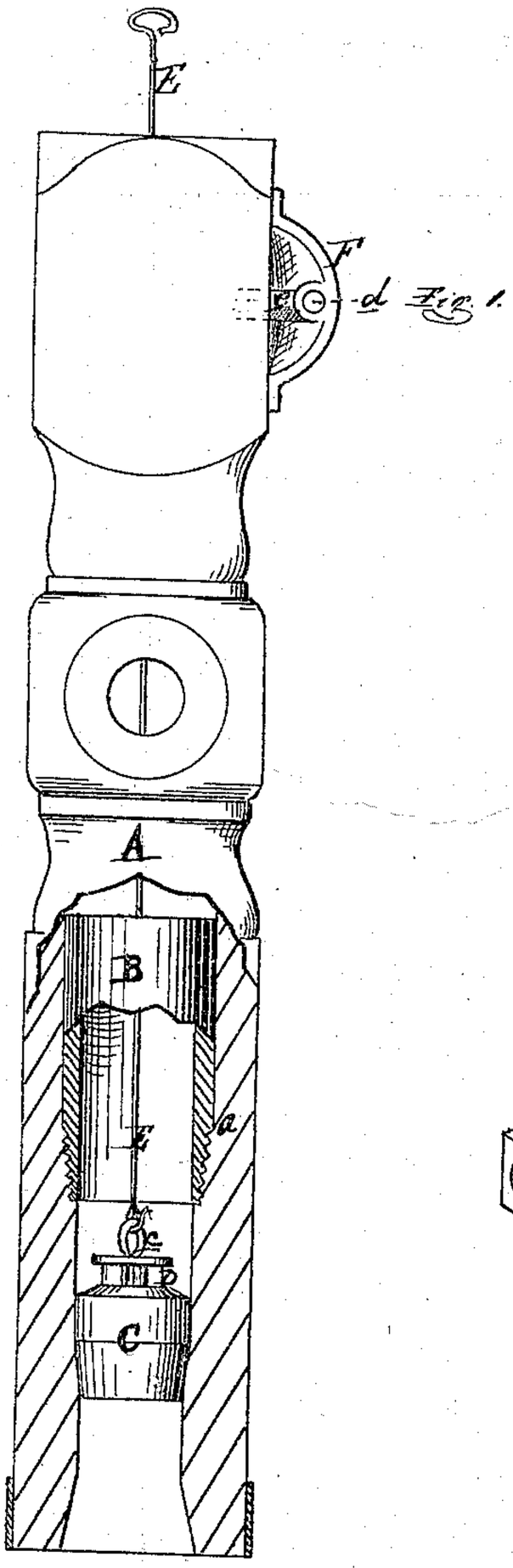
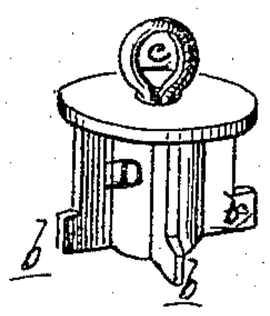


Fig. 1.

Fig. 2.



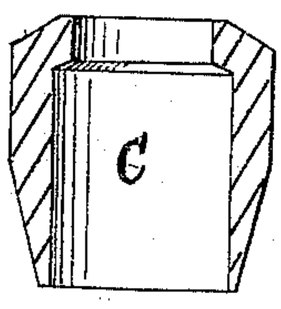


Fig. 3.

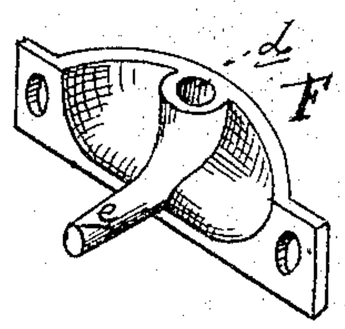


Fig. 4.

ATTEST:

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UNITED STATES PATENT OFFICE.

ROBERT M. LAFFERTY, OF TOLEDO, OHIO, ASSIGNOR TO SMITH & LAFFERTY, OF THREE RIVERS, MICHIGAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 127,173, dated May 28, 1872.

