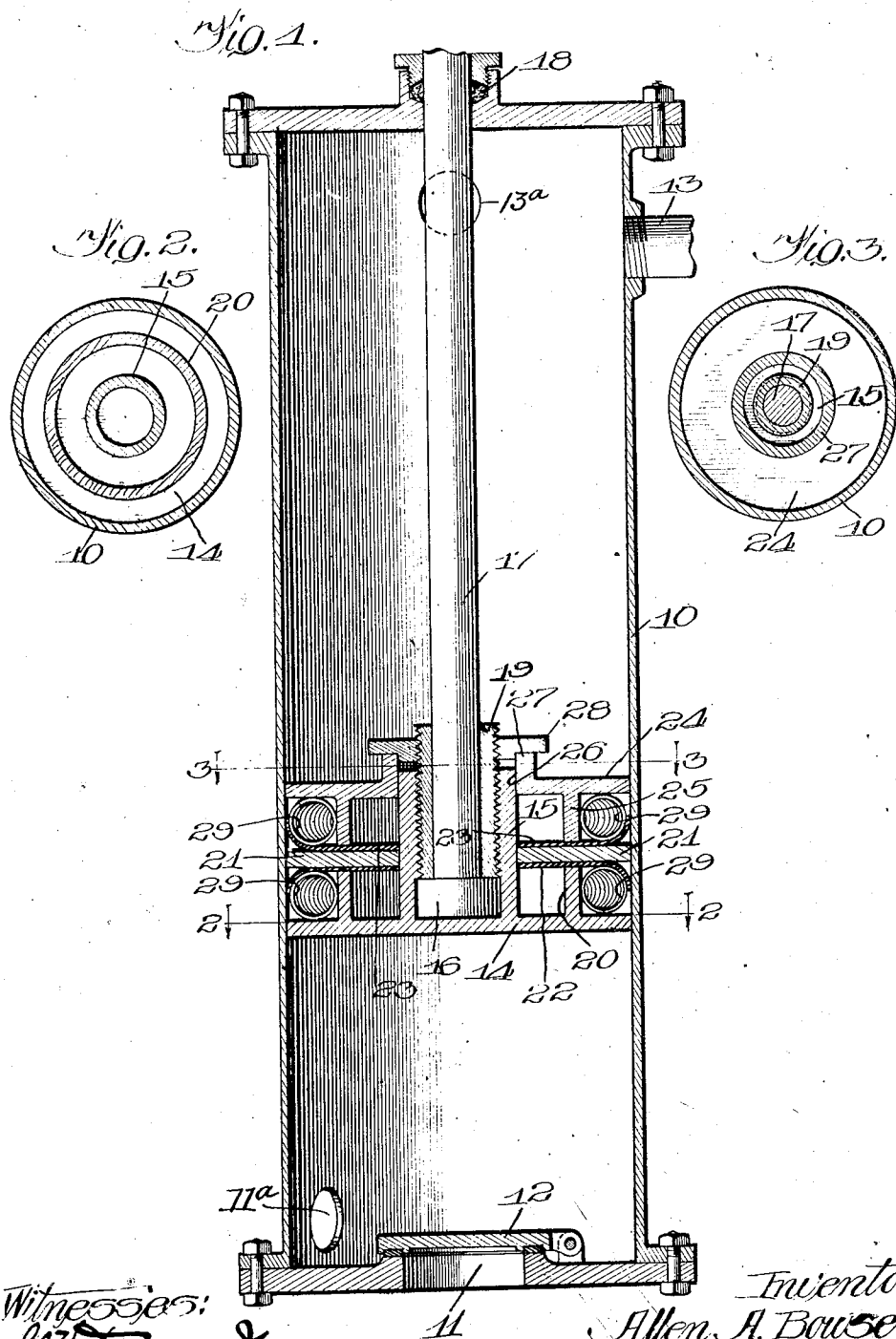


A. A. BOWSER.
PUMP PISTON.
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932,371.

Patented Aug. 24, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALLEN A. BOWSER, OF FORT WAYNE, INDIANA, ASSIGNOR TO S. F. BOWSER & CO., INCORPORATED,
OF FORT WAYNE, INDIANA, A CORPORATION OF INDIANA.

PUMP-PISTON.

932,371.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Original application filed April 11, 1907, Serial No. 367,558. Divided and this application filed June 1, 1908.

Serial No. 435,885.

To all whom it may concern:

Be it known that I, ALLEN A. BOWSER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Pump-Pistons, of which the following is a specification.

