(No Model.)

M. H. TIMBERLAKE.

PUMP.

No. 383,780. Patented May 29, 1888.

Fig. 1.

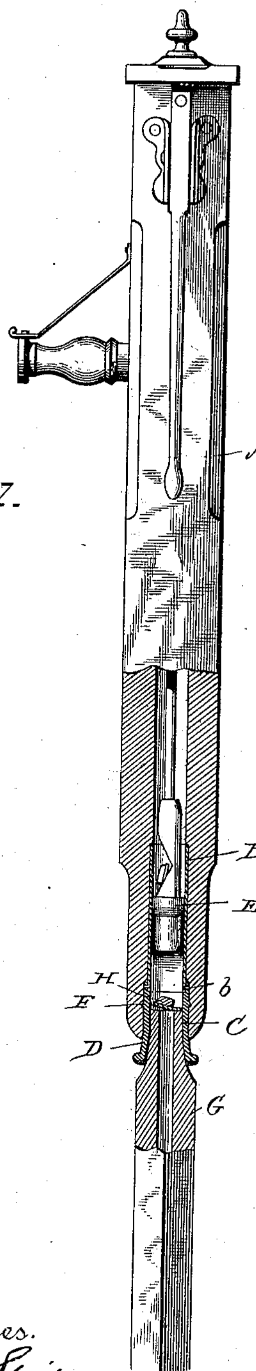


Fig. 2.

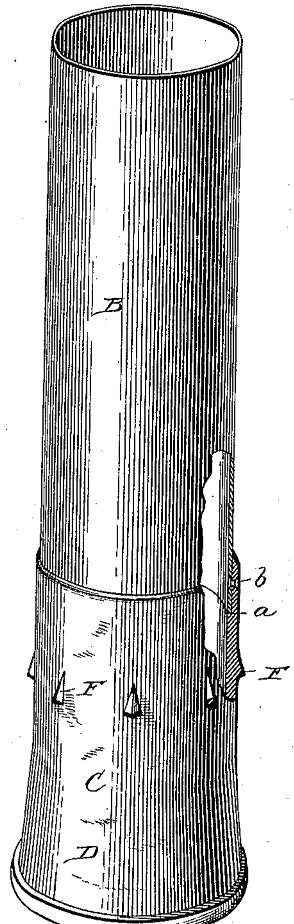
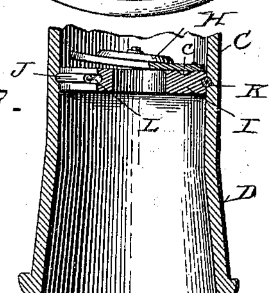


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

MAHLON H. TIMBERLAKE, OF LAFAYETTE, INDIANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 383,780, dated May 29, 1888.

Application filed July 19, 1887. Serial No. 244,747. (No model.)

To all whom it may concern:

Be it known that I, MAHLON H. TIMBERLAKE, a citizen of the United States, residing at Lafayette, in the county of Tippecanoe and State of Indiana, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pumps, and has reference more particularly to wooden pumps.

It has for its object, primarily, to provide an inner lining to that portion of the pump in which the plunger works, the lining being of such material and construction, as will hereinafter more fully and at large appear, that the lining will be securely held within the wooden cylinder without liability to accidentally pull out, and will not become loose so as to seriously interfere with the working of the pump. To the accomplishment of such objects so generally stated, the invention will be hereinafter fully described, and then endeavored to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof.

Figure 1 is a side view, with lower part of pump-stock broken away to show application of lining, which is illustrated in section. Fig. 2 is a perspective of lining, on an enlarged scale, from Fig. 1, with part broken away. Fig. 3 is a perspective of lower part of lining in section, showing preferred application of valve-seat.

