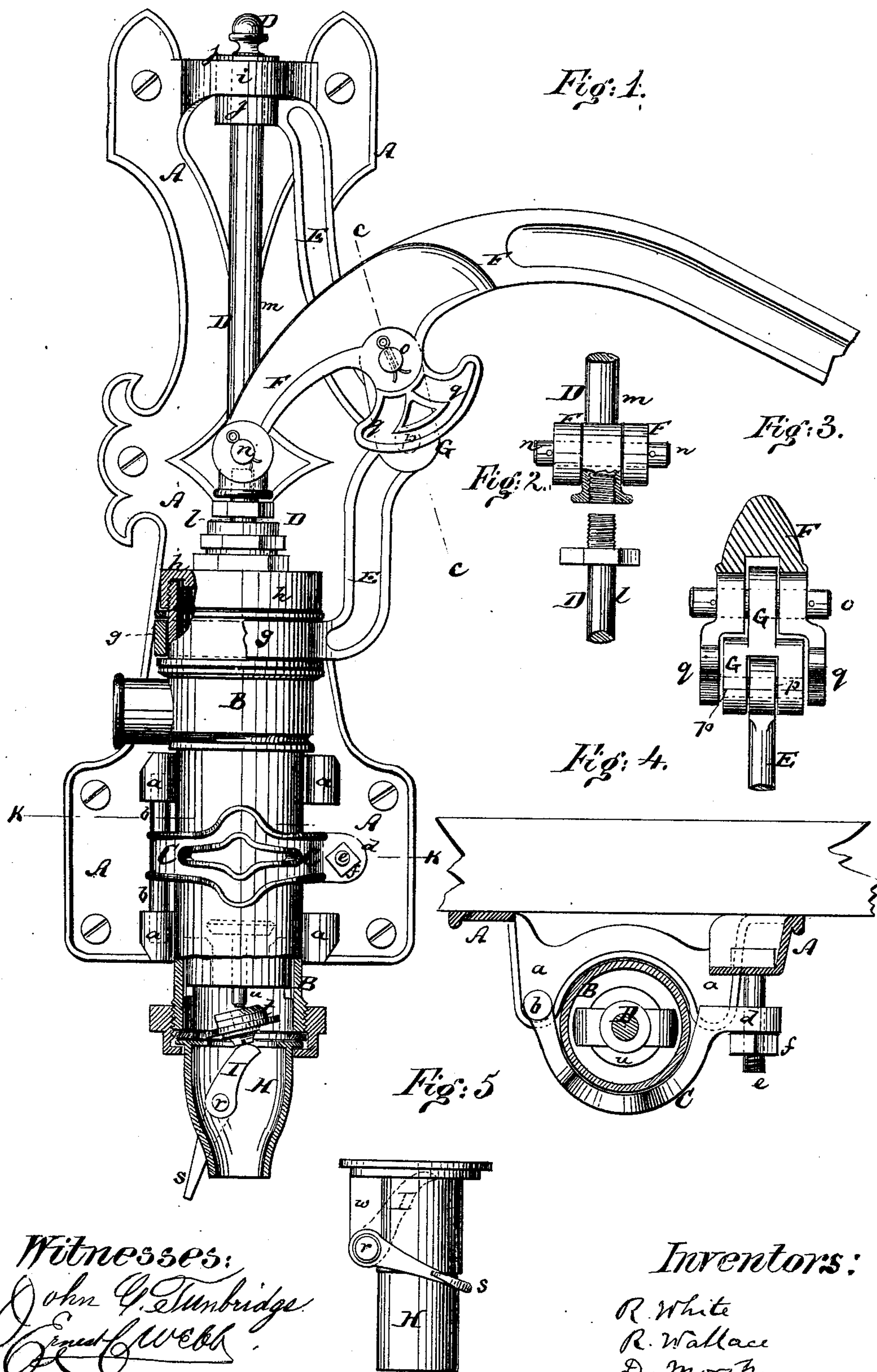


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WALL-PUMP.

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Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT WHITE, OF BROOKLYN, AND ROBERT WALLACE AND DAVID MORITZ, OF NEW YORK, N. Y.

IMPROVEMENT IN WALL-PUMPS.

Specification forming part of Letters Patent No. **195,781**, dated October 2, 1877; application filed February 17, 1877.