This application is a division of my application, Serial No. 367,558, filed April 11, 1907, and the present invention relates to improvements in pistons particularly adapted for use in pumps, and the primary object of the invention is to provide improved, simple and durable pistons which will be effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed, and shown in the accompanying drawing illustrating an embodiment of the invention, and in which—

Figure 1 is a longitudinal view of a cylinder having a piston therein constructed in accordance with the principles of this invention and showing the piston in section. Fig. 2 is a detail sectional view on line 2—2 of Fig. 1, looking in the direction of the arrows. Fig. 3 is a detail sectional view on line 3—3, Fig. 1.

Referring more particularly to the drawing, and in the present exemplification of the invention, the numeral 10 designates a pump cylinder which is provided with an inlet opening 11 controlled by a valve 12 and an outlet opening 11^a on one side of the piston and an inlet 13^a and an outlet opening 13 on the other side of the piston. Movable within the cylinder is a piston head comprising a main body portion 14 having a recessed tubular projection 15 which is provided with interior screw threads. Situated within the tubular projection 15 so as to engage and rest upon the bottom thereof is an enlarged portion or shoulder 16 of a piston rod 17, which latter is adapted to pass through a suitable stuffing box 18 supported by the cylinder. Surrounding the piston rod is a sleeve or collar 19 which is preferably provided with exterior screw threads, and this sleeve or collar is of a size to enter the tubular projection 15

so that the threads thereon will engage the threads in the tubular projection, and when the sleeve or collar 19 is seated, the extremity thereof will engage and rest upon the upper face of the enlarged portion or shoulder 16 of the piston rod 17 so as to secure the piston rod to the piston head.

The piston head 14 is provided with a circumferential flange or rib 20 extending above the upper face thereof and located at a point intermediate the tubular projection 15 and the periphery of the body portion 14, and supported by this flange or rib 20 is a disk or member 21 which is of a diameter substantially equal to the diameter of the piston head 14 and surrounds the tubular projection 15. Suitable flexible members 22, 23, such as leather washers or the like are arranged on each side of the member 21, and these flexible washers or members are preferably of a diameter slightly greater than the diameter of the piston cylinder 10, so as to cause the extremities of said disks or washers to be slightly deflected as shown.

A cap or member 24 is also provided with a circumferential rib or flange 25, which is located at a point remote from the periphery thereof, and said cap or member is provided with an aperture 26 located preferably at the diametric center thereof, which is adapted to receive the tubular projection 15, so that when placed in position the rib or flange 25 will rest against the upper face of the disk or washer 23, which latter is supported by the member 21. The cap or member 24 is provided with a circumferential flange 27 surrounding the aperture 26, and this flange projects for some distance beyond the face of the cap 24 opposite the face from which the flange or rib 25 projects. When the cap 24 is in position, as shown in Fig. 1, the upper extremity of the flange 27 will project a short distance beyond the end of the tubular projection 15 and the cap is held in position or from displacement by means of a suitable jam-nut 28, which is adapted to engage the peripheral threads of the sleeve or collar 19 and also the upper edge of the flange 27, and serves as a means for holding the parts of the piston assembled.

Suitable elastic members 29, such as coil springs or the like are disposed around the

respective ribs or flanges 20, 25, so as to stand adjacent the wall of the piston cylinder 10, and these elastic members tend to hold the extremities of the flexible members 22, 23 yielding against the wall of the piston cylinder 10.

With this improved construction of piston it will be apparent that the parts may be readily assembled and that the flexible members 22, 23 may be readily removed when worn, and at the same time the elastic members 29 will hold the extremities of the flexible members into engagement with the wall of the cylinder to form a tight joint.

In order that the invention might be fully understood the details of an embodiment thereof have been thus specifically described but

What I claim as new is—

1. In combination, a piston head comprising a main body provided with a tubular projecting portion, a support projecting from the body intermediate the periphery thereof and the said tubular portion, a flexible member surrounding the said tubular portion and resting upon the support, said flexible member being of a diameter slightly larger than the diameter of the body portion of the piston, a piston rod extending into the said tubular portion, said rod being provided with a shoulder within the tubular portion, means engaging the shoulder of the rod and the tubular portion for securing the rod and piston together, and means for preventing the displacement of the flexible member.

