(No Model.)

F. O. FURBER & G. S. AYER.

PUMP.

No. 418,709. Patented Jan. 7, 1890.

Fig. 1.

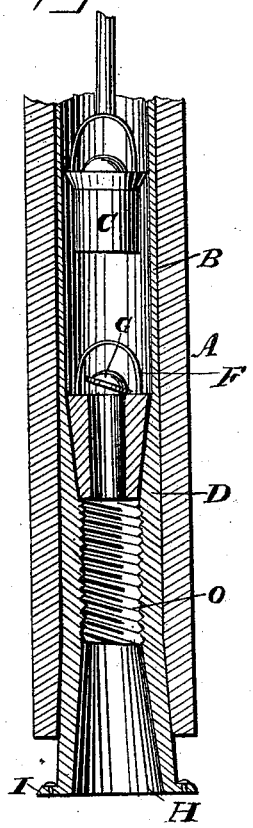


Fig. 2.

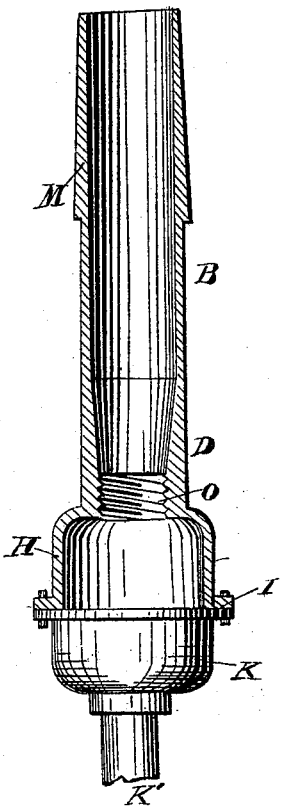


Fig. 3.

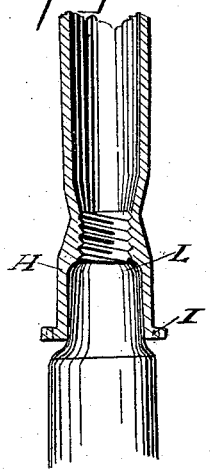
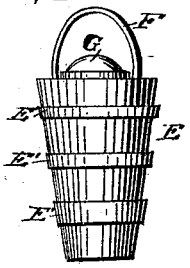


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRANK O. FURBER AND GEORGE S. AYER, OF SACO, MAINE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 418,709, dated January 7, 1890.

Application filed March 7, 1889. Serial No. 302,261. (No model.) Patented in Canada April 21, 1887, No. 26,414.

To all whom it may concern:

Be it known that we, FRANK O. FURBER and GEORGE S. AYER, both residing at Saco, in the county of York and State of Maine, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

A modification of this invention was patented in Canada April 21, 1887, No. 26,414, to George S. Ayer.

This invention relates to pumps of the kind known as "suction" or "force" pumps having wooden stock.

The invention consists in the combination of a particular detachable metallic cylinder with the wooden pump-stock and the particular construction of the cylinder.

The object of the invention is to provide a smooth cylinder or working-barrel in which the suction-box of the pump will work, which cylinder will form a seat for the drop-box or lower valve box or casing, and also a convenient means of coupling the pump-stock with any additional length or kind of pipe required.

Figure 1 is a longitudinal section of the metallic cylinder with coupling-section in elevation. Fig. 2 is a section of the bottom of a wooden pump-stock, showing section of cylinder applied. Fig. 3 is a side elevation of a drop-box. Fig. 4 is a broken section of a modification.

A indicates the lower portion of a wooden pump-stock.

B indicates a detachable cylinder, preferably of metal with a porcelain lining. This cylinder B has its upper end within the pump-stock.

The suction-box C is provided with the usual clapper-valve.

The cylinder B has a conical throat D, into which the lower box E (called the "drop-box," "lower valve box or casing," or "bail-box" of the pump) finds its seat. The box or plug E is perforated longitudinally and has a bail F at its upper end, under which bail there is a check-valve G. The outer surface of box E is covered with an elastic packing substance or carries packing-rings E'. The box E is so long that it cannot turn over in the pump-stock. When dropped into the pump before the insertion of the rod, the box falls into its seat in the conical throat D. The lower end H of cylinder B below the conical throat is preferably conical, but tapers in reverse direction and has a flange I, through which there are bolt-holes. The cylinder may be pressed into the pump-stock until this lower section of the tube finds a firm bearing in the pump-stock, making a water-tight joint.

The cap-section K of metallic pipe may be bolted to the flange I of cylinder B. The section K' extends into the water of the well or cistern.

When it is desired to connect the pump to a lower wooden tube instead of the metallic pipe, a wooden pump section or tube L, having tenon adapted to enter the conical lower end of cylinder, can be used.

The drop-box can be readily lifted out by a hook or catch for repairs.

The insertible cylinder B is preferably made with a slight external taper, so as to fit snugly in the wooden pump-stock, and when pressed farther in the lower end of the pump-stock may be reamed out or counterbored to receive the tapered section H. The upper part of cylinder B may have a slightly-expanded collar M, preferably tapering, either integral with the cylinder or attached thereto, to close firmly into the wood of the pump and make a tight bearing.

It is evident that the conical portion H at the bottom of the lining-cylinder may have more or less taper or may depart somewhat from the conical form. The throat O may be screw-threaded internally to receive a metal pipe, instead of coupling with a flange, as in Fig. 1. The screw-threaded portion will be in addition to the flange, so that either mode of coupling may be adopted. It will be seen that this lining or coupling piece B serves not only as a working-barrel for the pump and as a seat for the lower valve-box, but as a means of coupling the pump-stock with any one of the three kinds of pipe in common use in this art—to wit, a coupling with threaded iron pipe by screwing the pipe into the threaded throat, or in lieu thereof a coupling with wooden pipe by entering the pipe into the lower socket, or a coupling with the cap-section or bowl K, which is often used to form connection with lead pipe.

As is shown in Fig. 2, the cylinder or coupling-piece B enters almost entirely into the wooden pump-stock, and is thus greatly protected against freezing.

What we claim is—

1. The combination, with a wooden pump-stock, of a metallic cylinder at the lower end thereof, said cylinder having a conical seat therein for the lower valve-box, and below said seat a screw-threaded portion for a metallic pipe, and a tapering socket for a wooden pipe, which pipes may be connected alternatively, substantially as described.

2. A metallic coupling-piece for wooden pumps, having an upper cylindrical portion to enter the wooden pump-stock and form a working-barrel, a conical seat for the drop or lower valve-box below said barrel, and a screw-threaded throat and a socket below said conical seat, whereby connection may be made with either an iron or wooden pipe, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK O. FURBER.
GEORGE S. AYER.

Witnesses:
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