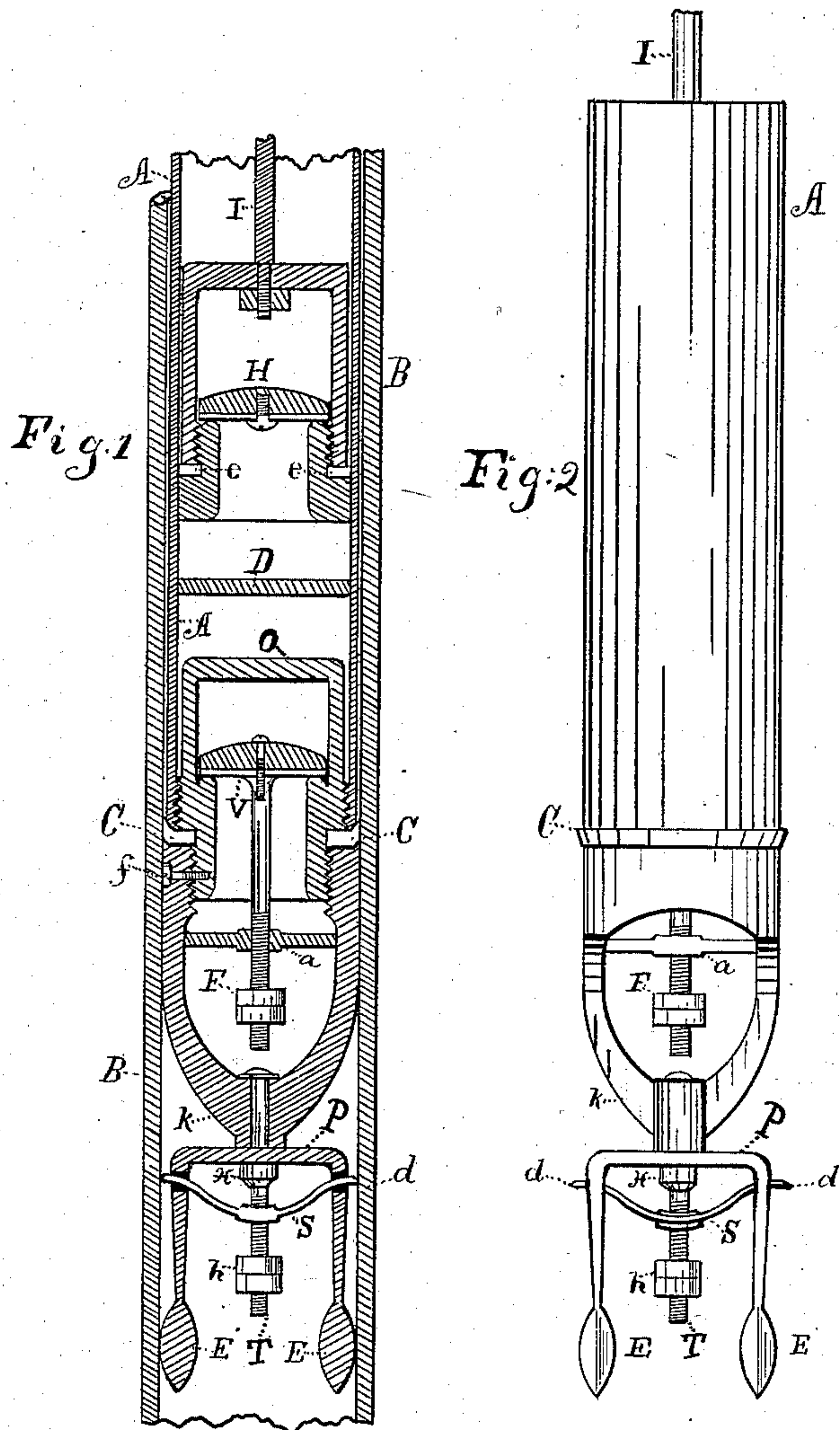


H. MANVEL & G. TURNER.
Pump for Tubular-Wells.

No. 219,360.

Patented Sept. 9, 1879.



Attest:

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UNITED STATES PATENT OFFICE.

HOMER MANVEL AND GEORGE TURNER, OF KALAMAZOO, MICHIGAN.

IMPROVEMENT IN PUMPS FOR TUBULAR WELLS.

Specification forming part of Letters Patent No. **219,360**, dated September 9, 1879; application filed July 22, 1879.

To all whom it may concern:

Be it known that we, HOMER MANVEL, of Kalamazoo, county of Kalamazoo, State of Michigan, and GEORGE TURNER, of the same place, have jointly invented new and useful Improvements in Pumps for Tubular Wells, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The object of our invention is the construction of improvements whereby the check-valve may be conveniently located and secured at any point in a well-pipe desirable after said pipe has been driven or lowered, and which can be easily removed from the said well-pipe, if ever necessary to repair it, and then replaced again.

Another object is to provide a cylinder or tube in which the plunger shall work, said cylinder being necessary to the construction and adjustment of our device.

The object of a special cylinder for a plunger to work in is, that it can be made of finer metal than the well-pipe, and much smoother, thereby saving great wear of the plunger-packing, and also producing a better suction; but we do not claim to be the first introducers of the cylinder, only the inventors of our mode of construction and use.