2. In combination, a piston head comprising a main body provided with a tubular projecting portion, a support projecting from the body intermediate the periphery thereof and the said tubular portion, a flexible member surrounding the said tubular portion and resting upon the support, said flexible member being of a diameter slightly larger than the diameter of the body portion of the piston, a piston rod extending into said tubular portion, said rod being provided with a shoulder within the tubular portion, means engaging the shoulder of the rod and the tubular portion for securing the rod and piston together, means for preventing the displacement of the flexible member, and a circumferential elastic member adjacent the periphery of the piston beyond the said support.

3. In combination, a piston head comprising a main body provided with a tubular projecting portion, a circumferential flange on the body remote from the periphery, a flexible member surrounding the tubular portion, resting upon the flange and projecting beyond the periphery of the piston, said flexible member being of a diameter to project beyond the periphery of the piston, a disk surrounding the tubular portion, said disk resting upon the flexible member and

being also supported by the flange, a piston rod extending into the tubular portion and having a shoulder within said portion, means engaging the said tubular portion and the shoulder on the rod for securing the piston to the rod, and means for securing the said disk against displacement.

4. In combination, a piston head comprising a main body provided with a tubular projecting portion, a circumferential flange on the body remote from the periphery, a flexible member surrounding the tubular portion, resting upon the flange and projecting beyond the periphery of the piston, said flexible member being of a diameter to project beyond the periphery of the piston, a disk surrounding the tubular portion, said disk resting upon the flexible member and being also supported by the flange, a piston rod extending into the tubular portion and having a shoulder within said portion, means engaging the said tubular portion and the shoulder on the rod for securing the piston to the rod, an elastic member surrounding the flange adjacent the periphery of the piston and to one side of the said flexible member, and means for securing the said disk against displacement.

5. In combination, a piston head comprising a main body provided with a tubular projecting portion, a circumferential flange on the body remote from the periphery, a flexible member surrounding the tubular portion, resting upon the flange and projecting beyond the periphery of the piston, said flexible member being of a diameter to project beyond the periphery of the piston, a disk surrounding the tubular portion, said disk resting upon the flexible member and being also supported by the flange, a piston rod extending into the tubular portion and having a shoulder within said portion, means engaging the said tubular portion and the shoulder on the rod for securing the piston to the rod, a retainer for the disk, and means operatively related to the piston securing means for holding the said retainer against displacement.

6. In combination, a piston head comprising a main body provided with a tubular projecting portion, a circumferential flange on the body remote from the periphery thereof, a disk surrounding the tubular portion and resting upon the flange, a member provided with a depending circumferential flange remote from the periphery thereof and having an aperture adapted to receive the tubular portion, the flange of said member being adapted to rest upon the disk in proximity to the flange on the body portion, flexible members disposed respectively between the disk and flanges, a rod having a head seated within the tubular portion, a sleeve surrounding the rod and engaging the head, means for securing the sleeve within

the tubular portion to prevent displacement of the rod, and means for securing the said member in position.

7. In combination, in a pump, a cylinder, 5 a piston movable in the cylinder and comprising a main body provided with a tubular projecting portion, a circumferential flange on the body remote from the periphery thereof, a disk surrounding the tubular portion 10 and resting upon the flange, a member provided with a depending circumferential flange remote from the periphery thereof and having an aperture adapted to receive the tubular portion, the flange of said member 15 being adapted to rest upon the disk in proximity to the flange on the body portion to form a peripheral groove, flexible members disposed respectively between the disk and flange, and projecting beyond the periphery 20 of the disk, a piston rod having a head seated within the tubular portion, a sleeve surrounding the rod and engaging the head, means for securing the sleeve within the tubular portion to prevent displacement of the 25 rod, yielding members within the groove adapted to engage and hold the flexible members in contact with the cylinder, and means for securing the said member in position.

8. In combination, a piston head comprising a main body portion provided with a tubular projection, a circumferential flange on the body remote from the periphery thereof, a disk surrounding the tubular projection 30 and resting upon the flange, a member provided with a depending circumferential flange remote from the periphery thereof and having an aperture adapted to receive the tubular portion, the flange of said member 35 being adapted to rest upon the disk in proximity to the flange on the body portion, flexible members disposed respectively between the disk and flanges, a piston rod having a head seated within the tubular portion, 40 a sleeve surrounding the rod and engaging the head, means for securing the sleeve within the tubular portion to prevent displacement of the rod, and means engaging the sleeve and the said member for holding the 45 latter in position. 50

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of May A. D. 1908.

ALLEN A. BOWSER.

Witnesses:

J. H. JOCHUM, Jr.,
M. W. CANTWELL.