H. J. RISDEN & F. F. SEPPI.

FLUID RELEASE MECHANISM FOR WELL PUMPS.

APPLICATION FILED MAR. 15, 1915.

1,182,858. Patented May 9, 1916.

Fig. 1.

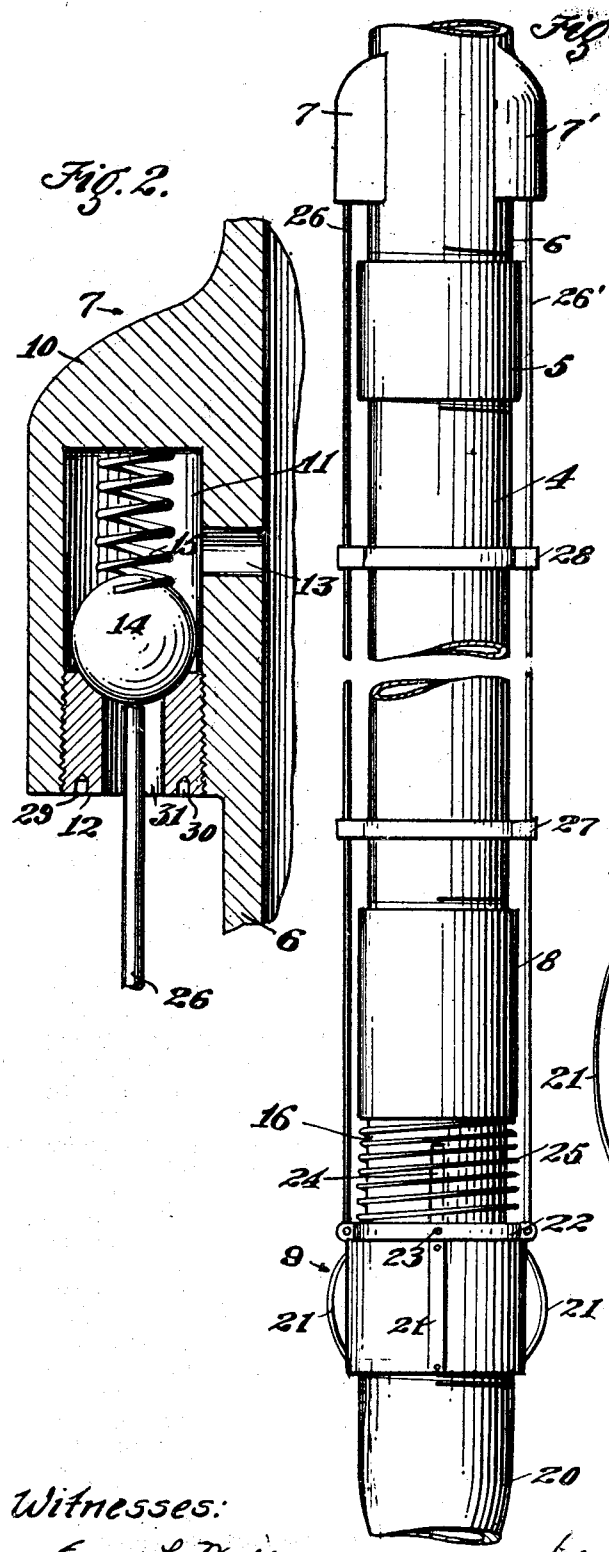
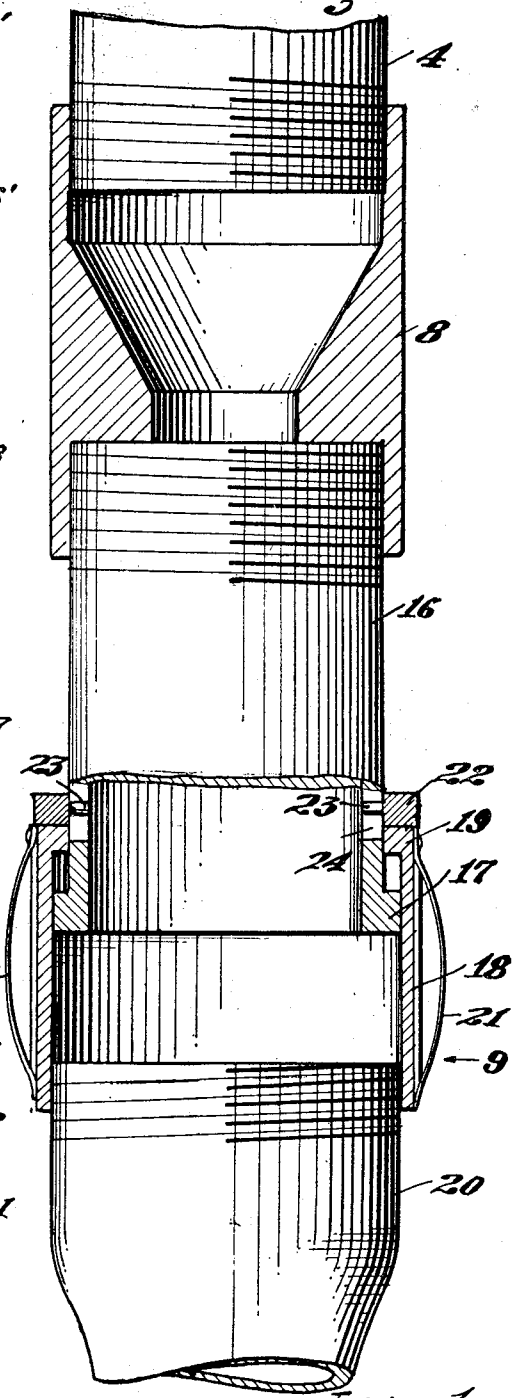


