

(No Model.)

T. DOWLING.

PUMP.

No. 279,923.

Patented June 26, 1883.

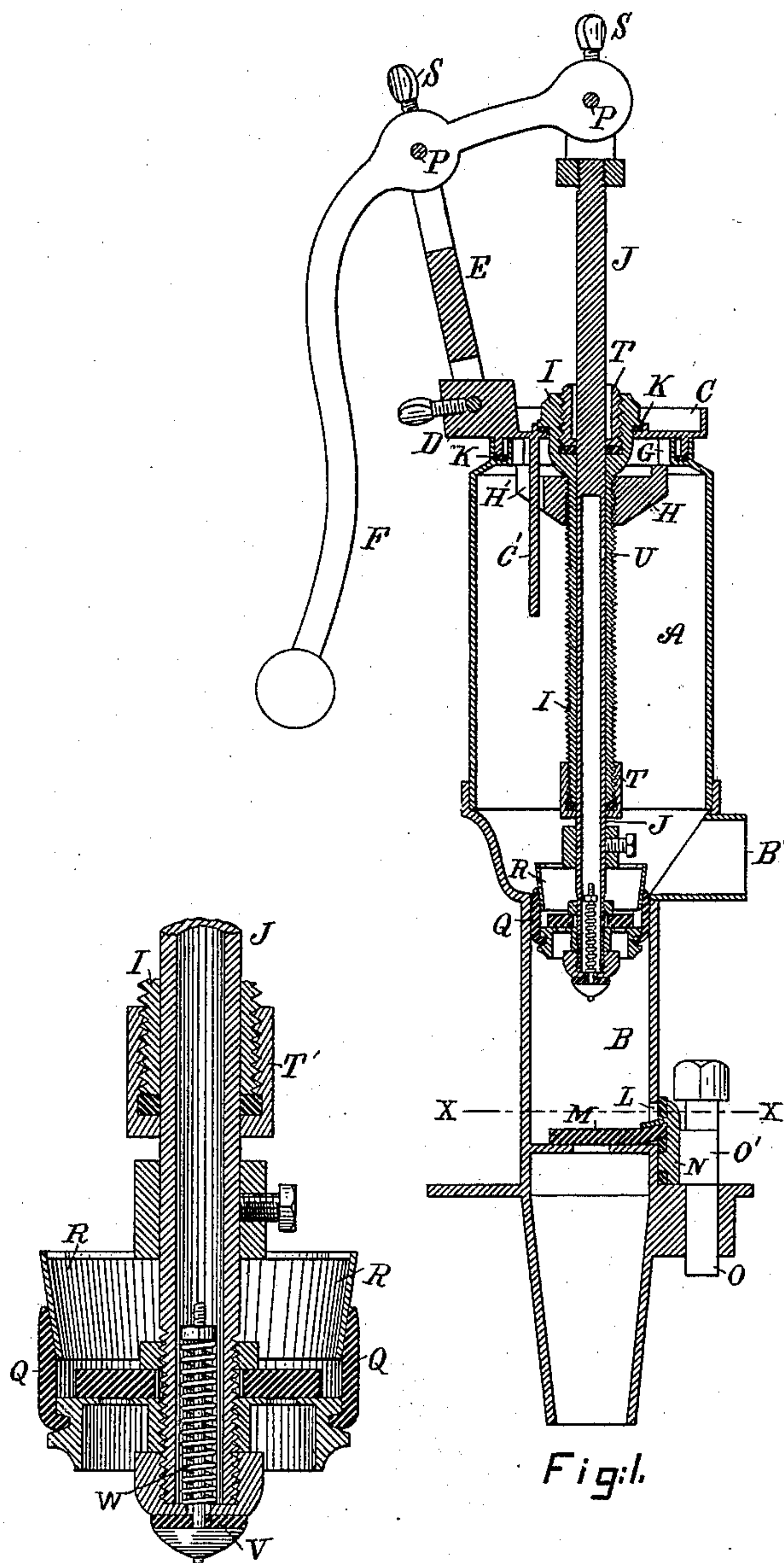


Fig. 1.

