(No Model.) 2 Sheets—Sheet 1.

L. C. MILLER.

PUMP.

No. 265,691. Patented Oct. 10, 1882.

Fig. 1.

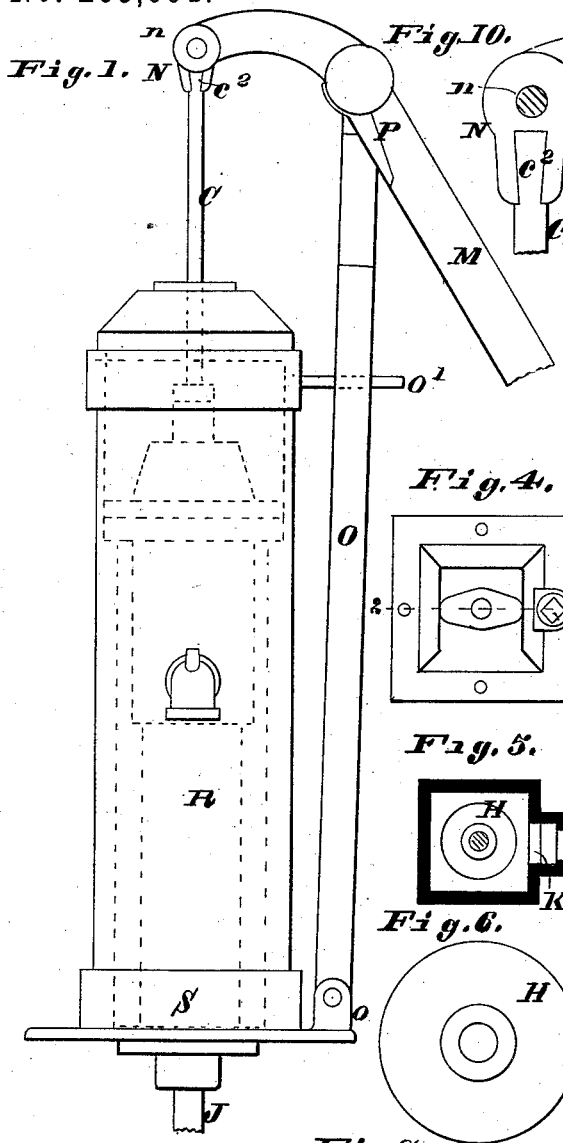


Fig. 10.

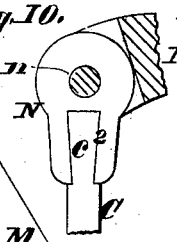


Fig. 11.

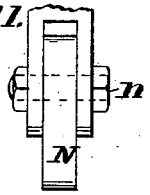
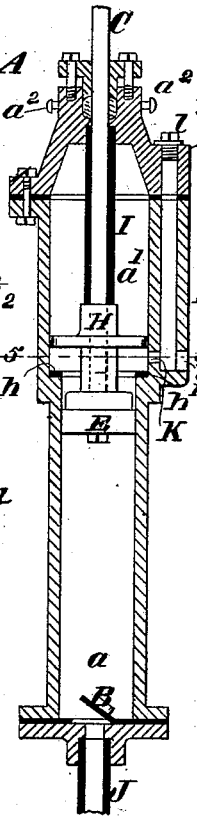


Fig. 2.



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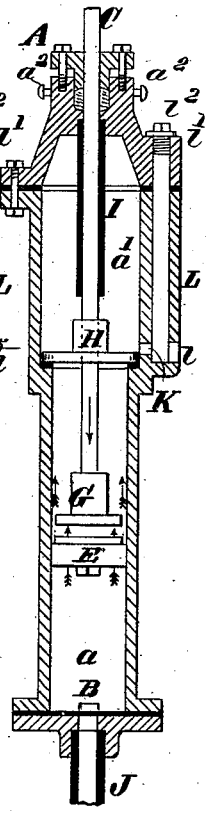
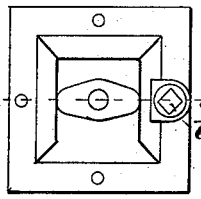


Fig. 4.