Fig. 2.

Fig. 3



Witnesses:

Ernest L. Wallace

James M. Ablett

Inventors.

Homer J. Risden.

Frank F. Seppi.

Edmund A. Strauss

Atty.

UNITED STATES PATENT OFFICE.

HOMER J. RISDEN AND FRANK F. SEPPI, OF ORCUTT, CALIFORNIA; SAID RISDEN ASSIGNOR TO SAID SEPPI.

FLUID-RELEASE MECHANISM FOR WELL-PUMPS.

1,182,858. Specification of Letters Patent. Patented May 9, 1916.

Application filed March 15, 1915. Serial No. 14,471.

To all whom it may concern:

Be it known that we, HOMER J. RISDEN and FRANK F. SEPPI, citizens of the United States, residing at Orcutt, in the county of Santa Barbara and State of California, have invented new and useful Improvements in Fluid-Release Mechanism for Well-Pumps, of which the following is a specification.

This invention relates to drain devices for well pump tubing and especially pertains to means for releasing oil from oil well pump tubing when it is desired to pull the same.

It is the primary object of this invention to provide a pump with a drain device which can be operated by movement of the tubing.

It is another object to provide means whereby the fluid in the pump tubing may be released without depending upon the movement of the pump plunger for such release.

It is a still further object to provide means adjacent the pump barrel for releasing the fluid from the pump tubing.

Heretofore, devices have been constructed for releasing the fluid from pump tubing which operate by lifting the plunger valve and the standing valve. The valves are lifted by moving the plunger out of its normal path of travel. The plunger often becomes sanded, preventing its movement, and in many cases the sucker rod is broken, thereby preventing the lifting of the valve and the release of fluid. Our device obviates these objections by providing a fluid release device which is not dependent upon movement of the plunger, but which may be operated by lowering the pump tubing.

We attain these objects by means of the embodiment of our invention illustrated in the accompanying drawing, in which:

Figure 1 is an elevation of pump tubing, a pump barrel, and an anchor with our improved fluid drain device applied thereto. Fig. 2 is an enlarged vertical section of the drain valve. Fig. 3 is an enlarged detail in section at right angles to the view shown in Fig. 1, showing the anchor.

More specifically, 4 indicates the plunger barrel of the usual construction, secured by a threaded sleeve coupling 5 to a section of tubing 6, which carries at its lower end the drain valve 7 and 7'. Secured to the lower end of the plunger barrel is a standing valve shoe 8, carrying at its lower end an anchor 9.

