(No Model.)

C. H. CHANDLER.

PUMP.

No. 523,657. Patented July 31, 1894.

Fig. 1.

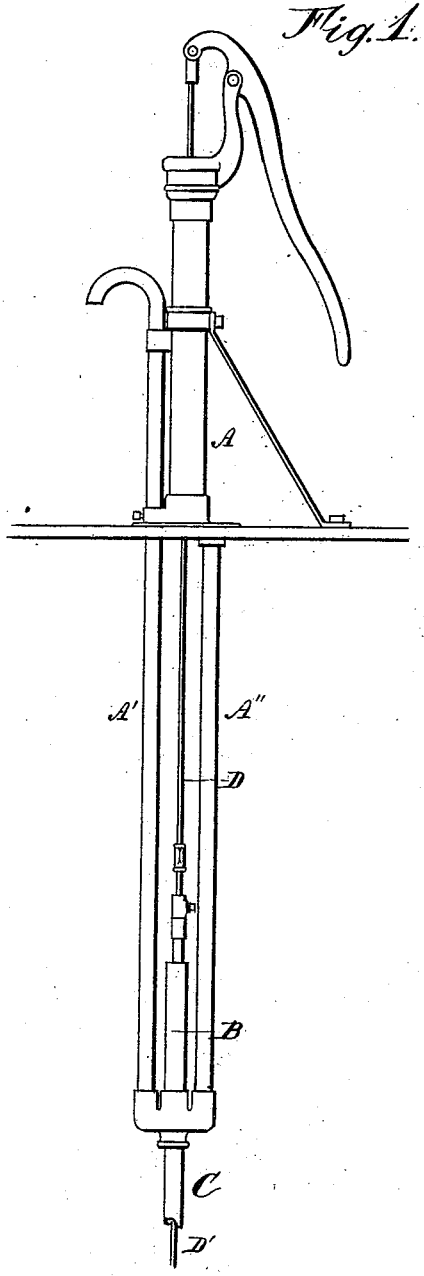
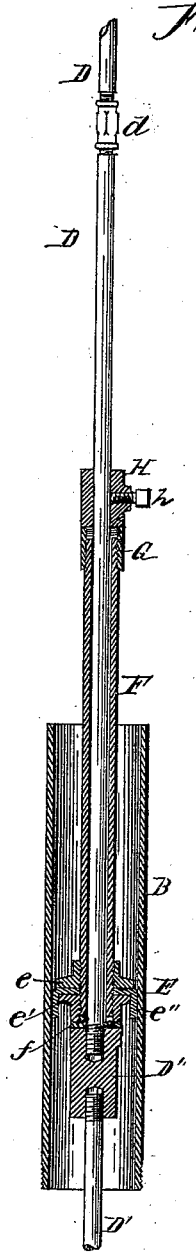


Fig. 2.



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CHARLES H. CHANDLER, OF CEDAR RAPIDS, IOWA, ASSIGNOR TO THE CHANDLER PUMP COMPANY, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 523,657, dated July 31, 1894.

Application filed January 18, 1894. Serial No. 497,225. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CHANDLER, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Pumps; and I do hereby 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.

This invention relates more particularly to improvements in force-pumps; and the object of the invention is to facilitate the changing of the piston or plunger packings as they become worn out or otherwise impaired.

The invention consists in the construction, combination and arrangement of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a pump embodying my invention, and Fig. 2 is an enlarged view of the device itself, in central, vertical section.

Similar letters of reference indicate corresponding parts.

In the operation of pumps of this character, one of the most common annoyances arises from the rapid wear of the piston-packing, necessitating the frequent renewal of the same. As pumps are ordinarily constructed this is a matter of considerable difficulty, since the piston is coupled directly to the rod, which in some cases is very long, extending down to the lower cylinder near the bottom of the well. The upper part of the rod, from the lever or handle to the first piston being also continuous, it becomes necessary to lift the pump bodily up in the well until the upper cylinder is above ground, detach this cylinder from the main pipe, suitably held from dropping back into the well, and uncouple the rod below the upper piston before the piston can be reached to be re-packed. This is at all times a laborious and unpleasant operation, and it is to obviate these difficulties that this invention has been devised.

Referring now to the drawings, A represents the standard of an ordinary force-pump, connected to the upper cylinder B by pipes A′ A″ in a common and well known way. C is the main pipe, extending to the lower cylinder, not shown.

It will be understood that the piston-packing in the lower cylinder requires little attention, but the upper one has to be renewed frequently. I therefore provide for a convenient renewal of the same in the following manner.

Instead of connecting the piston directly to the rod, in the usual way, I connect said piston E to a section of pipe F slipping over the rod D. Both ends of the pipe are threaded, and on the lower end is mounted the fixed part of the piston *e* and the removable part *e′*. Between these clamping plates is secured the packing *e″* in the usual way. To the upper end of the pipe is connected an ordinary pipe-coupling G, the screw-thread preferably working so freely as to be easily operated by the hand alone. Above this is a collar H adapted to be secured to the rod at any desired point by a set-screw *h*.

Both sides of the removable plate *e′* are suitably faced, and on the rod below it is a coupling (or collar, in case the rod is continuous), the upper end of which is also faced. Between this coupling and the lower face of the plate *e′* is placed a packing-ring of suitable material, as leather or rubber.

The operation of the device will now be readily seen. The packing-ring *f* being in position, the piston-pipe is slipped down over the piston-rod until the lower part of the piston is in contact with said ring. The collar H is then secured just at the upper end of the coupling G. Then by turning said coupling upwardly the piston is pressed closely upon said packing-ring, and a water-tight joint is made at that point, excluding water from the inside of the pipe F, and thus preventing leak through the same.

In practice I provide a rod-coupling *d* at some distance above the piston-pipe, which admits of the latter being removed without detaching the rod from the pump-handle or its connections. It will be understood, however, that the rod might be made continuous, and the piston-pipe taken off and put on at the extreme upper end, the same being detached from the pump-handle; but by reason

of its greater convenience the intermediate coupling is preferred.

By means of the simple device described, the operator, with no other tool than a small wrench, is enabled to detach the upper piston in a very few minutes.

Having thus described my invention, I claim—

1. In a pump, the combination of the piston-rod D D′, coupling D″ forming a bearing for the bottom of the piston, collar H, forming a bearing or stop for the upper end of the pipe F, the said pipe F with the piston E attached to the lower end thereof, substantially as and for the purpose set forth.

2. In a pump, the combination of the piston-rod D provided with a coupling D″ forming a bearing for the bottom of the piston, the pipe F mounted on said rod, and provided at its lower end with a piston E, the packing *f* between said piston and said bearing, and a stop on said rod at the upper end of said pipe, whereby the piston is held in position and with a tight joint, substantially as described.

3. In a pump, the combination of the rod D having a coupling D″, the upper face of which forms a bearing for the lower face of the piston, a piston attached to a short section of pipe mounted on said rod, a screw coupling at the upper end of said pipe, and a movable and adjustable collar on said rod, adapted to form a bearing or stop for the coupling at the upper end of said pipe, substantially as and for the purpose set forth.

4. In a pump, the combination with the piston-rod sections D D D′, of the coupling D″, the piston E mounted above said coupling on the pipe F, through which said rod passes, the collar H adjustably attached to said rod, and the coupling *d*, between the pump-handle and the piston-section, whereby the piston section of the rod may be disconnected from both the upper and lower portions of the rod, as described.

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

CHARLES H. CHANDLER.

Witnesses:

L. A. ST. JOHN,

L. M. MARTINE.