

No. 736,062.

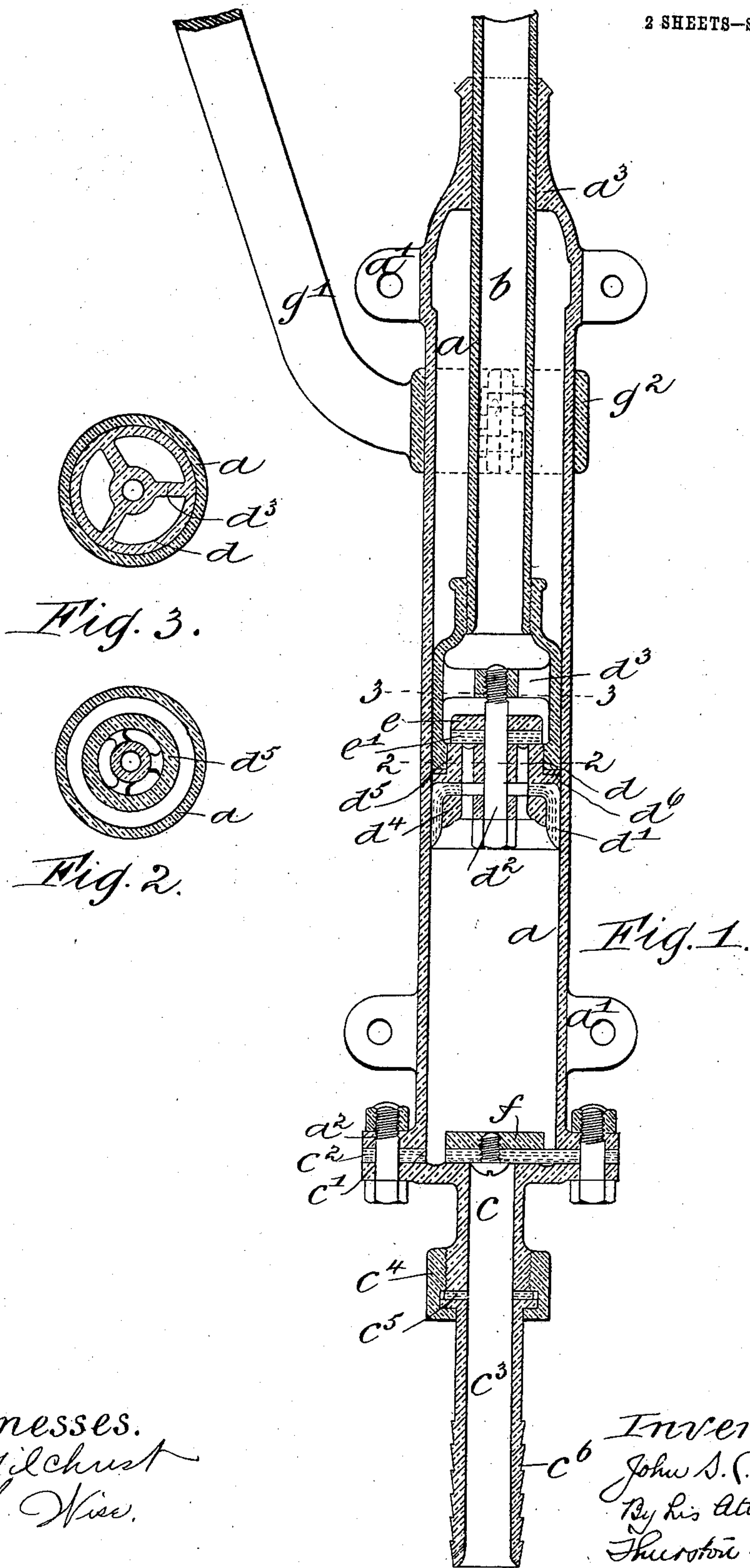
PATENTED AUG. 11, 1903.

J. S. C. BONHAM.
PUMP.

APPLICATION FILED FEB. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.
E. B. Gilchrist
H. W. Wier.

