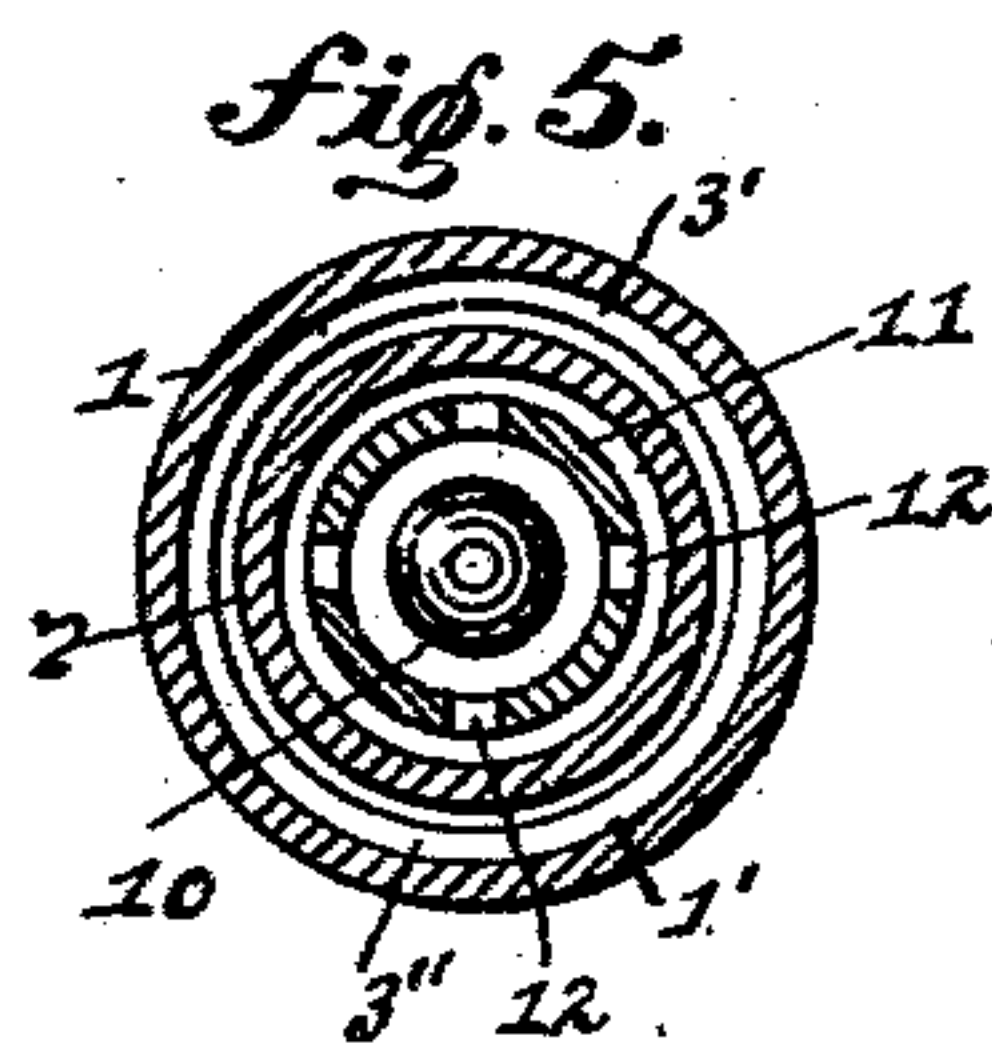
