(No Model.)

W. D. HOOKER.

PUMP.

No. 265,261. Patented Oct. 3, 1882.

Fig. 1.

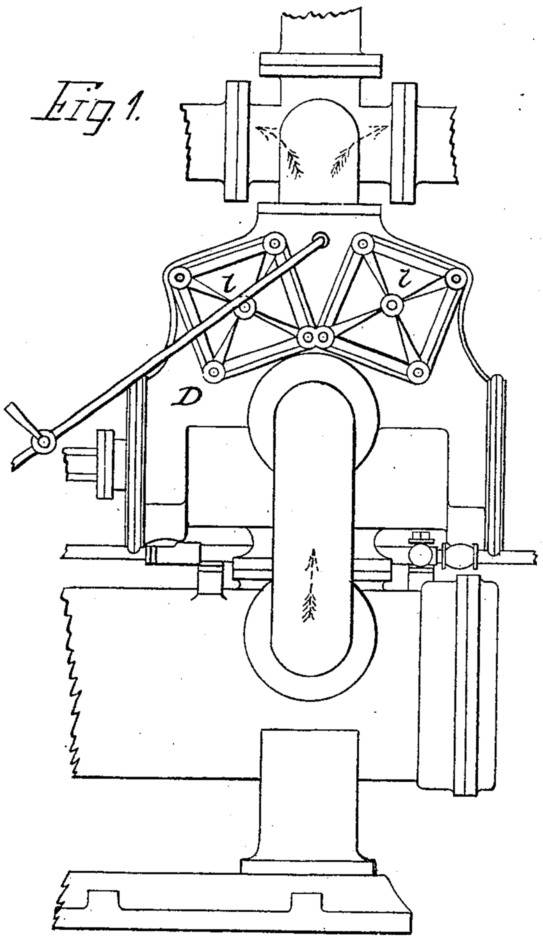


Fig. 2.

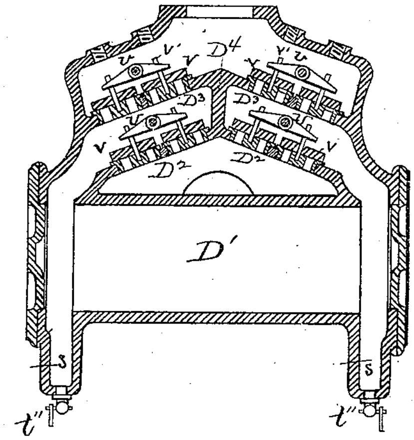


Fig. 3.

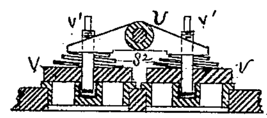


Fig. 4.

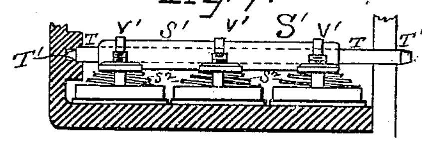


Fig. 5.

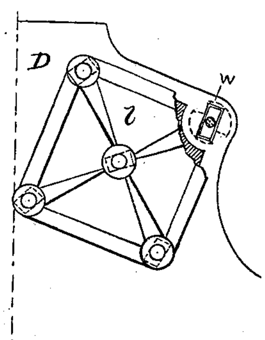


Fig. 3a

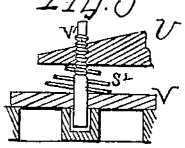
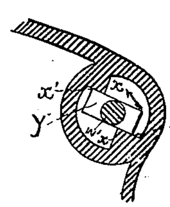


Fig. 6



WITNESSES

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UNITED STATES PATENT OFFICE.

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PUMP.

SPECIFICATION forming part of Letters Patent No. 265,261, dated October 3, 1882.

Application filed December 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. HOOKER, a citizen of the United States, residing at St. Louis, in the State of Missouri, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My present invention relates to a peculiar arrangement of pump-valves and provisions for attaching the caps or covers to the pump-chambers, and originally formed a part of an application for a steam pumping-engine made by me on the 21st day of September, 1881.