To all whom it may concern:

Be it known that we, ROBERT WHITE, of the city of Brooklyn, county of Kings, and State of New York, and ROBERT WALLACE and DAVID MORITZ, both of the city of New York, county of New York, and State of New York, have invented a new and Improved Wall-Pump, of which the following is a specification:

Figure 1 is a front view, partly in section, of our improved wall-pump. Fig. 2 is a detail face view, partly in section, showing the connection of the plunger-rod with the operating mechanism. Fig. 3 is a detail cross-section on the line *c c*, Fig. 1; Fig. 4, a horizontal section on the line *K K*, Fig. 1; Fig. 5, a side view of a modification of the anti-freezing attachment.

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

This invention has for its object to improve the construction of frame, cylinder, and operating mechanism of a wall-pump, which is a pump attached to a frame that is adapted to be fastened to the face of a wall or other vertical support.

The first feature of this invention consists in supplying the frame of the pump with a hinged strap, whereby the cylinder is clamped into position vertically, said strap permitting the ready removal of the same from the frame for purposes of repair and otherwise, and permitting also the rotation of the same within the space that confines it to the frame.

The invention also consists in swiveling the upper end of the bracket, by which the handle that works the pump is held in place in a socket formed at the upper end of the pump-frame.

It also consists in rendering the plunger-rod sectional, so that whenever the plunger is to be removed the rod may be taken to pieces, the upper head of the cylinder unfastened, and the plunger withdrawn, all without displacing the bracket or the handle.

The fourth feature of the invention has reference to the manner of holding the swivel-ring, which is formed at the lower end of the

lever-bracket, it being in this placed under the cylinder-head, in contradistinction to placing the ring over the head, as has heretofore been usually done. This allows us to unscrew the head in the manner already stated, and remove the plunger without displacing the bracket; whereas, if the bracket-ring rests on the cylinder-head, this ring must first be removed, and with it the bracket, before the head can be detached.

The invention also consists in joining the lever which operates the plunger, by a link, to the bracket of the pump, thereby producing a very desirable anti-friction connection; also, in forming wings on the handle to lap over the pivot-pin that connects the said link to the bracket, and finally in applying a crank-pin to the suction-pipe of the pump directly below the supply-valve, so that, by vibrating said pin by means of a handle with which it is provided, the supply-valve can be held open, and all the water contained within the pump be discharged into the well or reservoir, whereby the pump is prevented from freezing in winter.

In the accompanying drawing, the letter *A* represents the frame of our improved pump, said frame being made of cast metal or other suitable material of proper size and shape. From its face projects a pair of saddles, *a a*, for the support of the pump-cylinder *B*, which is placed into the hollow of the saddles, and retained in a vertical position by a strap, *C*, that is hinged by a pin, *b*, to lugs projecting from the frame *A*, as clearly indicated in Figs. 1 and 4. These lugs are shown to be parts of the saddles *a a*, but may be separate pieces, if desired.

The part which we have termed the strap *C* is a piece of metal of nearly semicircular form, having the vertical pin *b* projecting from one end of the semicircle, and a loop or eye, *d*, from the other end. A screw, *e*, which is by its head held fast to the frame *A*, passes through the eye *d*, as shown in Fig. 4, and a nut, *f*, applied to the screw *e*, bears upon the eye *d*, and crowds the strap *C* tightly against the cylinder *B*. By unfastening the

nut *f* the strap C can be liberated to swing on its pivot *b*, and to permit the ready removal or reversal of the pump-cylinder.

The plunger-rod D of the pump extends upwardly through a hole in the upper end of the bracket E, as shown, the bracket E being that part of the pump to which the operating-handle F is pivoted or connected. The lower end of this bracket forms a ring, *g*, that encircles the upper part of the pump-cylinder B, and that is held in place by a cap or head, *h*, screwed upon the upper end of the pump-cylinder, the said cap *h* constituting, virtually, the upper head of the pump-cylinder. The upper end *j* of the bracket E is cylindrical, its inner bore being of a size to admit the rod D, and its outer diameter corresponding to the aperture formed in the upper cross-bar *i* of the bracket E. This cylinder *j*, so formed at the upper end of the bracket E, and necessarily concentric to the ring *g*, permits the rotation of the bracket E on the frame A, without necessitating the displacement of any of the parts, excepting, perhaps, a slight loosening of the head *h* that clamps the ring *g* tight against a shoulder formed on the pump-cylinder. We are thus enabled, without taking the pump to pieces, to reverse the bracket E, and with it the position of the handle, and allow the handle to be applied either to the right or left hand side of the pump. When such reversal was heretofore desired it was, as far as we know, always necessary to unfasten the handle before the reversal could take place.