In the drawings, the letter A designates a pump-stock, in which the lining is fitted. The lining consists of a tube, B, formed of some suitable thin or sheet non-corrodible metal—say, preferably, such as brass or copper—which will be spun or otherwise formed, so as preferably to be seamless. This tube is secured at its lower end to a metallic tube, C, preferably of cast metal, and which is made tapering on its exterior at its lower end, as shown at D, and may taper on the inside, but is preferably straight therein. The connection between the sheet-metal tube and casting is formed by making a recess or shoulder, *a*, in any suitable way on the interior of the casting, which shoulder may not only form a seat for the sheet-metal tube, but principally serves to bring the inner faces of the sheet-metal tube and casting flush with each other, so that there will be no obstruction to passing the sucker or plunger E into the cylinder from the bottom of the pump or to the reciprocation of the plunger past the joint, if from any cause such should be necessary. The fastening of the sheet-metal tube to the casting can be by any suitable means—say, made either by screw-threads, by brazing or soldering, or by rivets *b*, or otherwise. By thus connecting the sheet or thin metal tube constituting the lining to the cast-iron or heavy metal tube at the base the lining will be held in place within the pump stock by the casting, so that being held by other means than direct connection to the wood of the stock there is not the liability of the lining becoming loose from its connection by the swelling of the wood, the attachment to the stock being through the casting and not the lining proper. The casting being tapering in form and of stouter and more rigid material than the lining proper, and consequently not so compressible, if it should become at all loose in its connection to the wood stock, the slack or looseness can be taken up by a few blows on the top of the stock, which will wedge the casting farther into the stock, and thus closely and rigidly unite the parts. The advantage, consequently, of thus uniting the sheet-metal tube and casting is that there is obtained a non-breakable and non-corrodible lining, and one in which the friction and abrasion is the minimum, and which is applied and held firmly to its place by merely driving the stock down onto the rigid tapering casting. This forms a practical lining for wooden pumps free from the objections that could be urged against a lining formed of either without the other.

The casting is formed on its exterior with any desired number of spurs, F, which engage with the wooden interior of the pump-stock, and thus hold the casting and wooden stock together, so that the metal portion cannot drop from the stock when the latter swells, nor when the pump is being lifted from the well.

The advantage of having the exterior of the

casting tapering is that it and the stock can be joined together or their connection tightened by simply giving blows on the stock, which would be prevented if there was a bead or flange on the lower part of the casting. By having the shoulder or recess on the interior instead of exterior the inner faces of the casting and lining are brought flush with each other, for the purposes before mentioned. The wooden tubing G, which extends down into the well, is secured within the casting by simply driving or wedging it into the casting.

The valve H may be attached to the upper end of the wooden tube, as shown in Fig. 1; but I prefer to make the valve-seat I, as shown in Fig. 3, separate from other parts, and securing it within the lining or the casting part thereof by means of a packing-ring, J, of suitable material, fitted into a groove, K, formed in the interior of the lining. This packing is suitably secured to the seat I, say, by having the packing fitted into a groove, L, formed in the seat. The valve-seat, which is made of metal or other suitable material, may have an annular groove, *c*, formed in its face under the valve H.

By the construction and mode of application of the valve described the valve can be easily placed in position and removed without taking out the lining of the pump and readily replaced. The packing expands and fills the groove K, so as to prevent the valve being drawn out by suction, and yet it permits the seat to be removed without difficulty whenever necessary.

Of course changes may be made in the parts without departing from the spirit of my invention, and still my invention as described be employed, and therefore I wish it expressly understood that I do not confine myself to exact details of construction.

Having described my invention and set forth its merits, what I claim is—

1. As an article of manufacture, a lining for a pump-cylinder, composed of a hollow casting formed with a taper to enable it to take up swelling in the pump-cylinder and a sheet-metal tube secured to said casting, substantially as and for the purposes set forth.

2. As an article of manufacture, a lining for a pump-cylinder, composed of a hollow casting provided with spurs on its exterior and formed with a taper to enable it to take up swelling in the pump-cylinder, and a sheet-metal tube secured to said casting, the inner faces of the tube and casting at the joint being substantially flush with each other, substantially as and for the purposes set forth.

3. The combination, with the hollow tapering casting provided with spurs on its exterior, of the sheet-metal tube secured to the casting, the inner faces of the casting and tube at the joint between the two being substantially flush with each other, substantially as and for the purposes set forth.

4. The combination, with the tapering casting formed with the spurs and having the sheet-metal tube secured thereto, of the pump-stock fitting around said tube and casting and secured to the latter by its taper and spurs, and the well-tubing fitting inside the casting, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MAHLON H. TIMBERLAKE.

Witnesses:

DANIEL W. MOORE,

GEO. W. MAYO.