To whom it may concern:

Be it known that I, ROBERT M. LAFFERTY, of Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Wooden Pumps; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is an elevation of my improved pump partially in section, showing a hook-rod engaged with the check-valve for the purpose of lifting it out of the pump. Fig. 2 is a perspective view of the valve. Fig. 3 is a cross-section of the valve chamber and seat. Fig. 4 is a detached perspective view of the ears, in which the lever is pivoted.

Like letters indicate like parts in each figure.

The nature of this invention relates to certain improvements in the construction of wooden pumps, having for its object an improved manner of securing a metallic cylinder in the bore of the pump, and affording a means of removing the check-valve and its chamber, without being obliged to lift with them the superimposed column of water. The invention consists in the peculiar method of securing a metallic cylinder in the bore of the pump, the said cylinder being inserted from the top; in the peculiar construction and arrangement of the check-valve and its chamber in such manner that they may be readily removed; and in the peculiar construction and arrangement of a pair of ears at the pump-head, which ears serve as a fulcrum for the pump-lever.

In the drawing, A represents the wooden barrel or stock of my pump, and B a metallic cylinder or section of tubing inserted therein from the top; being arrested at the proper point by a contraction in the bore of the stock to the internal diameter of said cylinder. The lower end of the said cylinder is tapered and threaded, as shown at *a*, the contraction of the stock being correspondingly tapered by means of an expanding wrench or other equivalent device inserted in the top of the cylinder. The latter is rotated so that its threads will bury themselves in the contracted part of the wooden stock, whereby the said cylinder is firmly secured in place. The sections of wooden tubing are added to the stock, the uppermost one being inserted therein in the usual manner. A piston is reciprocated within the cylinder in the usual manner. C is a metallic valve-case and seat, tapered at its lower end, and inserted from the top, being arrested by a second contraction in the bore of said stock below the lower end of cylinder B. D is the valve, whose wings are hooked or flared outwardly at their lower ends *b*, serving to guide the valve in its movement in the enlarged part of the case C below the seat formed at the top thereof, and which also prevents the valve from being withdrawn entirely from its case. An eyebolt, *c*, is screwed into the top of the valve, securing the valve-disk to its body.

As it frequently becomes necessary to remove the valve and case of pumps of this class, for the purpose of removing obstructions and grinding them when they have become leaky, by removing the piston, a rod, E, having a hook turned at its lower end, is inserted from the top of the pump, and, hooking it into the eyebolt *c*, the valve and its case may be readily withdrawn. As soon as the valve has been lifted from its seat the stock is emptied of the column of water contained therein, thereby obviating the labor of lifting said column of water with the valve and seat when it is desired to remove them from the pump.

I am aware that a check-valve seat has been heretofore provided with a bale, in which a rod might be hooked for the purpose of withdrawing it and the valve from the pump; but when such an arrangement was provided in a deep-well pump it involved the expenditure of a great deal of power, owing to the great weight of the column of water which had to be lifted with the valve; in many instances necessitating special means to accomplish the end. At each side of the vertical slot in the pump-head, in which the lever vibrates, I secure a cast-metal ear, F, of the form shown in Fig. 4, having a horizontal socket, *d*, which receives the fulcrum-pin of the lever. The inner face of each ear is cast with one or more projecting studs, *e*, which are inserted in holes made in the pump-head to receive them, the ear being secured to the head by a simple

wood-screw at each end. This arrangement of the studs *e* transmits the strain of the lever to the pump-head, while the light castings are cheaper than the brackets heretofore employed as a fulcrum for said lever.

I am well aware that metallic cylinders inserted in the bore of wooden pumps are not new; but it has always been the practice heretofore to insert such cylinder from the bottom of the stock, thereby necessitating the use of the lower end of the cylinder as a socket to receive the wooden tubing, which frequently resulted in a leaky joint, besides rendering the construction of the cylinder more costly than mine, owing to the special provision required to be made for the tube-socket.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the cast-metal fulcrum-ears F, provided with the horizontal socket *d* and stud *e*, adapted to enter the wood, as described and shown, with the pump-head A, as described.

2. The pump described, provided with the fulcrum-ears F, head A, metallic cylinder B, valve-case C, and check-valve D, all constructed and arranged as described, for the purpose set forth.

R. M. LAFFERTY.

Witnesses:

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