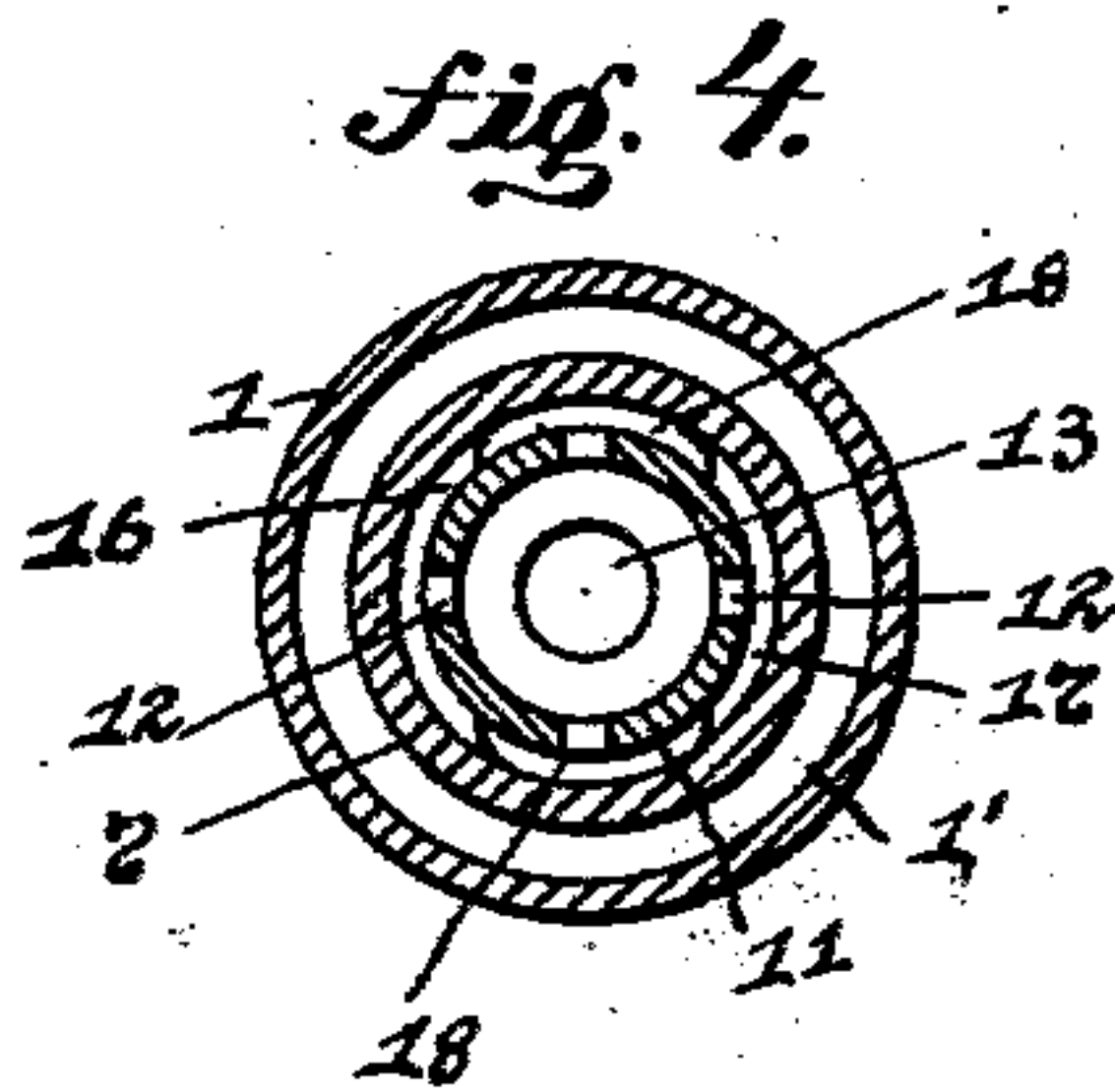
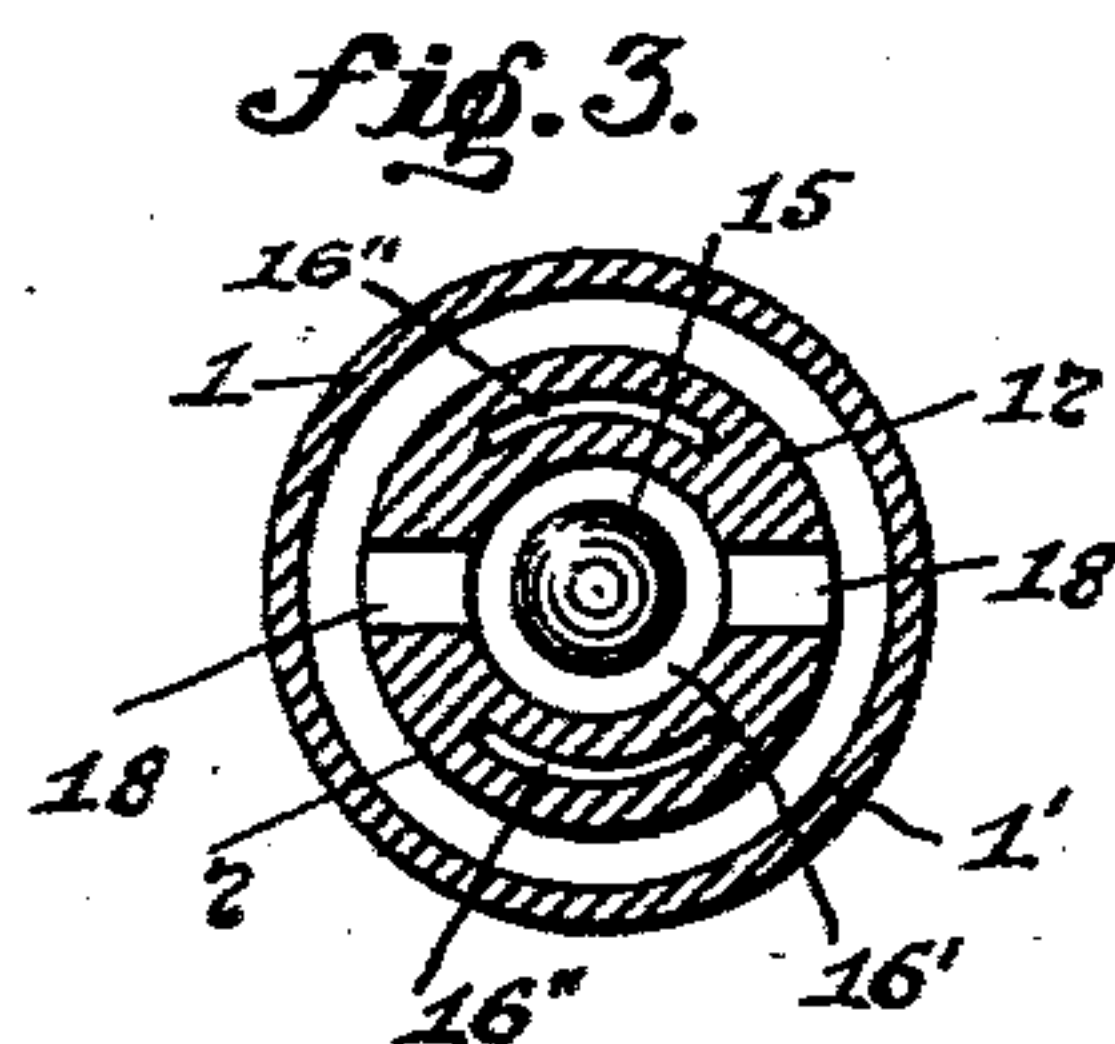
