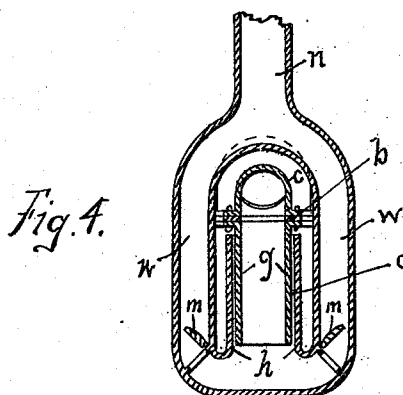
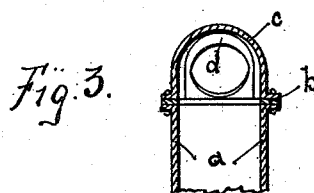
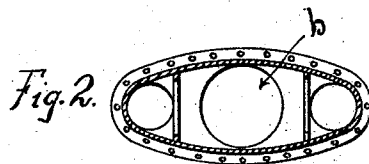
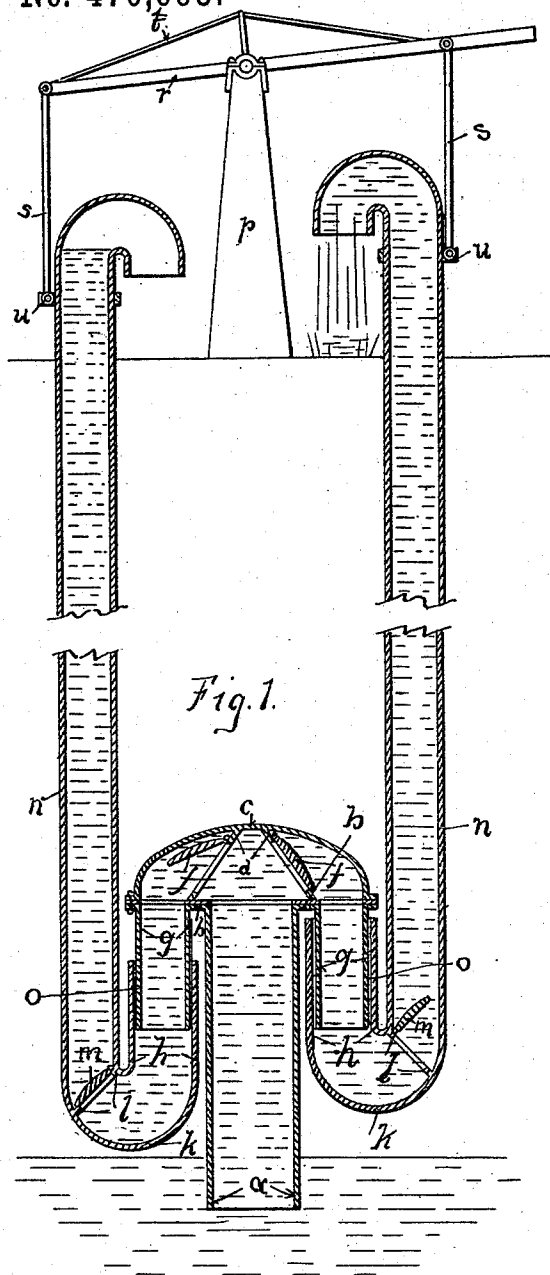


(No Model.)

F. A. MORAND.
PUMP.

No. 470,695.

Patented Mar. 15, 1892.



Witnesses.
H. Pell (Pais).
Willis L. Hand

Inventor
Franklin A. Morand

UNITED STATES PATENT OFFICE.

FRANKLIN A. MORAND, OF KEARNEY, NEBRASKA, ASSIGNOR OF ONE-HALF
TO HORACE H. SEELEY, OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 470,695, dated March 15, 1892.

Application filed April 16, 1891. Serial No. 339,145. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN A. MORAND, a citizen of the United States, residing at Kearney, Buffalo county, Nebraska, have invented certain new and useful Improvements in Pumps; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Figure 1 represents the pump in vertical section; Fig. 2, a plan of the plate forming the base of the cross-head; Fig. 3, an end view of the cross-head, and Fig. 4 a modification.