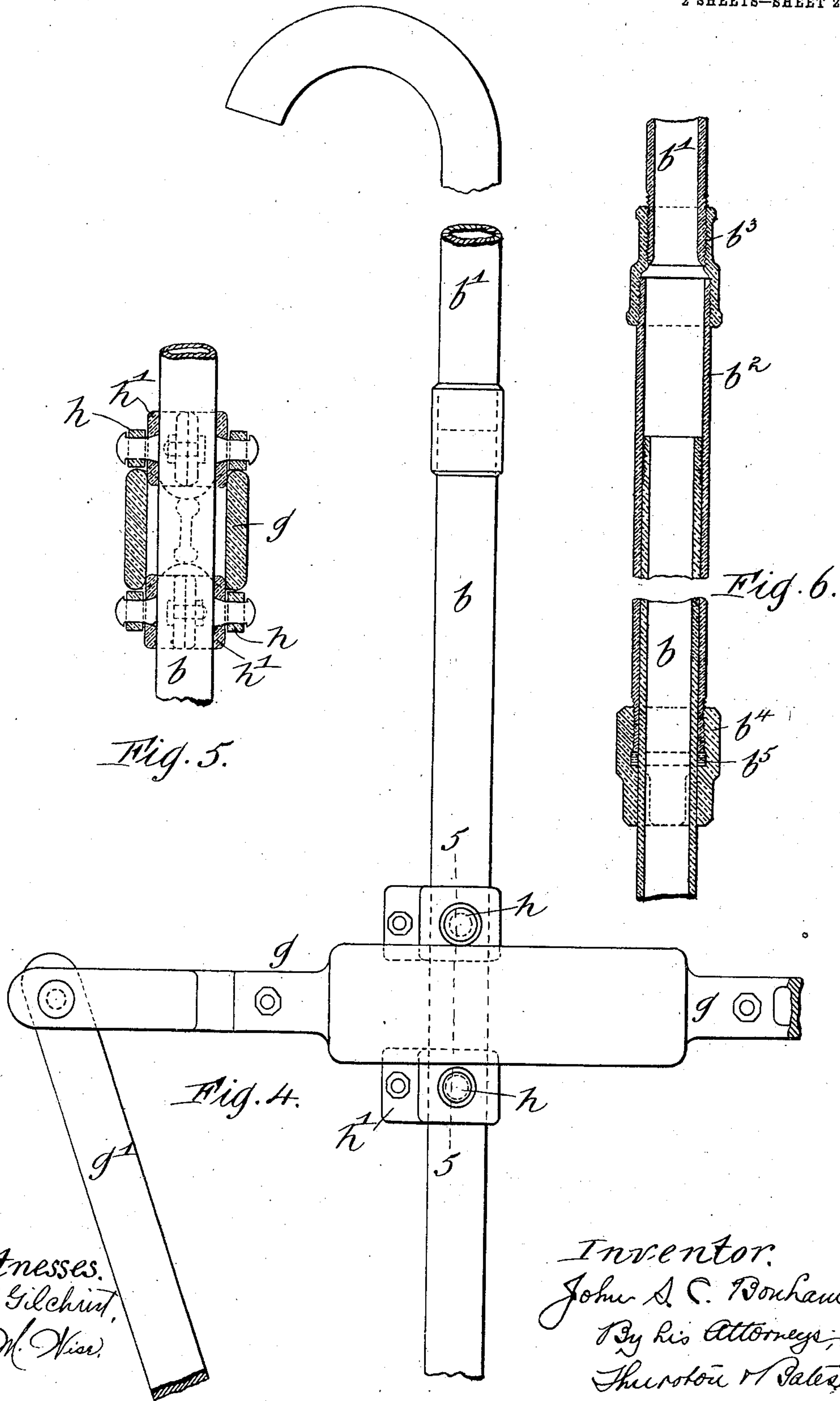
Inventor:
John S. C. Bonham,
By His Attorneys,
Thurston & Bates.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN S. C. BONHAM, OF RICHMOND, NEAR MELBOURNE, VICTORIA,
AUSTRALIA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 736,062, dated August 11, 1903.

Application filed February 25, 1902. Serial No. 95,590. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. C. BONHAM, miner, a citizen of the Commonwealth of Australia, residing at 79 Rowena Parade, Richmond, near Melbourne, in the State of Victoria, Commonwealth of Australia, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention has been devised for the purpose of providing a pump which will be thoroughly efficient and can be driven with less expenditure of labor or driving power than the pumps of ordinary construction, while being more particularly applicable for alluvial or other mining purposes, seeing that it can be worked as a force-pump from the bottom or other part of the shaft, thus effecting a saving of time which would otherwise be lost by the miner having to ascend or descend the shaft as the water gained on him. Provision is made for the attachment of a length of hose to the suction-pipe, thereby enabling the pump to be used in underlay or other crooked shafts.

In order that my invention may be clearly understood, I will describe it by reference to the accompanying drawings, in which—

Figure 1 is a vertical central section of my improved pump. Figs. 2 and 3 are horizontal sections on the respective lines 2 2 and 3 3 of Fig. 1. Fig. 4 is a side elevation of the upper portion or delivery-pipe of the pump, illustrating the lever used for operating it, while Fig. 5 is a transverse section on line 5 5, Fig. 4; and Fig. 6 is a central section of part of the delivery-pipe, illustrating a modification in the arrangement thereof.