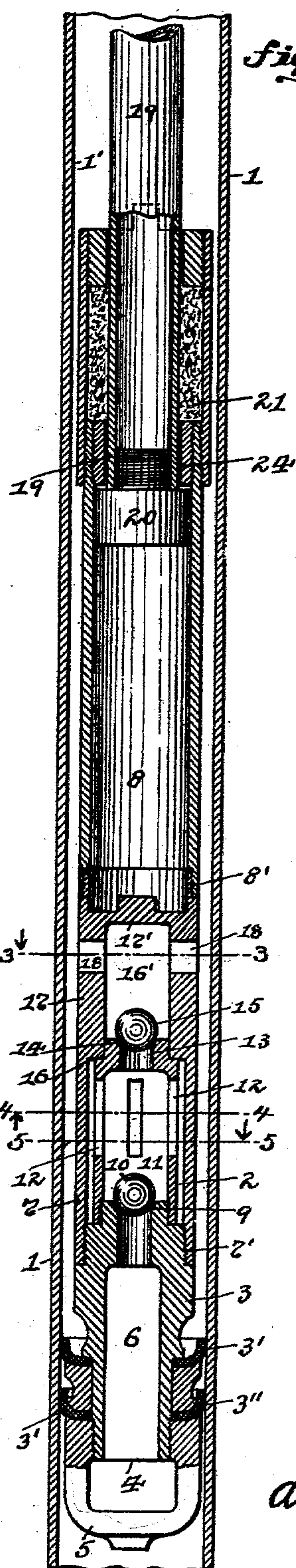
