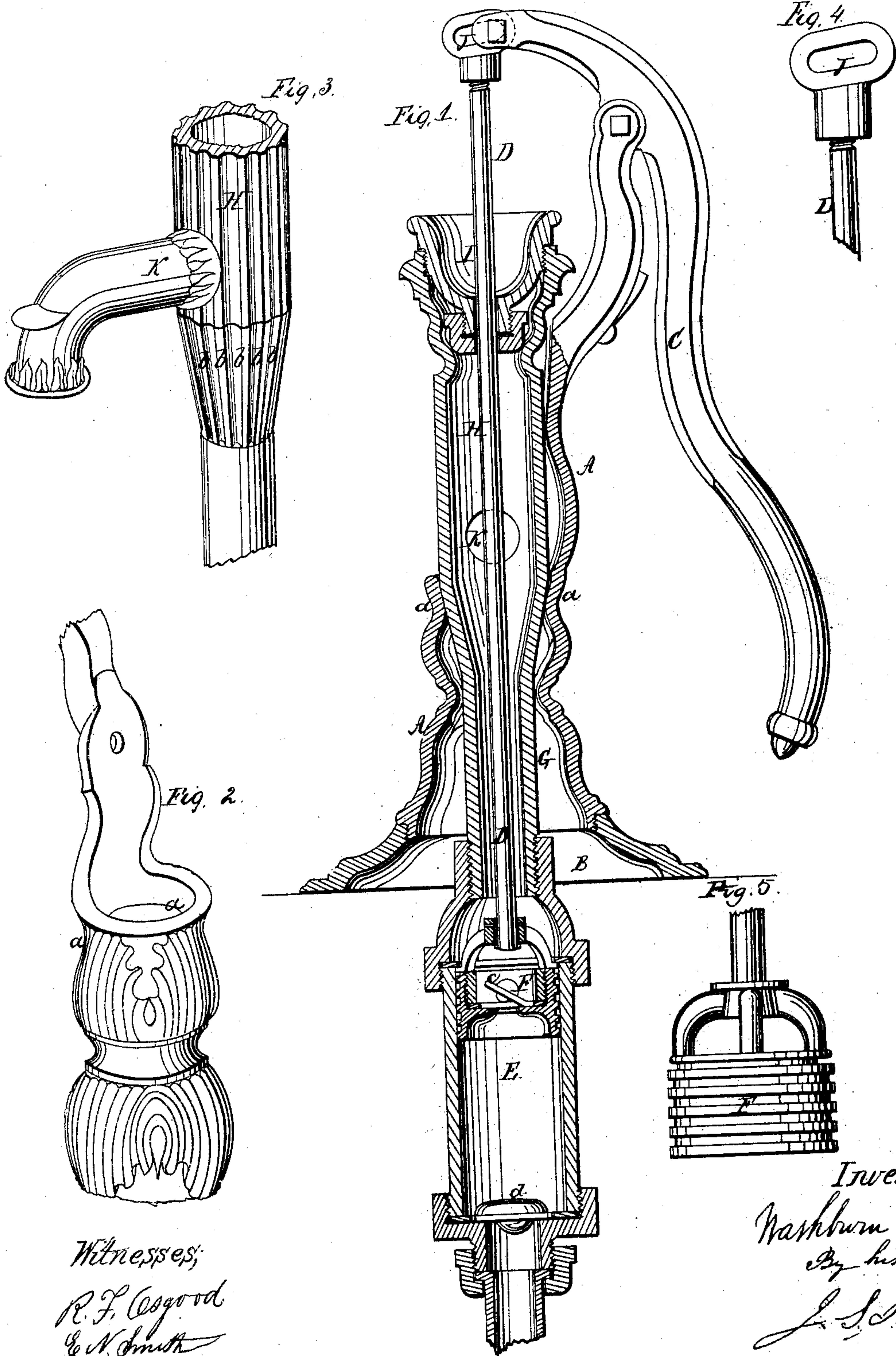


W. Race,

Pump Lift,

No 28,405.

Patented May 22, 1860.



Witnesses;
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UNITED STATES PATENT OFFICE.

WASHBURN RACE, OF SENECA FALLS, NEW YORK.

PUMP.

Specification of Letters Patent No. 28,405, dated May 22, 1860.

To all whom it may concern:

Be it known that I, WASHBURN RACE, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and Improved Pump; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1, being a central, vertical section of the principal parts of the pump; Fig. 2, a view, in perspective, of a part of the stock, or standard; Fig. 3, a view, in perspective, of a part of the spout-piece; Fig. 4, a view of the slotted head of the piston-rod; Fig. 5, side view of the piston.