The same letters of reference indicate the same or corresponding parts in all the figures.

The barrel *a* of the pump may be secured to a wall, post, or other suitable support by lugs *a'*, cast upon or otherwise attached to it, or the bottom flange *a*² of said barrel may be extended laterally and be provided with bolt-holes to facilitate its being securely fixed in position. The upper end of the barrel is tapered, as illustrated at *a*³, and forms a guide for the combined hollow piston-rod and delivery-pipe *b*, while the upper end *c* of the suction-pipe is secured to the bottom flange *a*² of the pump-barrel *a* by bolts *c'*, a leather

or other washer *c*² being inserted to maintain a perfectly-tight joint. The lower part or extension *c*³ of the suction-pipe is secured to the upper portion *c* by means of a screwed coupling *c*⁴, with leather or other packing-rings *c*⁵ to make the joint, and this extension is notched, as illustrated at *c*⁶, so that a length of flexible rubber or other hose can be secured to it.

The combined hollow piston-rod and delivery-pipe *b* is screwed into a hollow plunger *d*, fitting within the barrel of the pump and provided with hydraulic packing or cup-leather *d'* to maintain a tight joint on its downward stroke. A length of ordinary iron water-pipe *b'*, Fig. 4, with screw connections, extends from the upper end of the hollow combined piston-rod and delivery-pipe *b* and can be carried up to any height to which the power available can force the water, the upper end of such water-pipe being bent over, as illustrated in said Fig. 4, to form a convenient discharge.

If preferred, in case the combined hollow piston-rod and delivery-pipe *b* is of such a length as to become unwieldy its upper end may be arranged to slide within a sleeve or cylinder *b*², connected by a reducing-socket *b*³ with the discharge-pipe *b'*, a union *b*⁴, with packing-rings *b*⁵, being provided upon the lower end of this larger pipe to maintain a water-tight joint, and yet allow the combined piston-rod and discharge-pipe to reciprocate freely therein. The plunger *d*, attached to the lower end of this latter, is fitted with a central bolt or set-screw *d*², projecting downwardly from a bridge-piece *d*³, extending across the inside of said plunger, said bolt serving to clamp a pair of concentric rings *d*⁴, a packing-ring *d*⁶, and the hydraulic packing or cup-leather *d'* in position, and upon the upper end of this bolt is loosely mounted an uptake-valve *e*, (having leather or other packing *e'*,) which allows the water to pass freely upward to the delivery-pipe *b* when the plunger *d* is forced down, while a flap-leather or other valve *f* in the lower end of the barrel *a* acts as a non-return valve on the upper end *c* of the suction-pipe.

The combined hollow piston-rod and delivery-pipe *b* may be operated by means of a le-

ver g , Figs. 4 and 5, fulcrumed upon a bracket or arm g^1 , attached by clamps or clips g^2 to the pump-barrel a or other suitable support, said lever being bifurcated where it passes
 5 around said piston or where it is mounted upon its supporting arm or bracket and said lever being arranged to bear against anti-friction-rollers h , projecting from clips or clamps h' , secured to said rod b .
 10 A pump constructed as above described will obviously be capable of being operated by manual or mechanical power, and the parts may be disconnected and be readily replaced with new ones in the event of their
 15 becoming worn or damaged in any way, and, moreover, the pump, while being specially adapted for use in mining operations, (mainly by reason of the ease with which the operating-lever can be shifted to any convenient
 20 position in the shaft,) is also adapted for domestic or any of the many other uses for which pumps are usually employed.

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

25 1. In a pump, the combination, with the barrel, of a hollow piston-rod and delivery-pipe, a hollow piston secured to the end of

said rod, a ring carried by said piston having a passage through it, a cup-shaped packing-ring adapted to be held in place by said ring, 30 a bolt for holding said ring in place, a valve slidable upon said bolt and adapted to close said passage, and a valve in the lower end of said barrel, substantially as described.

2. In a pump, the combination, with the 35 barrel, of a hollow piston-rod and delivery-pipe, a hollow piston secured to the end of said rod, rings on the lower end of said piston having openings through them, a cup-shaped packing-ring adapted to be held in 40 place by one of said rings, a bolt for holding all of said rings in place, a valve slidable upon said bolt and adapted to close the openings in said rings, a valve in the lower end of said barrel, and mechanism for reciprocating said 45 piston-rod, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN S. C. BONHAM.

Witnesses:

PERCY T. HEDGES,
 LESLIE J. HEATH.