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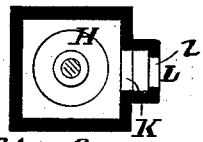


Fig. 6.

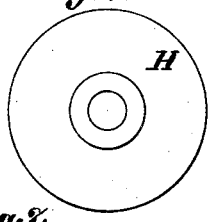


Fig. 7.

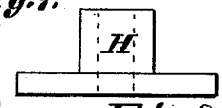


Fig. 8.

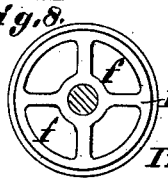


Fig. 9.

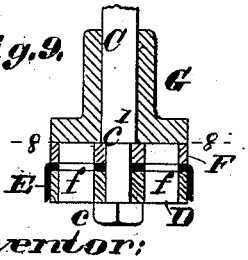


Fig. 12.

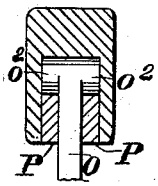
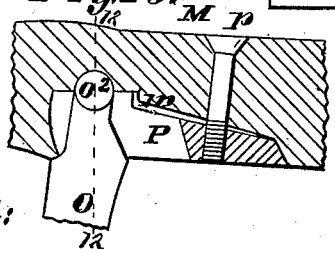


Fig. 13.



Attest:

Fred'k Lear

Emil. S. Boyd

Inventor:

Louis C. Miller

by C. P. Moody, atty.

(No Model.) 2 Sheets—Sheet 2.

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PUMP.

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Fig. 14.

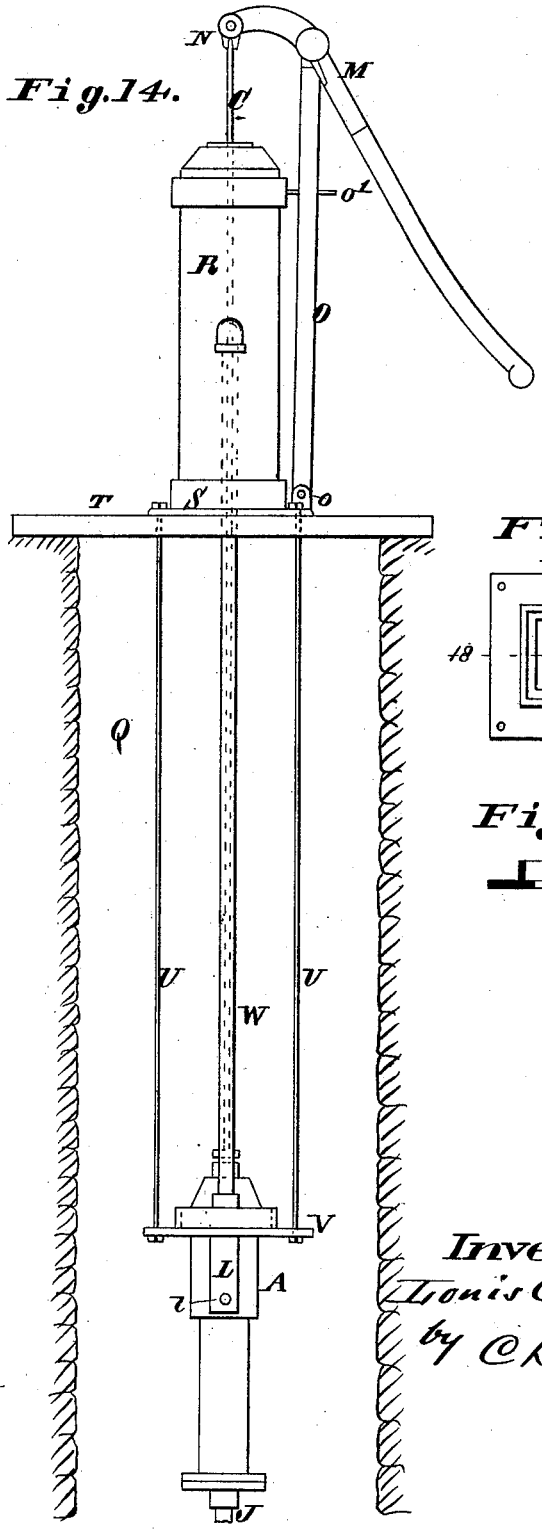


Fig. 15.