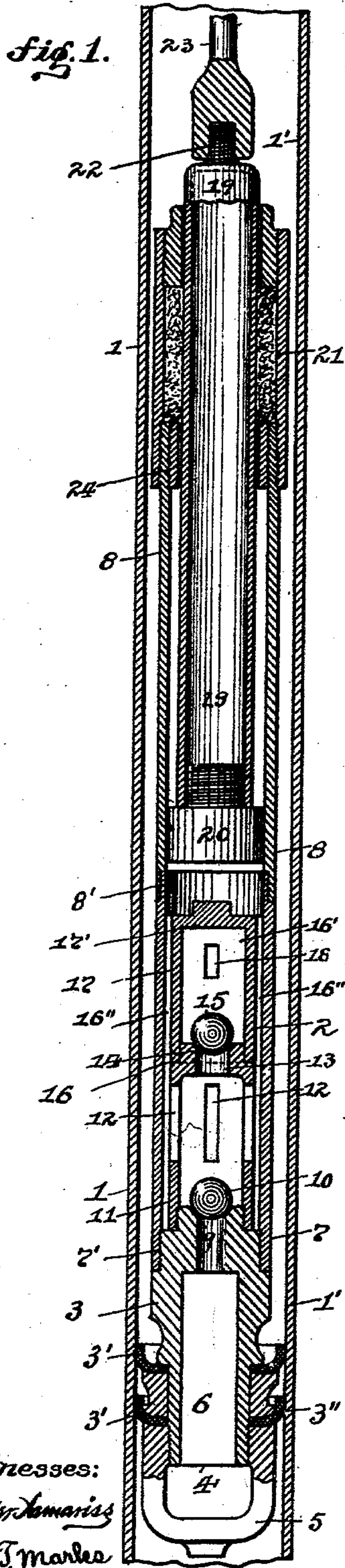


