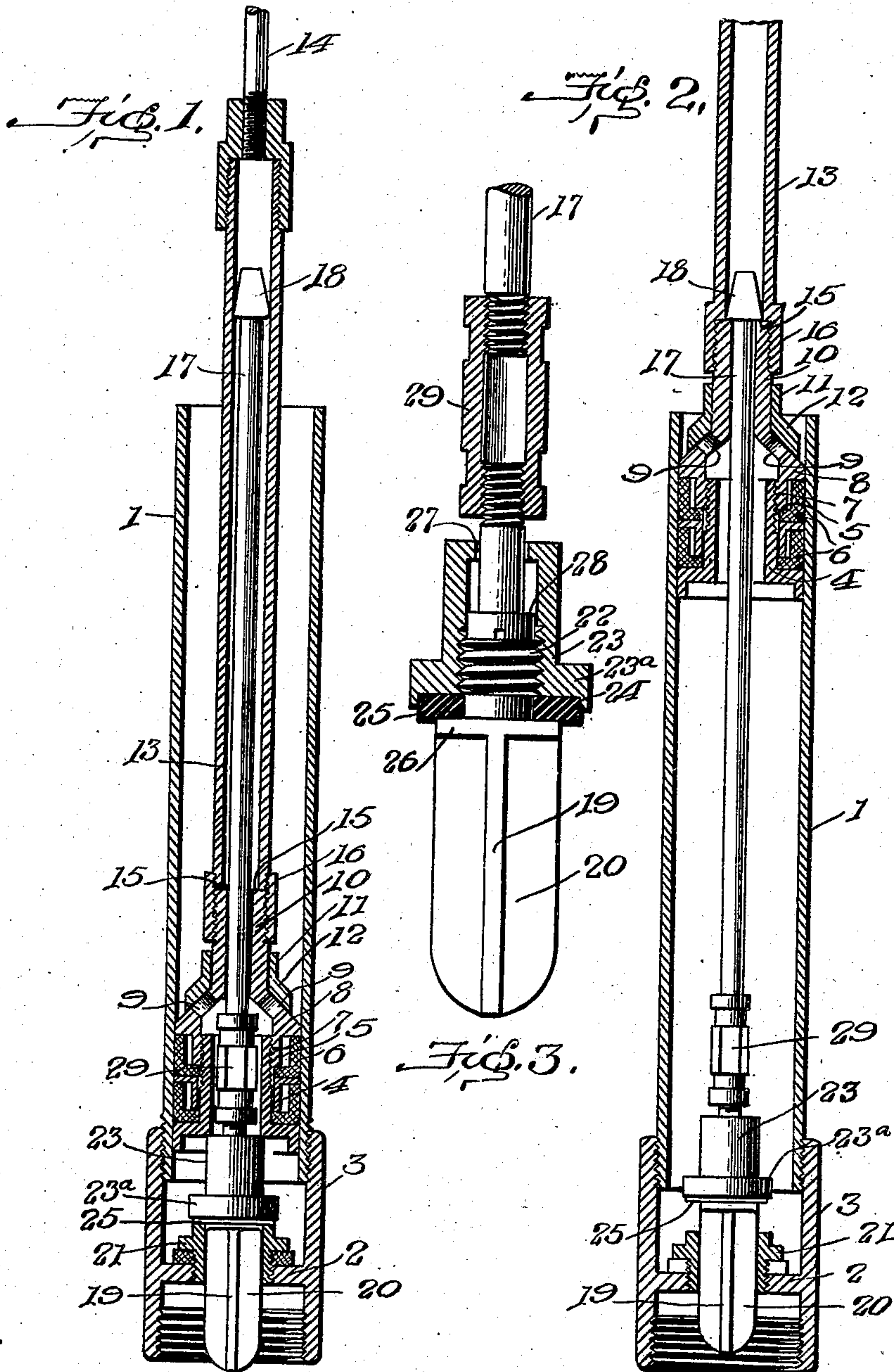


No. 881,254.

PATENTED MAR. 10, 1908.

P. A. MYERS.  
PUMP.

APPLICATION FILED MAR. 19, 1907.



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# UNITED STATES PATENT OFFICE.

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## PUMP.

No. 881,254.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention relates to pumps, and more particularly to pump cylinders.

The object of the invention is to provide the pump cylinder with a check valve which will be withdrawn upon the removal of the plunger and pump rod and in which this result can be accomplished without the necessity of making any connection between the plunger or pump rod and the valve as is necessary in pump cylinders where the check valve is provided with a screw-threaded boss, adapted to be engaged by a screw-threaded socket carried by the plunger and in which it is necessary to connect the plunger to the valve before the latter can be removed. To accomplish this result I connect the plunger to the check valve by means of a loose connection which will permit the plunger to move freely within the cylinder throughout the length of its stroke without displacing or otherwise disturbing the check valve, but which will cause the check valve to move along with the plunger when the latter is withdrawn from the cylinder.

With these objects in view my invention consists of certain novel features of construction hereinafter to be described, and then more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal, sectional view of a pump cylinder embodying my invention, showing the plunger in its lowermost position; Fig. 2 is a similar view showing the plunger partially removed from the cylinder; and Fig. 3 is a detail sectional view of the check valve.