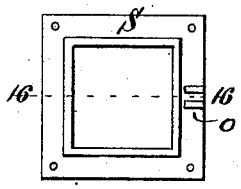


Fig. 16.

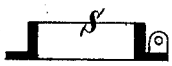


Fig. 17.

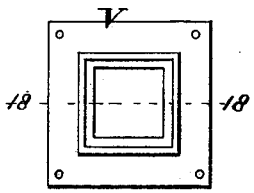
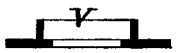


Fig. 18.



Attest:

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atty.

UNITED STATES PATENT OFFICE.

LOUIS C. MILLER, OF ST. LOUIS, MISSOURI.

PUMP.

SPECIFICATION forming part of Letters Patent No. 265,691, dated October 10, 1882.

Application filed January 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, LOUIS C. MILLER, of St. Louis, Missouri, have made a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of the improved pump; Fig. 2, a vertical section taken on line 2 2 of Fig. 4, showing the plunger drawn upward; Fig. 3, a similar section, showing the plunger as moving downward; Fig. 4, a plan of the parts shown in Fig. 2; Fig. 5, a section taken on the line 5 5 of Fig. 2; Figs. 6 and 7, a plan and a side elevation, respectively, of the air-chamber valve; Fig. 8, a section taken on the line 8 8 of Fig. 9; Fig. 9, a vertical section taken through the plunger and parts immediately therewith connected; Figs. 10 and 11, details, being respectively a side, sectional, and an edge elevation of the joint connecting the plunger-rod and handle; Fig. 12, a section taken on the line 12 12 of Fig. 13; Fig. 13, a detail, being a longitudinal sectional elevation, showing the mechanism connecting the pump-handle and fulcrum; Fig. 14, a side elevation, showing the pump applied to a deep well; Fig. 15, a plan of the lower flange of the pump-case; Fig. 16, a section taken on the line 16 16 of Fig. 15; Fig. 17, a plan of the plate used in suspending the plunger-chamber in a deep well and Fig. 18 a section taken on the line 18 18 of Fig. 17.

The same letters denote the same parts.

The present invention relates to the valve-chamber, to the mechanism of the lower valve, to the upper valve and parts therewith connected, to the connections of the pump-handle with the valve-rod and with the fulcrum, to the handle-bearing or fulcrum, and to the part used in supporting valve-chamber in a deep well.

Referring to the drawings, A represents the valve-chamber, consisting essentially of a lower chamber, *a*, and an upper chamber, *a'*. A foot-valve, B, is arranged at the bottom of the chamber *a*. The valve-rod C works up and down in the chambers *a a'*. A perforated disk, D, is secured to the valve-rod at the lower end thereof. A perforated packing, E, rests upon the disk D, and above the packing is another perforated disk, F. The latter serves to hold the packing down upon the lower disk, and also forms a seat for a valve, G, that encircles and is fitted to the rod, and is capable of sliding upward and downward thereon, the valve, when resting upon the disk F, serving to close the perforations *f*, and when lifted from the disk F permitting the passage of the water through the perforations *f*. The disks D F and packing E are held in place on the valve-rod by means of the nut *c*, the disk F coming against the shoulder at the upper end of the tenon *c'*.