The drain valves comprise an offset projection 10 on the tubing 6, preferably integral therewith. A vertical bore 11 is provided in the offset 10 having threads at the lower end for the reception of a valve seat 12. Port 13 is provided connecting the bore 11 and the interior of the tubing 6. Upon seat 12 is disposed a ball 14 which is held thereon by a spiral spring 15. Seat 12 is a threaded plug having a port 31 and wrench holes 29 and 30, so that it can be removed by engaging a wrench therein and unscrewing it from bore 11, thereby permitting removal of the spring 15 and ball 14, and renewal or repair of the same.

Threaded into the standing valve shoe 8 which is of the usual construction, is a section of tubing 16 having an offset portion 17 forming a shoulder. Closely fitting tubing 16 and positioned for sliding longitudinal movement is a section of tubing 18 having a shoulder 19 to abut the offset portion 17 of tubing 16. The lower end of tubing 18 carries a reducer member 20 which extends to the lower part of the well. Upon tubing 18 are mounted bow spring members 21 adapted to engage the sides of the well casing and detachably hold the anchor member in position. On tubing 16 is loosely mounted a collar 22 carrying a pin 23 which slides in a slot 24, thereby preventing rotation of the collar 22 relative to the tubing 16, but permitting sliding movement. A spiral spring 25 surrounds the tubing 16, abutting the standing valve, shoe 8 and the collar 22 thus maintaining the latter in contact with tubing 18.

Secured to collar 22 and extending longitudinally of the pump tubing are rods 26 and 26' which are guided by means of clamps 27 and 28, secured to the pump barrel and having apertures through which rods 26 and 26' may slide. Assume that the tubing is in place in the well and parts in the relative position shown in Fig. 1, the pump in such condition being ready for normal operation. If it is desired to release the fluid in the tubing, the tubing is lowered from above and shoe 8 approaches the anchor since the latter is maintained in its position in the well by reason of the spring member 21. Collar 22 resting upon tubing

18 holds the rods 26 and 26′ against movement and thereby the offsets 10 approach the end of the rods 26 and 26′. Balls 14 coming in contact with the ends of the rods 26 and 26′ are lifted from their seats 12, thereby providing openings from the tubing to the outside of the well through port 13, bore 11 and port 31 through which the liquid may drain. The valves 14 may be closed by lifting the tubing, whereby the balls 14 are moved out of contact with rods 26 and 26′, permitting the balls to seat and close the opening to the exterior.

It is obvious that in practice one or more drain valves may be used, as may be found convenient, and that the number of drain valves is not a material part of our invention.

What we claim is:

1. A pump drain device, comprising the combination with pump tubing provided with a slidable anchor, of a section of tubing having a check valve disposed to release fluid therefrom, a sliding member disposed to engage said anchor, and a rod secured thereto extending longitudinally of said tubing for engagement with said valve.

2. A pump drain device, comprising the combination with pump tubing, provided with a slidable anchor, of a section of tubing having disposed on its outer wall a check valve arranged to release fluid therefrom, a sliding collar disposed about said tubing to engage said anchor, and a rod secured thereto extending longitudinally of said tubing for engagement with said valve.

3. A pump drain device, comprising the combination with pump tubing provided with a slidable anchor, of a section of tubing having disposed on its wall projections carrying check valves arranged to release fluid therefrom, a sliding collar disposed about said tubing to engage said anchor, rods secured thereto extending longitudinally of said tubing for engagement with said valves, and a spring engaging said tubing and said collar to hold the collar in engagement with the anchor.

4. A pump drain device, comprising the combination with a pump tubing, of a slidable member mounted thereon, a section of tubing having a check valve disposed in the wall thereof to release fluid therefrom, a collar disposed to be engaged by said sliding member, and a rod secured to said collar extending longitudinally of said tubing for engagement with said valve.

5. A pump drain device, comprising the combination with a pump tubing, of a slidable member mounted thereon, a section of tubing having a check valve disposed therein to release fluid therefrom, a sliding collar disposed to be engaged by said sliding member, a resilient member disposed to hold said collar in engagement with said sliding member, and a rod secured to said collar extending longitudinally of said tubing for engagement with said valve.

In witness that we claim the foregoing we have hereunto subscribed our names this 6th day of March, 1915.

HOMER J. RISDEN.
FRANK F. SEPPI.

Witnesses:
F. E. SIMPSON,
F. H. WELLER.