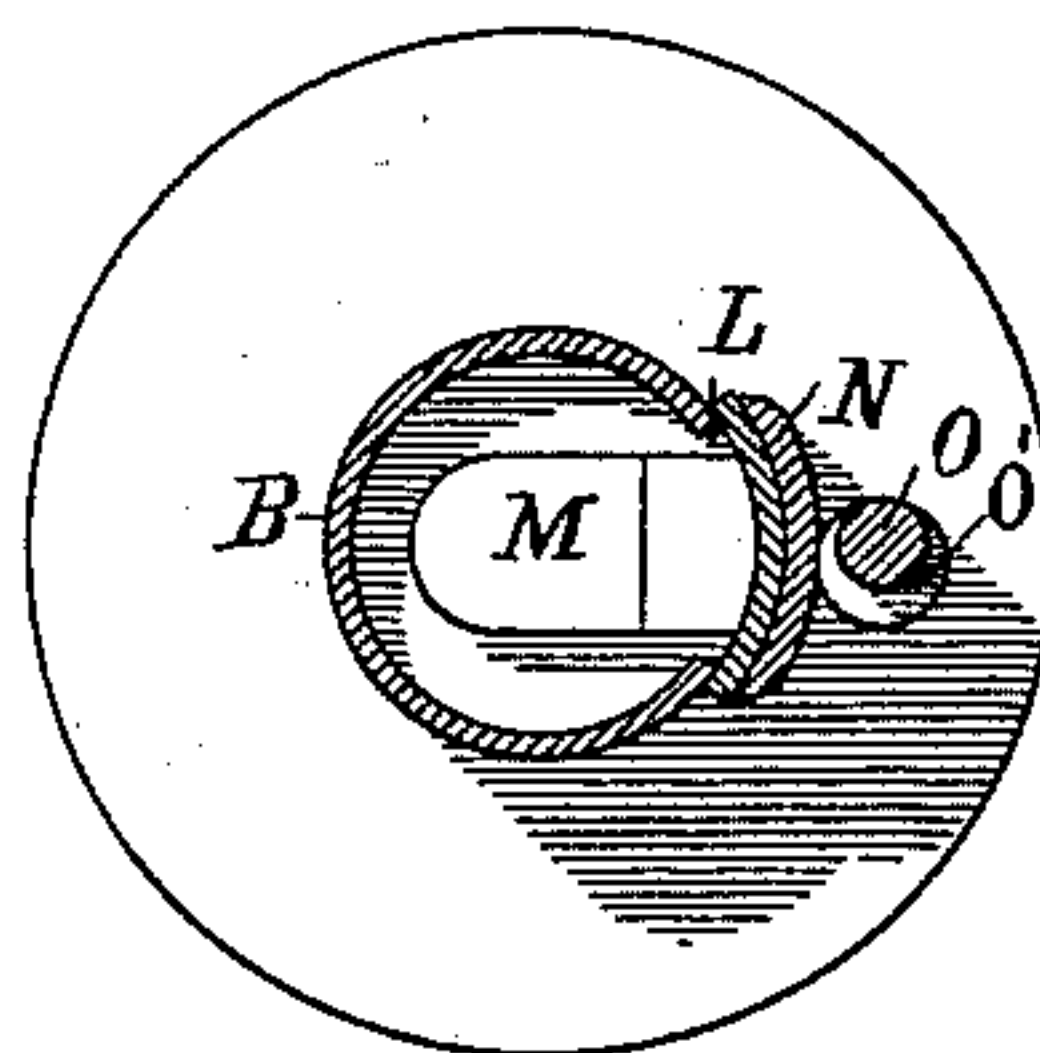


Fig. 2.

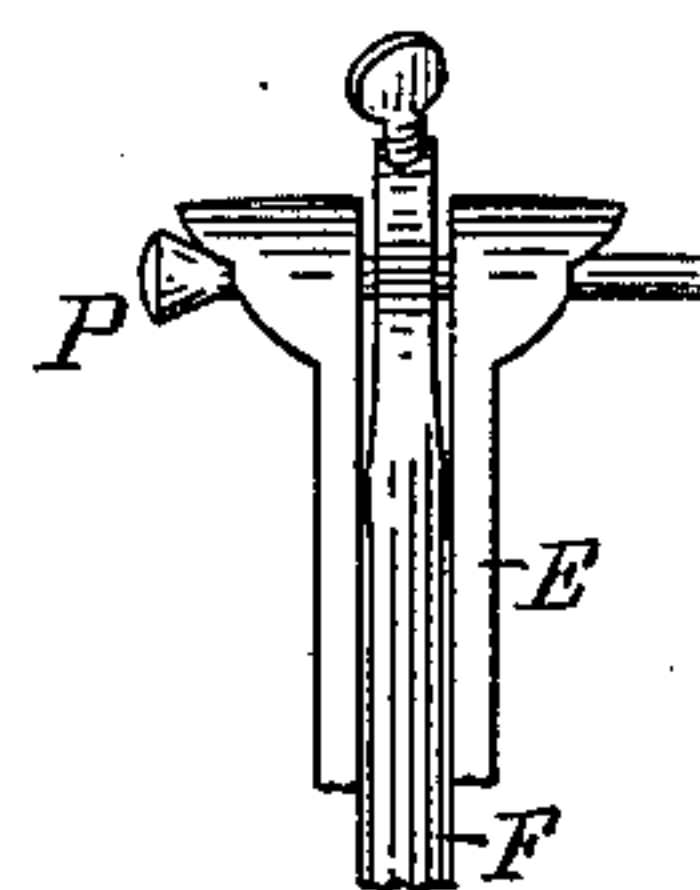


Fig. 5.