A. B. GAHAGAN.
PUMP FOR OIL WELLS.
(Application filed Apr. 19, 1902.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR BLOYD GAHAGAN, OF GLADE MILLS, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO JOHN A. HUGHES AND CHARLES W. DOUTT, OF GLADE MILLS, PENNSYLVANIA.

PUMP FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 715,253, dated December 9, 1902.

Application filed April 19, 1902. Serial No. 103,745. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR BLOYD GAHAGAN, a resident of Glade Mills, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Pumps for Oil-Wells; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to oil-well pumps, and has special reference to what are known as "downstroke" pumps.

The object of my invention is to provide a cheap and simple form of pump which can easily and quickly be inserted and withdrawn from the well without disturbing the tubing of such well, as well as one which is not liable to get out of order and will be capable of being inserted and withdrawn from the well without disturbing the tubing therein.

My invention consists, generally stated, in the novel arrangement, construction, and combination of parts, as hereinafter more specifically set forth and described, and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved oil-well pump, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a vertical section through my improved oil-well pump, showing the same in position for working. Fig. 2 is a like view taken at right angles to that shown in Fig. 1 and showing the plunger in its raised position. Fig. 3 is a cross-section of the same on the line 3 3, Fig. 2, looking in the direction of the arrow. Fig. 4 is a like view of the same on the line 4 4, Fig. 2, looking in the direction of the arrow; and Fig. 5 is a like view on the line 5 5, Fig. 2, looking in the direction of the arrow.

Like numerals of reference herein indicate like parts in each of the figures of the drawings.

As illustrated in the drawings, 1 represents the usual working barrel, within which is located the pumping mechanism 2, being secured in place within said barrel 1 by means of leather cups 3', secured within and around the valve-bottom 3 and engaging with the in-

terior face 1' of said barrel 1 to form the packing 3". The valve-bottom 3 is provided with the open end 4 therein, having a spider-covering 5 over and below the same, and the open end 4 connects with the passage-way 6, extending up through said bottom 3, while the upper end of said bottom 3 is connected to the lower end of a section of tubing or a coupling 7 by screw-threads 7', and the upper end of said coupling 7 is connected by screw-threads 8' with the lower end of a liner 8. At the upper end of the passage-way 6 is provided the seat 9 for the reception of the valve 10, which is of the well-known ball construction and has the cage 11 surrounding the same within the coupling 7 and connected to the upper end of the bottom 3. The cage 11 is provided with openings 12 in the sides of the same and has the passage-way 13 at the top thereof, at the upper end of which is the seat 14 for the valve 15, of like construction as the valve 10. The cage 11 is adapted to fit against a shoulder 16 on a contracted portion 17 in said coupling 7, so as to provide for the passage-ways 16" through said contracted portion 17 and the chamber 16' therein, which is provided with the closed top 17'. The coupling 7 is provided with the openings 18 in the sides of the same, which are opposite to and connect with the interior of the barrel 1 and chamber 16' of the portion 17.

Fitting within the liner 8 is the plunger 19, which is provided with the plunger-head 20, secured in its lower end, and such plunger 19 passes through a stuffing-box 21, secured to the upper end of the liner 8, and is provided with a threaded extension 22 at its upper end, to which is secured the rod 23 for working the plunger, while a stop 24 is secured to the upper end of the liner 8 below the stuffing-box 21 to limit the movement of the plunger 19.

In the operation the entire pump is dropped by the rod 23 to position, and the leather cups 3', forming the packing 3" on the valve-bottom 3, will firmly wedge itself in the barrel 1, thus insuring the passage of the oil only up through the passage-way 6 in the valve-bottom 3, when upon actuating the reciprocating plunger 19 by the rod 23 a flow will be in-

duced through the passage-way 6 and raise the valve 10 from its seat 9 to permit the oil to flow into the cage 11 and out through the openings 12 therein into the coupling 7, as well as up through the passage-ways 16" in the portion 17 and up within the liner 8 above the top 17 to fill the liner as the plunger 19 and head 20 thereon are raised by the rod 23. Upon the reversing of the movement of the plunger 19 downward by the rod 23 the valve 10 will close against its seat 9, and the oil under the plunger 19 and head 20 will be forced downward, so as to pass back down through the passage-ways 16", through the openings 12 into the cage 11, and up through the passage-way 13 in the cage 11 to raise the valve 15 from its seat 14, thereby allowing the oil to pass into the chamber 16' and out through the openings 18 into the barrel 1. When the plunger 19 is again raised, the interior of the coupling 7 and liner 8 will be again filled by the raising of the valve 10, and upon lowering the said plunger the valve 10 will be again closed and the valve 15 opened to force the oil out into the barrel 1 through the chamber 16 and openings 18, which, in addition to the displacement caused by the lowering of the plunger, will result in a flow of oil upwardly and out through the top of the barrel, as in the usual way, upon each downward motion of the plunger 19.

The construction of my improved pump is very simple and economical, and its operation is effective without liability to disorder or much wear, and various modifications and changes in the construction and design of the various parts therein may be made without departing from the spirit of the invention or sacrificing any of its advantages.