My invention consists of an improved pump constructed and operated as follows:

The pump consists of an iron gas-pipe *a*, eight inches in diameter or any other convenient size and varying in length from six feet to twenty feet, as desired, to be set in the bottom of the well. The top end of the pipe *a* is to be screwed into an iron plate *b b*, in size from four to twelve inches in width and from sixteen to thirty-six inches in length and from three-eighths to three-fourths of an inch thick, preferably cast-iron. Each edge should be set up sufficiently to form a flange to be perforated with about one-half-inch holes for receiving bolts in bolting to this bottom plate *b b* the top plate *c* of the cross-head *v*. On each side of the central opening in said plate *b b* and about two to four inches from the pipe *a* said plate is perforated for receiving other and smaller pipes of cast-iron. Upon and above said plate *b b* and forming the top plate *c* of the cross-head *v* is placed a corresponding plate of iron, with flanges upon the edges thereof, so formed as to meet and match the flanges cast in the edges of the lower plate *b b*. Upon the inner side of the plate *c* and from two to five inches each way from a point midway from either extremity is located a valve-seat *d*, cast with plate *c*. Nearly opposite thereto and cast with the plate *b b* are located corresponding valve-seats *e e*. These valve-seats, situated opposite, are to be joined in pairs by ordinary leathern flat valves *f f*. Said plates *b b* and *c* should be laid together and bolted through flanges at the edges. On either side of the pipe *a* and two to five inches distant from it cast pipes *g g*, of equal size

but smaller than the supply-pipe *a*, should be secured into the bottom plate *b b* on the lower side thereof, extending downward and parallel with the supply-pipe *a* about twenty inches. This pipe *g g* constitutes the upper section of the cylinder *o o* and fits closely into the lower section of cylinder *h h* and extends downward into it or on the outside of it, as may be desired, from eight to sixteen inches, the lower section being about twenty inches in length and secured into the return bend *k k* at the bottom, such return bend to be cast in one piece, including valve-seats *l l*, which shall be supplied with leathern flap-valves *m m*. The cast pipes *h h* and *g g* together constitute the cylinder called the "telescope-cylinder" *o o*. The upper and lower sections of the cylinder are to fit closely together, the upper within the lower or the lower within the upper, as may be preferred, but in such manner as to permit the lower section to move up and down from eight to twelve inches. Into the return bend is secured the delivery-pipe *n n*, so as to move upward and placed parallel to the cylinder *o o*. These pipes *n n* should be gas-pipe from two to six inches in diameter, large enough to carry not quite half as much water as the supply-pipe can carry, and may be of any desired length, curving at the top in form of a goose-neck, so as to discharge water in any desired direction.

In place of the single return-bends *k k* double return-bends may be used with the pipes *h h*, screwed into the centers, and two valves in each and two smaller openings, each opening to receive a smaller delivery-pipe, one on each side of each cylinder *o o* and near to the supply-pipe *a*, so that the cylinders *o o* shall be between the delivery-pipes and not between them and the supply-pipe *a*. Each pair of such small delivery-pipes *w w* in Fig. 4 shall join just above the cylinder, forming single delivery-pipes, the same as the pipes *n n*, continued to the surface and above. The arrangement of these smaller delivery-pipes is particularly shown in Fig. 4.

Midway between the delivery-pipes *n n* at the surface of the ground should be a standard and fulcrum *p* for the walking-beam *r*, terminating at the top with a metallic feather edge or thick enough to support an iron rod

upon which to balance the walking-beam *r*, the standard to be constructed, principally, of wood, the walking-beam of wood strengthened by an iron rod *t*. Connect the extremities of the walking-beam *r* by rods with the clamps *s s*, clasped around delivery-pipe *nn*. When so adjusted, it is intended that the delivery-pipes *nn*, with the lower sections *h h* of the cylinders, shall balance upon the fulcrum *t*, even when such delivery-pipes and cylinders shall be full of water.

I claim as new and useful in my invention—

1. The combination, with the pipe *a*, having lateral portions at its upper end, the plate *b* with its flanges, the cross-head supporting the same, a flanged plate above the plate *b* and forming the top plate of the cross-head, the telescopic cylinder, and the delivery-pipes having U-shaped extremities, of the valves in the said pipes in the lower U-shaped portions thereof and the valves in the upper part of the cylinder, substantially as described.

2. The combination, with the pipe *a*, having lateral portions at its upper end, the plate *b* with its flanges, the cross-head supporting the same, a flanged plate above the plate *b* and forming the top plate of the cross-head, the telescopic cylinder supported upon the

upper end of the pipe *a*, with depending portions extending into the delivery-pipes, and the delivery-pipes having U-shaped extremities, of the valves in the said pipes in the lower U-shaped portions thereof and the means for reciprocating said delivery-pipes.

3. The combination, with the pipe *a*, having lateral portions at its upper end, the plate *b* with its flanges, the cross-head supporting the same, a flanged plate above the plate *b* and forming the top plate of the cross-head, the telescopic cylinder, and the delivery-pipes having U-shaped extremities, of the valves in the delivery-pipes at the bends thereof, means for reciprocating said delivery-pipes, the valves in the upper part of the cylinder, the standard, the walking-beam fulcrumed thereon, the clamps on the upper ends of the delivery-pipes, and the rods connecting the said clamps and walking-beam, substantially as described, and for the purpose specified.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FRANKLIN A. MORAND.

Witnesses:

CHAS. R. DEAN,
W. L. HAND.