Like letters designate corresponding parts in all the figures.

I employ a hollow stock, or standard, A, which is provided with a suitable base B, for securing it in the place where the pump is to be located. From one side of this standard a bearing for the working lever *c*, projects, as represented; and in the open mouth *a*, of the standard fits and rests a conical portion of the spout-piece H, substantially as shown in the drawings, all the parts of the pump, below, being secured to this spout-piece, so that they are suspended, without any other support, in said standard. The lower end of the spout-piece H, is continued in a pipe G, of any length required, down to the cylinder E, in which the piston F, works. If desired, in shallow wells, or where the water is to be raised only a comparatively little height, the cylinder E, may be connected immediately with the spout-piece H; and a pipe from the bottom of the cylinder will then extend down to the water. In deep wells, the cylinder is to be sunk into, or nearly down to, the water, and the required length of intermediate pipe between the cylinder and spout-piece is to be inserted. This method of mounting the working parts in the standard, allows the utmost facility of adapting the length of connecting pipe between the spout-piece and cylinder, to the depth required; as, for instance, when the water of the well varies much in height, at different seasons. For the spout-piece is readily raised from the standard so as to insert any number of lengths of pipe for lowering the cylinder E, or to take out any lengths for raising the position of the cylinder. The piston-rod D, is lengthened and

shortened, at the same time, and in the same way.

The bearing for the working lever only occupying a small portion of the upper edge of the standard A, and the spout piece H, simply resting in the standard, while the parts below are entirely free, I arrange the spout-piece H, so that it can be freely turned one half of a revolution, and thus bring the spout K, either into a right or left position in relation to the working lever, as may be desired.

In the surface of the conical bearing of the spout-piece are formed flutes, or longitudinal grooves, *b, b*, through which the warm air from the well may rise for ventilating the same; and particularly for keeping the pipe and spout-piece warmer, and thereby greatly lessening the liability of the water's freezing therein, in cold weather, to cause the piston-rod to stick, or other inconvenience. The flutes also render the spout-piece less liable to stick in the standard, when it is desired to raise or turn it. Instead of having the grooves in the spout-piece, they might be in the mouth *a*, of the standard, with a similar effect.

A great advantage in the method of suspending the spout-piece and the parts below in the standard, without any other support, or stay, is derived in preventing any liability of breaking or injuring the pipe below, by the vibration of the standard, when it happens to get loose, or in any way unsteady. Without this method of free suspension, the pipe is frequently broken, from such a cause, because in the ordinary construction of pumps, the pipe and cylinder are not allowed to yield from a rigid position, when the standard above vibrates.

A guide cap I, is screwed into the top of the spout piece H, for keeping the piston-rod D, in a central position. There is no need of a stuffing-box in this cap; and the piston-rod may slide quite freely therein, with my improved head of piston-rod, for connecting it with the working lever. In this head I make a slot J, which is inclined downward and forward from the working lever, and in which a bolt in the end of the lever plays. This inclination of the slot is such that, as the end of the lever moves forward and downward, it will favor, or coincide sufficiently with, the motion of the lever, to cause the bolt to move without binding or restraint therein; and in the same way, it

will coincide, when the lever moves upward and backward. The inclination of the slot from a horizontal position need not be very great—about as shown in the drawings. If
5 it should be too much, the wedge action of the lever therein would tend to bend the piston-rod.

The piston, or plunger, F, is made, as shown in Fig. 5, with annular grooves
10 around its periphery and narrow bands between. The outer surfaces of the bands fit only loosely, so as to slide freely, within the cylinder E. By this construction, the piston may be made of metal and no pack-
15 ing, the water in the grooves serving for packing. The piston, therefore, wears but little, or none; and much friction is avoided.

What I claim as my invention and desire to secure by Letters Patent, is—

20 1. Suspending the spout-piece H, and its dependent parts, in the hollow standard A, by a conical bearing, or its equivalent, the

parts suspended being free from any connection or support except the said suspension bearing, substantially as and for the pur- 25
poses herein specified.

2. In combination with the suspension of parts in the standard A, the arrangement of the spout-piece H, and standard A, so that the spout may be turned, at any mo- 30
ment, either to the right or left position, in relation to the working lever, as described.

3. The arrangement of the grooves or flutes, b, b, in the conical bearing of the spout-piece, or correspondently in the stand- 35
ard, as specified, so as to apply the means of ventilating the well to the additional purpose of preventing the freezing of the water within the spout-piece, substantially as herein set forth.

WASHBURN RACE.

Witnesses:

S. R. C. MATHEWS,
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