T. Rider,

Double-Acting Pump,

No. 47,075. Patented Mar. 28, 1865.

Fig: 1.

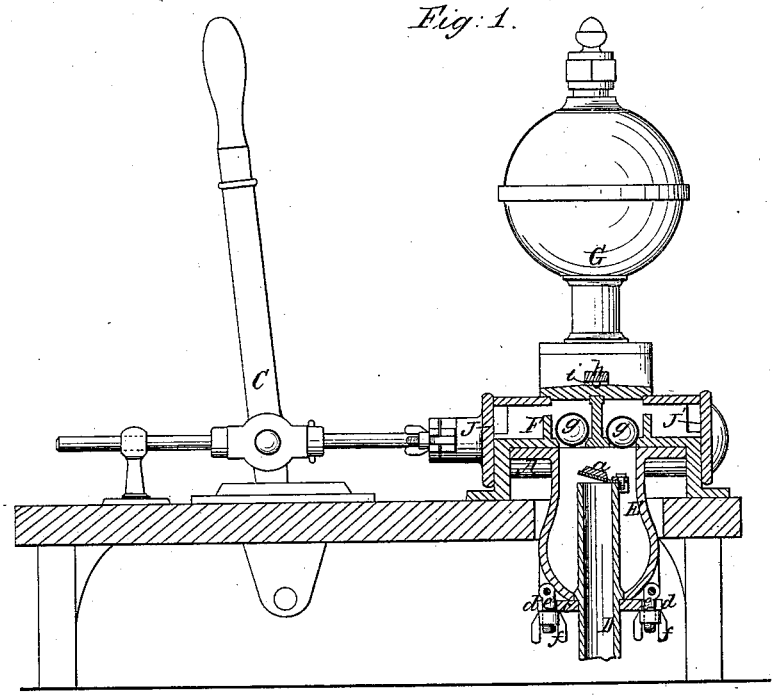


Fig: 2.

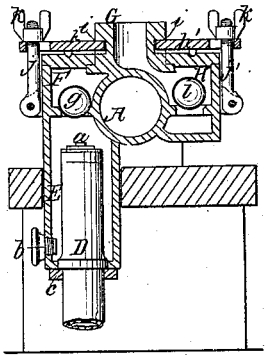
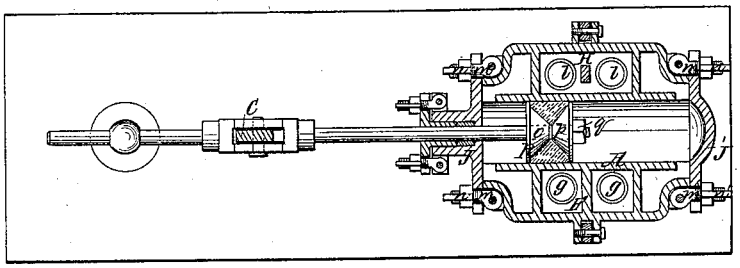


Fig: 3.



Witnesses;
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UNITED STATES PATENT OFFICE.

THOMAS RIDER, OF VALPARAISO, CHILI.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 47,075, dated March 28, 1865.

To all whom it may concern:

Be it known that I, THOMAS RIDER, of Valparaiso, in the Republic of Chili, have invented a new and Improved Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of this invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a horizontal section of the same.

Similar letters of reference indicate like parts.

In pumps of the ordinary construction the suction or foot valve is situated at the base of the column of water admitted, and is otherwise confined in a chamber, so that any impurities passing above the said valve have no escape, and consequently whenever impurities of greater specific gravity than water are sucked in, the operation of the pump is interrupted and the valve has to be removed, causing much loss in time and labor. This difficulty is obviated by the present invention, which consists in placing the foot-valve on the top of a vertical pipe passing up through the bottom of what may be termed a "mud-box," or of a receptacle for the deposit of foreign matters the specific gravity of which may be greater than that of water, said mud-box being provided with an outlet at or near its bottom in such a manner that the impurities which may be carried up by the current of water are prevented from interfering with the operation of the valve, and when the mud-box is full it can be readily cleaned out with little labor or loss of time.

In order to facilitate the access to the various valves and to the plunger or piston, the covers of the valve-chests and the heads of the cylinders are secured by straps and hinged screws, so that the same can be readily removed whenever it may be desired.

A represents the pump-cylinder, which is made of metal or any other suitable material, and which is provided with a piston, B, to which a reciprocating motion is imparted by a hand-lever, C, or in any other suitable manner.

D is the suction-pipe, which extends up through the bottom of the mud-box E, as clearly shown in Figs. 1 and 2 of the drawings. Said mud-box E is a receptacle to receive such impurities which may be carried up by the current of water, and is secured to the under side of the receiving valve-chest F, which is secured to one side of the cylinder A. The suction-pipe D extends some distance above the bottom of the mud-box, and its top end is closed by the foot-valve *a*. The impurities and foreign matter of greater specific gravity than water, which may be carried up by the current, on passing from the suction-pipe, will settle in the mud-box, and are prevented from lodging under the valve and interrupting the correct operation of the pump. A screw-plug, *b*, inserted in the side of the mud-box near its bottom, serves to clean out the sediment which may accumulate therein, and in order to facilitate the removal of the suction-pipe it is secured to a plate, *c*, which is provided with notches *d* to receive the shanks of screw-bolts *e*, which are hinged to the body of the mud-box, and which are furnished with winged nuts *f* that can be readily fastened and unfastened. The water drawn up through the suction-pipe passes through the valve-chest F into the cylinder alternately at one end and then at the other, and the passages leading to said valve-chest are closed by ball-valves *g*, of india-rubber or other suitable material. The cover of the valve-chest is held down by a strap, *h*, one end of which catches into a cavity, *i*, at the bottom of the air-chamber G, and its other end is provided with an oblong hole to admit the shank of a hinged screw, *j*, which is furnished with a winged nut, *k*, so that it can be readily fastened and unfastened. By unscrewing this nut the strap *h* and the cover of the valve-chest can be readily removed, and easy access can be had to the valves whenever it is deemed necessary. A valve-chest, H, similar to the valve-chest F, and applied to the opposite side of the cylinder, contains the delivery-valves *l*. The cover of this valve-chest is secured in its place by a strap, *h'*, hinged screw *g*, and nut *k'*, similar to the corresponding devices employed for the same purpose on the valve-chest F. From the valve-chest H the water passes up into the air-chamber G, whence it

is discharged through a suitable ascension-pipe. The ends of the cylinder and of the valve-chests are closed by heads J J′, which are held in their places by hinged screws *m m′* and winged nuts *n n′*, so that they can be readily removed whenever it is desired to get access to the interior of the cylinder. The piston B is composed of two cones, *o p*, which join at their apexes, and the space between their bases is filled with suitable packing. By screwing up the nut *q* the two cones close up and the packing is forced out against the inner circumference of the cylinder. The packing can thus be tightened with very little trouble and loss of time.

I claim as new and desire to secure by Letters Patent—

The mud-box E, applied in combination with the suction-pipe D and foot-valve *a*, in the manner and for the purpose substantially as set forth.

THOMAS RIDER.

Witnesses:
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