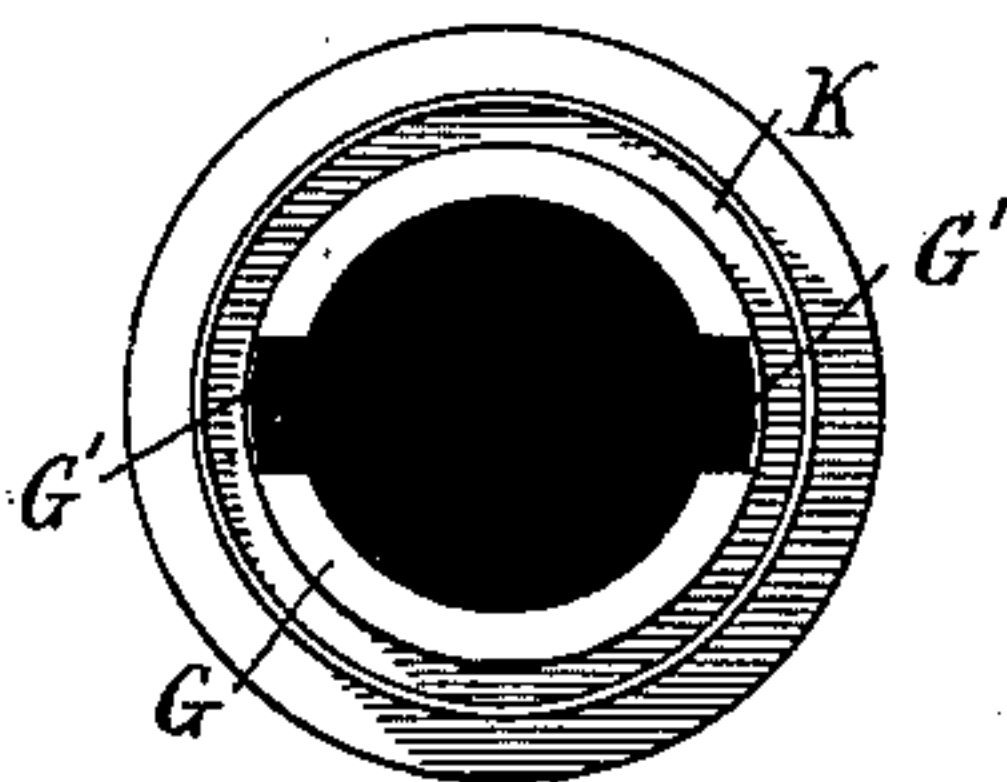


Fig. 3.

Witnesses.
C. C. Perkins.
C. S. Hayes

Inventor.
Thomas Dowling
by A. H. Fleener
his atty.

UNITED STATES PATENT OFFICE.

THOMAS DOWLING, OF GLOUCESTER, MASSACHUSETTS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 279,923, dated June 26, 1883.

Application filed May 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS DOWLING, of Gloucester, Massachusetts, have invented certain Improvements in Pumps; and I hereby declare that the following specification is a full, clear, and exact description of the same, and the accompanying drawings an illustration.

My invention consists in the devices and combination of devices set forth in the appended claims.

The drawings represent a pump embodying the several features of my invention, Figure 1 being a vertical central section thereof; Fig. 2, a transverse section on line *x x* of Fig. 1; Fig. 3, a plan of the top of the air-chamber; Fig. 4, an enlarged detail of the bucket and adjacent parts, and Fig. 5 a detail view of the pivots.

With my present invention, the air-chamber A, permanently secured upon the top of the barrel B, is provided with a rotary cap or cover, C, upon which is a bracket, D, supporting the pivoted standard E for the handle F, which may therefore be adjusted at any angle to the spout B' by turning the cap to right or left. With this construction, the air-chamber may be cast in one piece with the cylinder and be open at its upper end, and the leverage upon the joint will be greatly reduced.

Figs. 1 and 3 represent a means of securing the cap C in its position. The upper end of the chamber A is formed with a flange, G, provided with notches G', through which is entered an elongated nut, H, which engages with a tubular bolt, I, surrounding the plunger-rod J, and forming a guide for it in its reciprocation. The cap has a projection, C', arranged to enter an opening, H', in the nut H, so that they can only rotate together. The tubular bolt I passes through the cap, and at its upper end is angular, or of suitable form to receive a wrench by which it may be rotated. The nut H, after passing through the notches of the flange G, is turned slightly until it is beneath the flange. Rotation of the bolt I will then secure the cap tightly upon the air-chamber. Suitable packing, K K, should be employed above and below the cap to make an air-tight joint.

