F. J. MOSER.

WELL PACKER.

APPLICATION FILED APR. 16, 1915.

1,190,790.

Patented July 11, 1916.

Fig. 1.

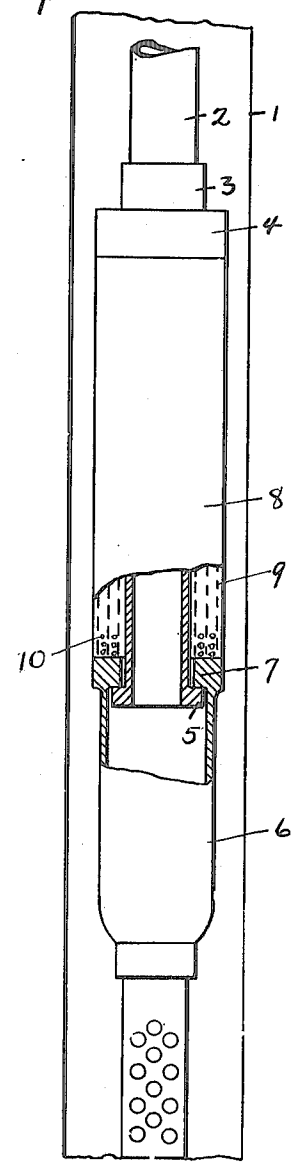


Fig. 2.

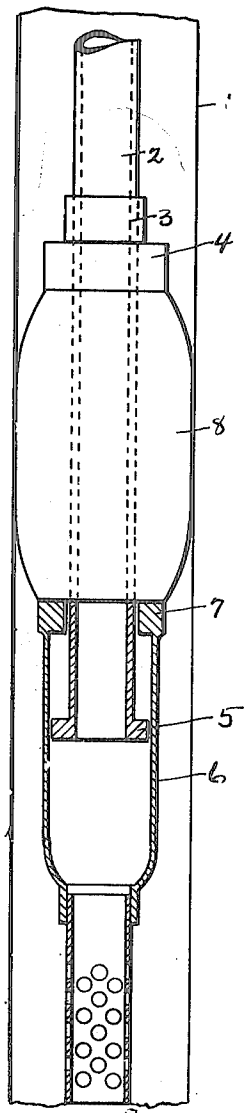
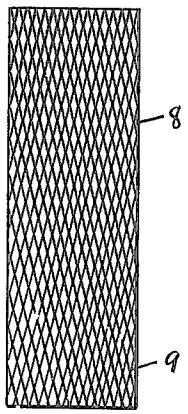


Fig. 3.



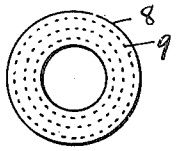


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

FRED JOSEPH MOSER, OF KANE, PENNSYLVANIA.

WELL-PACKER.

1,190,790. Specification of Letters Patent. Patented July 11, 1916.

Application filed April 16, 1915. Serial No. 21,669.

To all whom it may concern:

Be it known that I, FRED J. MOSER, a citizen of the United States, residing at Kane, in the county of McKean and State of Pennsylvania, have invented new and useful Improvements in Well-Packers, of which the following is a specification.

This invention relates to well packers and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

Well packers have been heretofore formed of rubber and operate in the well-known manner expanding against the walls of the well through longitudinal contraction, thus sealing the well except through the tubing. With high pressure wells difficulty has been experienced in that the rubber would not maintain the pressure but would be torn out by the pressure. The present invention is directed to correcting this difficulty.

The invention is illustrated in the accompanying drawings as follows:—

Figure 1 shows a view of the packer partly in section, before being expanded. Fig. 2 a similar view with the packer expanded. Fig. 3 a circumferential section along one of the layers of reinforcing fabric. Fig. 4 an end view of the packer.

1 marks the walls of the well, 2 the tubing, 3 the collar of the tubing engaging the upper shoulder 4 of the slip joint of the packer. The slip joint is formed on the bottom of the packer by means of the external shoulder 5 on the tubing and the internal shoulder 7 on the barrel 6. The rubber 8 is arranged between the shoulders 4 and 7.

It will be readily seen that when the barrel is held in a stationary position as by the perforated anchor reaching the bottom of the well and the weight of the tubing is delivered to the rubber 8, it will be expanded circumferentially as it is contracted longitudinally.

As before stated the body of the packer has been heretofore formed of rubber as this has the necessary elasticity but with high pressure wells, difficulty has been experienced with the blowing out or tearing of the rubber. To correct this, I have reinforced the rubber by means of threads so directioned or by a fabric or fabricated metal that will expand with the rubber circumferentially as it is contracted longitudinally. This is preferably accomplished by using a woven duck or wire cloth 9 and arranging it on the bias so that the threads extend spirally or diagonally with relation to the surface. The spiral threads are thus oppositely pitched. With this arrangement of the material the rubber can be fully reinforced yet is free to expand circumferentially as it is contracted longitudinally.

I prefer to reinforce the ends of the packer by a fabric as 10 with threads which run directly around the packer. This prevents the expanding of the ends of the packer and thus confines the expansion of the packer to the central portions.

What I claim as new is:—

1. A well packer having a rubber body reinforced throughout its circumference by threads extending spirally around the packer, some of the threads being oppositely pitched to others of said threads.

2. A well packer having a rubber body reinforced throughout the circumference by threads having a direction at an angle to a plane at right angles to the axis of the packer.

3. A well packer having a rubber body reinforced by threads extending spirally around the packer and permitting circumferential expansion of the rubber as it is contracted endwise.

4. A well packer having a rubber body reinforced throughout its circumference by woven fabric having its threads extending diagonally to the surface of the packer.

5. A well packer having a rubber body reinforced throughout the central portions of the packer by threads having directions permitting circumferential expansion of the rubber as it is contracted endwise and reinforced at the ends by threads extending circumferentially around the packer and preventing circumferential expansion of the packer at its ends.

6. A well packer having a rubber body

reinforced along diagonal lines throughout its circumference by a material nonextensible along said lines whereby the packer is reinforced but permitted to expand circumferentially as it is contracted longitudinally.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRED JOSEPH MOSER.

Witnesses:
JOSEPHINE ROCHE,
W. H. BUNCE.