In Figs. 1 and 2 of these drawings I have shown the preferred form of my invention, in which the cylinder is indicated by the reference numeral 1 and is provided near its lower end with a suitable valve seat which may be supported from the cylinder in any suitable manner. In the form here shown, the valve seat 2 is formed in an extension 3 which is screwed onto the lower end of the cylinder 1. A plunger 4, which reciprocates within the casing 1, consists of a hollow body portion 55 having its upper and lower ends of a diame-

ter slightly less than the internal diameter of the cylinder 1 and having the central portion thereof reduced to form an annular recess, as shown at 5, in which are secured the buckets or packing rings 6. The body portion of the plunger 4 is preferably formed in two pieces, as shown, to facilitate the placing of the buckets or packing rings thereon, and the adjoining ends of the two sections are screw-threaded, as shown at 7, for uniting the same. The upper portion of the plunger 4 is provided with a suitable check valve connecting the same with the interior of the cylinder 1 above the plunger. In the present instance, this valve is formed by providing the body portion 4 with a conical head or upper portion 8 and forming a series of apertures 9 through the wall of this conical head, these apertures being preferably formed out of alignment with the aperture extending through the body portion 4. The conical portion 8 is provided with an extension 10, which is tubular in form and extends a slight distance beyond the upper end of the plunger, where it is joined to and forms a part of the pump rod. A collar 11 is mounted to reciprocate freely upon the tubular extension 10 and has its lower end flared, as shown at 12, to correspond to the outer surface of the conical head 8 and of a length sufficient to extend below the apertures 9 formed in said head. The tubular extension 10 of the plunger 4 is united at its upper end to the tubular lower portion 13 of the pump rod 14, the internal diameter of which is preferably slightly larger than the internal diameter of the extension 10, thus forming a shoulder 15 at their point of union. These parts may be joined in any suitable manner, that herein shown consisting of the usual threaded collar 16 engaging the abutting ends of the two members.

Mounted within the tubular lower portion of the pump rod is a rod 17, provided at its upper end with a head 18 adapted to engage with a shoulder 15 to prevent the withdrawal of the rod from the tubular pump rod. This rod extends through the hollow plunger 4 and is connected at its lower end to a check valve 19 which is adapted to engage the valve seat 2 supported near the lower end of the cylinder. The check valve 19 may be of any suitable construction and the rod 17 may be secured thereto in any desirable manner, but I prefer the form shown in the drawings, in



which the check valve comprises two portions, the lower portion consisting of the winged or corrugated guide portion 20 which extends through the bushing 21 of the valve seat 2 and is provided at its upper end with a screw-threaded boss or extension 22, adapted to engage the screw-threaded interior of the cup-shaped upper portion 23, which is provided at its lower end with a flange 23<sup>a</sup> adapted to extend over the edge of the valve seat and cooperate therewith in forming a water-tight closure. If desired, the flange may be provided with an annular recess 24 in its lower face to receive a packing or gasket 25 which is held in position therein by means of the shoulder or flange 26 formed at the point of intersection of the lower portion 20 of the valve with its screw-threaded boss. The cup-shaped portion is provided in its upper end with a central aperture 27 of a diameter sufficient to receive the lower end of the rod 17 which extends through the same and is provided on its inner end with a head 28 of a size sufficient to prevent its withdrawal through the aperture. To facilitate the insertion of the lower end of the rod within the upper portion of the valve, the rod is preferably formed in two sections and united in any suitable manner, such as by the sleeve 29, which is screw-threaded to engage the screw threads on the adjacent ends of the two portions of the rod. This joint is preferably located near the lower end of the rod and enables the lower portion thereof to be formed of brass or material similar to that of which the valve and valve seat are formed and the upper portion to be made of steel or other suitable material. This form of connection between the valve and the rod provides a swiveled joint which allows the valve a free rotary movement and a slight vertical movement relatively to the rod.

From the foregoing description it will be apparent that the plunger 4 has a free movement within the cylinder 1 throughout the length of its stroke and that during this stroke the valve 19 is free to operate in its usual manner and is in no way controlled or influenced by the connection between the same and the plunger, the weight of the rod 17 being such as not to interfere with the op-

eration of the valve. When the plunger is moved beyond the upper limit of its stroke for the purpose of withdrawing the same from the cylinder, the head 18 of the rod 17 engages with the shoulder 15 at the lower end of the tubular portion of the pump rod and causes the rod and the valve to which it is connected to move along with the plunger.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character described, the combination, with a cylinder provided with a valve seat, and a valve adapted to engage said seat and having a hollow upper portion provided with an inwardly extending shoulder, of a plunger adapted to reciprocate in said cylinder, a rod slidably connected at one end to said plunger and having its other end extending into the hollow portion of said valve and provided with a stop adapted to engage said shoulder.

2. In a device of the character described, the combination, with a cylinder provided with a valve seat, and a valve adapted to engage said seat and comprising a solid lower portion, a hollow upper portion detachably connected to said lower portion and having an aperture through the upper wall thereof, of a hollow plunger adapted to reciprocate in said cylinder, a two part rod having one part extending through said hollow plunger and provided with means to prevent its withdrawal therefrom, and its other part extending into the hollow upper portion of said valve and provided with means to prevent its withdrawal therefrom, and means for connecting the adjacent ends of the two parts of said rod.

In testimony whereof, I affix my signature in presence of two witnesses.

PHILIP A. MYERS.

Witnesses:

F. B. KELLOGG,  
R. M. TUBBS.