It is frequently necessary or desirable to have access to the valves of the pump, for the purpose of repairs or to remove some obstruction.

Heretofore it has been necessary, in such cases, to remove the barrel from the base upon which it is mounted, or the bucket from the cylinder, involving much additional labor and expense. I obviate this and give convenient access to one or both of the valves by forming, adjacent to the valve-seat, an aperture, L, in the side of the barrel. Through this aperture the hand or any proper tool may be inserted to adjust the valve or remove any obstruction. The valve M may be united to the curved plate N, which closes the aperture, and thus be removable with it from the barrel.

The device shown in the drawings, by which the plate N is held in its position, consists of a vertical bolt, O, mounted loosely in a socket of the base, so as to be capable of rotation therein. Said bolt has a part, O', formed eccentric to the axis, so as to come into contact with the plate N and clamp it tightly in place. It is obvious a screw, wedge, or spring might be substituted for the eccentric.

To avoid the excessive wear, which speedily destroys pump-pivots where they pass through the handle and are exposed to its severe friction, with no lubrication, I provide a set-screw, S, in the handle, bearing against the pivot P and causing it to move with the handle—that is, to rotate slightly when the handle is worked—thus bringing the friction of this movement between the projecting ends of the pivot and their bearings each side of the handle.

The pivots P are adjustable longitudinally and axially, so as to bring the wear upon different parts of their length, or upon their different sides when their position is changed. The set-screws S serve to fix them in the desired position and permit their readjustment. I sometimes give the pivots conical heads, and provide a tapering shoulder in the standard, as at P, for such heads to bear against. As the pivots or bearings wear away, such heads and shoulders permit a gradual longitudinal movement to the pivot to compensate therefor. (See Fig. 5.)

The periphery of the bucket is furnished with the usual upturned or cup-shaped leather, Q, bearing against the inner walls of the cylinder. After severe and long-continued usage this becomes worn so as not to fit and fill the space. To remedy this I provide a conical ex-

pander, R, adjustable vertically upon the piston-rod by a screw-thread thereon, or by a set-screw, as shown. A slight lowering of said expander will serve to increase the diameter
5 of the cup Q, and this may be continued from time to time until the leather is completely worn out.

In pumps like mine, having an air-chamber, where a constant pressure is exerted upon the
10 surface of the water, there is a strong tendency of the water to work up and escape along the piston-rod. To guard against this I employ a cup-shaped stuffing-box, T T', at each end of the sleeve I, through which the piston-rod
15 works, and compress between such boxes and the ends of the sleeve a packing which surrounds the rod, thereby greatly limiting the passage of water along the rod.

The lower box, T', screws upon the threaded
20 exterior of the part I, and the upper one, T, screws inside the hollow head of said part I. Its cup may contain a suitable lubricant. I have also provided for the return to the cylinder of any water that may pass the lower
25 packing-ring. The piston-rod is hollow nearly to the top. At a point which, in its reciprocation, is always between the stuffing-boxes T T', I make one or more perforations, U, through the wall of this rod into its interior. The atmospheric pressure, which tends to force water
30 to follow the piston-rod, will now tend to carry it through these perforations into the interior of the rod, whence it escapes by gravitation and suction. The bottom of the rod is
35 furnished with a valve, V, which prevents the ingress of water on the downward stroke, but opens, under the influence of a light spring, W, as the piston-rod rises. This movement
40 draws from the hollow rod whatever water may have entered it.

I claim as of my invention in pumps—

1. A vertical pump-barrel having a lateral aperture in its cylindrical wall at the height of the lower valve-seat, in combination with a cover for said aperture bearing the valve,
45 and a single clamping device to secure said cover in position, substantially as set forth.

2. The rotary cap C, with bracket, upon which the handle is supported, and having a projection, C', on its under side, in combination with a threaded nut adapted to engage
50 with said projection, with a notched flange at the top of the air-chamber, and with a tubular bolt through which the plunger-rod works, substantially as and for the purpose set forth. 55

3. The improvement in pump-joints herein described, consisting of the longitudinally-adjustable pivot having a tapering head, the set-screw bearing upon said pivot, and the tapering shoulder, against which the head bears,
60 substantially as and for the purpose set forth.

4. A tubular bolt forming a guide for the piston-rod, and having a hollow head, in combination with a cup-shaped nut at each end, and suitable packing compressed between said
65 nuts and the ends of the tubular bolt, substantially as and for the purpose set forth.

5. A tubular bolt having a stuffing-box at each end, in combination with a hollow piston-rod reciprocating therein, said rod having
70 a perforation through its wall at a point between said stuffing-boxes, and a spring-valve at its lower end, substantially as and for the purpose set forth.

THOMAS DOWLING.

Witnesses:

A. H. SPENCER,
E. A. PHELPS.