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

1. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a liner connected to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the same, said portion having openings through the sides of the same communicating with a chamber therein and leading directly into the interior of the barrel, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, a check-valve at the upper end of said bottom portion, a cage surrounding said check-valve having openings therein leading to the interior of said liner, and a check-valve above said openings in said cage and within the chamber of the liner, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

2. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of

said barrel, a coupling connected at its lower end to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the sides of the same, said portion having openings through the same communicating with a chamber therein and leading directly into the interior of the barrel, a liner connected to the upper end of said coupling, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, a check-valve at the upper end of said bottom portion, a cage surrounding said check-valve having openings therein leading to the interior of said coupling, and a check-valve above said openings in said cage and within the chamber of the coupling, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

3. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a liner connected to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the same, said portion having openings through the sides of the same communicating with a chamber therein and leading directly into the interior of the barrel, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, a check-valve at the upper end of said bottom portion, a cage connected to said bottom portion around said check-valve and having openings therein leading to the interior of said liner, and a check-valve above the openings in said cage and within the chamber of the liner, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

4. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a coupling connected at its lower end to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the sides of the same, said portion having openings through the same communicating with a chamber therein and leading directly into the interior of said barrel, a liner connected to the upper end of said coupling, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, a check-valve at the upper end of said bottom portion, a cage connected to said bottom portion around said check-valve and having openings therein leading to the interior of said coupling, and a check-valve above the openings in said cage and within the chamber of the coupling, said cage having a seat at the upper end thereof for the last-named check-valve and such seat

or upper end acting to limit the upward movement of the first-named check-valve.

5. In an oil-well pump, the combination of the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a liner connected to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the same, said portion having openings through the sides of the same communicating with a chamber therein and leading directly into the interior of the barrel, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, an operating-rod connected to said plunger to actuate the same, a check-valve at the upper end of said bottom portion, a cage surrounding said check-valve having openings therein leading to the interior of said liner, and a check-valve above said openings in said cage and within the chamber of the liner, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

6. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a coupling connected at its lower end to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the sides of the same, said portion having openings through the same communicating with a chamber therein and leading directly into the interior of the barrel, a liner connected to the upper end of said coupling, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, an operating-rod connected to said plunger to actuate the same, a check-valve at the upper end of said bottom portion, a cage surrounding said check-valve having openings therein leading to the interior of said coupling, and a check-valve above said openings in said cage and within the chamber of the coupling, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

7. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of

said barrel, a liner connected to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the same, said portion having openings through the sides of the same communicating with a chamber therein and leading directly into the interior of the barrel, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, an operating-rod connected to said plunger to actuate the same, a check-valve at the upper end of said bottom portion, a cage connected to said bottom portion around said check-valve and having openings therein leading to the interior of said liner, and a check-valve above the openings in said cage and within the chamber of the liner, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

8. In an oil-well pump, the combination with the working barrel, of a hollow bottom portion adapted to engage with the interior of said barrel, a coupling connected at its lower end to said bottom portion and provided with a contracted portion therein so as to form passage-ways through the sides of the same, said portion having openings through the same communicating with the chamber therein and leading directly into the interior of said barrel, a liner connected to the upper end of said coupling, a reciprocating plunger within said liner and passing through a stuffing-box at the upper end thereof, an operating-rod connected to said plunger to actuate the same, a check-valve at the upper end of said bottom portion, a cage connected to said bottom portion around said check-valve and having openings therein leading to the interior of said coupling, and a check-valve above the openings in said cage and within the chamber of the coupling, said cage having a seat at the upper end thereof for the last-named check-valve and such seat or upper end acting to limit the upward movement of the first-named check-valve.

In testimony whereof I, the said ARTHUR B. GAHAGAN, have hereunto set my hand.

ARTHUR BLOYD GAHAGAN.

Witnesses:

J. N. COOKE,
L. T. MARKS.