H represents a valve encircling and working upward and downward on the valve-rod in the upper chamber, *a'*. The seat of the valve H is at *h*, Figs. 2, 3. The seat *h* may have a packing, *h'*. The upward movement of the valve H is limited by means of a stop, I, which is preferably in the form of a tube surrounding the valve-rod C. The water enters the valve-chamber through the inlet J, and it is discharged from the valve-chamber through the outlet K, which is arranged to be above the valve H when the latter is seated. The outlet K may lead to any convenient point for discharging the water finally from the pump—for instance, into the side pipe, L, and from this last-named part L the water may be discharged at the side opening, *l*, or at the top *l'*, and if at the latter the opening *l* may be closed by means of a plug, such as l^2.

The operation of this portion of the improvement is as follows: On lifting the valve-rod the parts assume the positions shown in Fig. 2, the water entering the chamber *a* past the foot-valve B, and the water above the valve G being lifted into the upper chamber, *a'*, and the valve H being lifted by the action of the water from its seat *h*. This upward movement causes the water to be discharged through the outlet K, and also to be raised into the chamber *a'*, and to compress the air therein. The compressed air operates to expel the water from the chamber *a'* on the downward stroke of the valve-rod, the parts then assuming the positions shown in Fig. 3, the valve H being seated, the valve G being lifted from its seat F, and the foot-valve being closed. The water-discharge is thus made continuous.

The valve-rod C is connected with the pump-handle M, preferably as shown in Figs. 1, 10, 11, the rod having a tenon, c^2, enlarging toward its upper end, and engaging (by slipping

it sidewise therein) in a clip, N, which in turn is journaled on a bearing, *n*, on the handle M. The valve-rod has a vertical movement only, the bearing or fulcrum for the handle to turn on being in the form of a standard, O, that at its lower end is so jointed to its support *o* that its upper end can swing toward and from the valve-rod as the handle is vibrated. The standard O is kept in place laterally by means of a guide, *o'*. The connection of the standard with the handle is preferably as shown in Figs. 1, 12, 13, the handle in its under side at *m* being chambered out to receive the upper end of the standard and a locking-plate, P, and the standard being furnished with the gudgeons o^2 o^2, and upheld in the handle by means of the plate P, which in turn is fastened to the handle by means of a screw, *p*, or other suitable fastening. The plate P is suitably shaped out to receive the gudgeons o^2 o^2, and to permit of the proper working of the parts.

In deep wells such as Q, Fig. 14, the pump-case R rests upon a flange, S, which in turn is supported upon a suitable platform or support, T. The valve-chamber A is then suspended in position by means of the rods U U and flange V. In this case the discharge is through a pipe, W.

The tube I extends to the top of the chamber *a'*, and in addition to being a stop, as described, serves materially in preventing the escape of air from the chamber *a'*, the valve-rod being made to fit the tube so snugly that the air cannot to any appreciable extent pass between the rod and tube, even should the packing in the stuffing-box at the top of the valve-chamber become loose.

I claim—

1. In a pump substantially as described, the lower compartment, *a*, having foot-valve B, the piston-rod C, disk F, valve G, sliding on rod C, sliding valve H, seat *h*, outlet K, and upper compartment, *a'*, closed at its top, all combined and operating substantially as set forth.

2. In a pump substantially as described, the piston-rod C, having disk F at its end, and valves G and H sliding upon it, the lower chamber, *a*, having valved inlet, as stated, the closed upper chamber, *a'*, seat *h*, outlet K, and side pipe, L, with opening *l*, substantially as set forth.

3. In a pump substantially as set forth, the piston-rod C, having disk F on its end, and valve G working upon it in chamber *a*, and valve H working upon it in chamber *a'*, and provided with stop I, combined with chamber A, having valved inlet J, valve-seat *h*, educt *k*, and side pipe, L, provided with opening *l* or *l'*, all constructed and operating substantially as and for the purposes set forth.

4. The combination of the handle M, the rod C, having the tenon c^2, and the clip N, substantially as described.

5. The combination of the handle M, the standard O, having the gudgeons o^2 o^2, and the plate P, substantially as described.

LOUIS C. MILLER.

Witnesses:
C. D. MOODY,
FRANCIS VALLÉ.