The utility and advantage of our invention are apparent, from the fact that all wells differ in depth, and valves or pumps permanently fixed in the well-pipe previous to its being driven, and those which are wedged in afterward are often located, of necessity, at points of great disadvantage to the successful working of the pump, and also to the repairing of the same. This would be obviated if the well-driver knew exactly the depth he would be necessitated to drive the pipe in order to obtain the desired flow of water, which knowledge is absolutely impossible to obtain previous to driving.

The construction of our improvements consist in a rectangular swiveled spring connected with the base end of the valve, into which is stationed, at right angles with its opposite sides, a semi-elliptic spring, or any other suitably formed, the two ends of which project through apertures in the swiveled spring's sides, which, when the device is adjusted, are extended out, engaging the inner surface of

the well-pipe, thereby holding the pump at the point located.

The two base ends of the swiveled spring are flattened at right angles with their sides, to hold the semi-elliptic spring from turning around in the well pipe when being adjusted, by said flattened ends clamping firmly against the inner surface of the well-pipe.

Their construction further consists in a cylinder or tube attachable to the top of the valve and around the valve-bail by means of threads cut in the ends of each, respectively, which, when screwed down to place, presses the valve-packing out against the inner surface of the well-pipe, said packing being located between two sections of the check-valve, and held in place by said sections being screwed firmly together, the end of one in the other, and held from turning apart again by a pin or screw driven through the outer into the inner.

In the cylinder, just above the valve-bail, is fixed a device which serves as a handle or bail in adjusting said cylinder, as hereinafter explained. For this bail we have provided a horizontal bar; but, if thought preferable, pins, shouldered projections, or a perforated plate for a wrench, or a wrench engaging the inner surface of the cylinder, may be used, or any contrivance substantially meeting our purpose.

In the accompanying drawings, in which similar letters indicate like parts, Figure 1 is a longitudinal section of the pump complete as secured in the well-pipe, and Fig. 2 is a perspective view of the pump.

We will explain further by referring to the parts indicated by letters conjointly with the operation of the device. First, to arrange the pump for locating, the packing C, formed of a rim of leather or other suitable material, is placed over the lower end of the upper section of the valve, resting on a shoulder, when said section is screwed into the lower section, and held from unscrewing again, when the valve is removed from the well-pipe B, by means of the screw or pin *f*. (All shown in Fig. 1.) Then to the lower end, K, of the valve is connected the swiveled spring P by means of a bolt, T, secured in the lower end, K, of the valve, said bolt T running through and turning in the

spring P, thus making it swiveled, said spring P being held in place by the end K of valve and knob or burr X. Then onto the lower end of bolt T, said end being threaded up to knob X, is turned the semi-elliptic spring S, by means of threaded hole through the center of same, its two ends, *d d*, being inserted through apertures in the swiveled spring P, said spring S being prevented from turning off from the end of bolt T when operating by means of burrs *h*. To illustrate: When the bolt T is turned to the left the spring S runs down the same, drawing the ends *d d* in even with the surface of the sides of the spring P; and if the turning were continued, but for the nuts or burrs *h* said spring S would run off the end of bolt T.

With the device as now arranged, before the cylinder A is attached and the packing C pressed outwardly, it is lowered in the well-pipe B, by means of a hook grappling the valve-bail O, to the desired location, when, by the use of the same hook still grappling the bail O, the valve is turned around in the pipe B to the right, when the spring S moves up the threaded bolt T, throwing its ends *d d* through the aperture in the swiveled spring P till they firmly engage the inner surface of well-pipe B, which engagement securely holds the device where located, the flattened ends E E of spring P clamping against the well-pipe B preventing the spring S from turning, as previously stated. (All shown in Fig. 1.) The cylinder or tube A is then lowered by means of the hook grappling the bar or bail D, or by other means equally effectual, and screwed onto the end of the valve around the bail O, which presses the packing C out firmly against the pipe B, when the hook is removed and the plunger I inserted, when the pump is ready for use.

The pump is removed from the pipe B by taking the cylinder A out first, then the valve,

by means of the grappling-hook, in the reverse manner of inserting it.

The device may be made of any suitable material. Steel for springs and brass for cylinder are most desirable. It may be used in connection with any suitable valves, V and H, and its use is not restricted to iron tubular pipe B.

What we claim is—

1. In combination with a check-valve, a semi-elliptic spring, or other suitably-formed spring, arranged to engage the surface of the well-pipe B, for the purpose of securing the valve or pump at any given point of location, substantially as shown and described.

2. The combination of a swiveled spring having flattened ends E E with a semi-elliptic or other suitably-formed spring, constructed and arranged substantially as shown and described, for the purpose set forth.

3. In combination with a check-valve, the swiveled spring P, provided with the apertures J, semi-elliptic or other suitably-formed spring, S, connected with the valve by means of threaded bolt T, burrs or knob X, and burrs or nuts *h*, all substantially as shown, for the purpose set forth.

4. The combination of the check-valve, having packing C secured between its two sections, with the cylinder or tube A, when constructed with a bar or described equivalents, or bail, for the purpose of pressing the packing C against the inner surface of the well-pipe B, all substantially as shown and described.

HOMER MANVEL.
GEORGE TURNER.

Witnesses:

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J. C. PERKINS.