This present invention consists in an improved construction of valve-guides for fixing and supporting in place several pairs of valves on a single rod, and in a novel slot or recess in the framing of the chamber to receive the head of a fastening-bolt for securing in place the cap or cover.

The accompanying drawings form a part of this specification, and illustrate the best means of applying the invention.

Figure 1 is a side elevation of the end of the pump, showing the connected parts of a pumping-engine. Fig. 2 is a vertical longitudinal section. Fig. 3 is an enlarged cross-section of the valves. Fig. 3ª is a detail showing the threaded top of the valve-guide and associated parts. Fig. 4 is a longitudinal section of the valves. Figs. 5 and 6 are details of the peculiar bolt and slot.

Similar letters of reference indicate corresponding parts in all the views.

D is the casing of the pump. D′ is the cylinder in which the piston, worked from the engine, (not shown,) plays. Above this cylinder the valve-chamber of the pump is provided with bridges D^2 D^3, set in reverse inclines provided with valve-passages over which the series of valves of the peculiar construction hereinafter described fit. At each end of the pump-cylinder D′ a chamber, *s*, is formed, which has a discharge-opening controlled by a cock, *t*″. Into these chambers all the mud and sediment drawn into the pump are collected and escape through the discharge-opening. The valves V are arranged over the bridges D^2 D^3. They are fixed in pairs to and along each side of a tube or sleeve, S′, and then by means of a single rod, T, the ends of which rest in sockets T′ in the side of the pump and the cover, the whole set of valves is secured in place without other fastening. The tube S′ carries the laterally-projecting lugs U, in the ends of which openings are threaded to receive the valve-guides V′, by means of which each valve V may be adjusted independently of the others. Springs S^2, lying between the cross-pieces U and the valves V, afford the proper yielding pressure upon the valves. The valve-guides V′ are threaded at the upper ends, where they pass through the ends of the cross-piece V, and are smooth at the bottom, where they rest in the valve-seats. In the drawings I have shown six valves in each chamber. The bridges D^2 D^3 are united by a center tree, D^4, at the angle where they join.

The side of the pump is formed with openings, in order that the parts inside may be inspected or repaired. Removable covers are provided for the openings, and the peculiar manner of attaching these covers is important. Instead of the ordinary top bolt, I use a bolt with a T-head on the inner end, and in the metal of the pump-case, behind the rim of the cover *l*, I form a recess, *u*′, which presents on the surface simply a rectangular slot, *w*, of a size to readily take in the T-head of the bolt; but the bottom of the slot is cut out and affords a recess which allows the bolt, when inserted in it, to be turned across the line of the slot. To control the movement of the bolt-head, I form in the recess four stops, *x x x*′ *x*′, two of which are in line with the edges of the slot, while the other two are substantially at right angles to it. Two of these stops, *x*′ *x*′, hold the bolt in position and prevent its turning while the nut on the outside of the cover *l* is being screwed down, while the other two stops; *x x*, bring the head into line with the slot when the bolt is turned back in loosening the cover, so that the T-head *y* can be readily drawn out of the slot by simply turning the bolt a part of a revolution in a backward direction. The cover *l* by this means can be easily detached and lifted out of place without removing the bolts from it.

This device is important as providing a substitute for the usual screw or swing bolts employed for this purpose.

Having thus described my invention, I desire to claim—

1. In combination with one or more sets of valves and valve-guides, V′, the tube S′, having the projecting stops U to receive the ends of the guides V′, the rod T, adapted to support the tube, and the sockets T′ in the sides of the pump-case and the cover to receive the ends of the rod, substantially as set forth.

2. The combination of the sleeve S′, having the projecting stops U, provided with screw-threaded openings at their ends, with the screw-threaded guides V′, entering the openings in the ends of the stops, and with the rod T and valve V, substantially as set forth.

3. The combination of the recess for receiving the fastening means, having the direct rectangular cut *w* extending the full depth of the recess, and a short cut, *w′*, at the bottom thereof, so formed as to present the stops *x x x′ x′*, with the T-headed bolt adapted to enter the cut *w* and be turned in the cut *w′*, substantially as set forth.

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

WILLIAM DAVIS HOOKER.

Witnesses:

WALTER C. CARR,

WM. P. BENTLEY.