The plunger-rod D is made in two parts, of which the lower part *l* is the plunger-rod proper, while the upper part *m* connects with the lever F, and is guided in the cylinder *j*. The two parts *l m* of the plunger-rod are screwed together at a short distance below the point at which the lever F connects with the plunger-rod by the pin *n*. By separating these two pieces, *l m*, in the manner indicated in Fig. 2, the removal of the head *h* from the pump-cylinder and the withdrawal of the pump-plunger from within the cylinder, is facilitated without requiring the removal of the lever F, whereas heretofore, as far as we are informed, it was impossible to withdraw the plunger-rod from the pump-cylinder without first unfastening such rod from the operating-lever. This we avoid. The lever F is, by a pin, *o*, pivoted to a crank or link, G, which, by another pin, *p*, is pivoted to the bracket E, so that in vibrating the lever F for operating the pump it will not only swing on the pivot *o*, but also on the pivot *p*, this double motion serving to compensate for the varying distance between the pivots *n* and *p* during the operation of the pump.

We deem this link-connection of the lever with the bracket superior to positive or direct connection, inasmuch as much friction is avoided by the arrangement.

On the lever F we form a pair of projecting wings, *q*, which lap over and straddle the ends of the pivot-pin *p*, and serve to hold said pivot-pin in place on the bracket without requiring it to be fastened on the bracket or link by other fastening, such as screw-threads, transverse pins, &c.

In the supply-pipe H, which enters the lower end of the pump-cylinder, is pivoted, by a pin, *r*, a crank, I, the pin *r* having a projecting handle, *s*, on the outside of the supply-pipe, for the purpose of permitting it to be vibrated on its bearings.

When the pump is to be set at rest in winter we elevate the crank I by means of the handle *s*, and thereby raise the lower valve *t* of the pump, and with it, also, the valve *u*, which is usually contained in the plunger, all as indicated in Fig. 1. In thus raising the crank, the valves *t u* are opened, and all water contained within the pump-cylinder is allowed to flow down into the supply-pipe, whereby the freezing up of the pump is entirely avoided.

In order to permit this opening of the valve *u* it is, of course, necessary to first bring the plunger down to its lowermost position on the cylinder. The pin *r* may be either directly passed through the body of the supply-pipe H, as in Fig. 1, or it may be caused to extend through a lateral enlargement, *w*, of said supply-pipe, as indicated in Fig. 5.

If the lever F is directly pivoted to the bracket E, the link-connection may be made with the plunger-rod, which, however, we do not claim in this application; but under such construction the cylindrical extension *j* of the bracket E need not be made hollow, but may be solid. A similar crank, I, may be placed in a force-pipe, if the same contains a valve.

We claim as our invention—

1. The combination of the pump-frame A, having saddle-pieces *a a*, with the pivoted strap C and fastening device *e*, for the purpose of confining the cylinder B to said frame, substantially as herein shown and described.

2. The pump-bracket E, made with the lower ring *g*, and with the upper cylindrical extension, which is swiveled within the ring *i* of the frame A, substantially as herein shown and described.

3. The plunger-rod D, made in two pieces, *l m*, which are screwed together above the cylinder B, to be separated, and separately reached and handled above said cylinder, substantially as specified.

4. The combination of the bracket E, having the ring *g*, with the cylinder B and cylinder-head *h*, all arranged so that the ring *g* is placed beneath the head *h*, and held in place by said head, substantially as specified.

5. The combination of the pump-lever F, which is joined by a pin, *n*, to the plunger-rod D, with the link G and bracket E, the link

being connected by one pivot with the lever, and by another pivot with the bracket, and arranged to vibrate on both pivots when the handle is operated, substantially as specified.

6. The combination of the lever F, having wings *q*, with the pivot-pin *o*, link G, pivot-pin *p*, and bracket E, all arranged so that the wings confine the pin *p* to its position in the link and bracket, substantially as set forth.

7. The combination of the pumps, supply-pipe H, with the pin *r*, which is swiveled in

said pipe directly below the valve *t*, and with the crank I, handle *s*, and valves *t* and *u*, all arranged so that both valves *t u* can be opened by turning said crank, substantially as specified.

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