

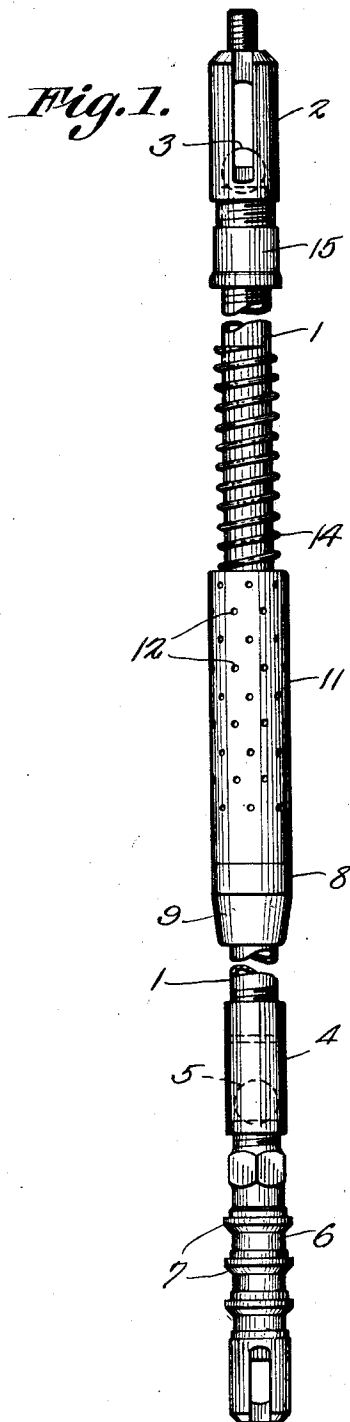
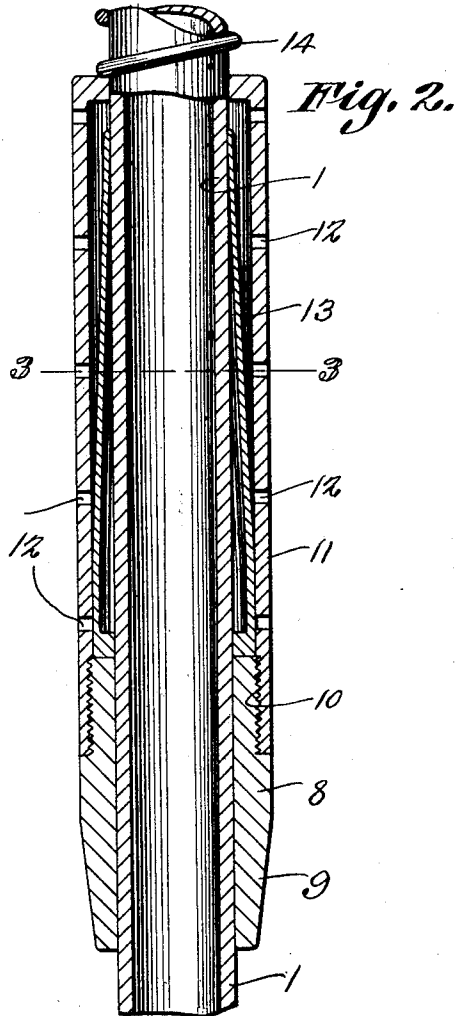
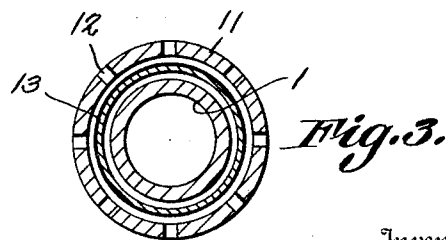
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SAND AND FLUID GUIDE FOR OIL WELL EQUIPMENT

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SAND AND FLUID GUIDE FOR OIL-WELL EQUIPMENT.

Application filed April 18, 1927. Serial No. 184,627.

This invention relates to equipment for pumping oil wells and more especially to a structure for use on the end of the sucker rod whereby, during the operation of the pump, sand will be kept away from the cups in the working barrel.

It is a fact well known to those skilled in the art that in pumping equipment for oil wells the old style cups in the working barrel are most desirable because they enable the pump to bring out more oil than is possible with any other device. However these old types of cups have been found objectionable because they are quickly cut up by the sand.

It is an object of the present invention to provide a means whereby injury to these cups by the sand is prevented.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown. In said drawings,

Figure 1 is an elevation of the structure constituting the present invention, a portion of the tube being broken away.

Figure 2 is an enlarged longitudinal section through a portion of the tube, the housing thereon, and the sand guide between the tube and housing.

Figure 3 is a section on line 3—3, Figure 2.

Referring to the figures by characters of reference 1 designates a tube adapted to extend downwardly into the working barrel, not shown, and to be supported therein with sufficient clearance therearound to allow the fluid to flow upwardly along the outer side of the tube. The usual cage 2 with a ball 3 therein is connected to the upper end of the tube while another cage 4 having a ball 5 therein is connected to the lower end of the tube, said tube being attached to the standard travelling valve 6 provided with the standard cups and followers 7.

Mounted on the tube is a sleeve 8 the low-

er end of which is tapered as at 9 so as to seat on the upper end of the working barrel. The upper portion of this sleeve is reduced and exteriorly screw threaded as at 10 where it is engaged by the interiorly screw threaded end of a tubular housing 11. This housing is spaced from the tube except at its upper end where it is in sliding contact with the tube, and numerous apertures 12 extend through the housing. Arranged around the tube and within the housing in a frusto-conical sand guide 13 the lower portion of which contacts with the lower portion of the housing while the upper portion is spaced from the housing but contacts with the tube 1.

A coiled spring 14 is mounted on the tube 1 and bears at one end against the upper end of the housing 11. A bushing 15 is arranged on the tube near the upper end thereof.

In practice the tube 1 is reciprocated and each time it descends the bushing 15 strikes and compresses the spring 14 so as to keep the sand agitated and prevent it from centering upon the upper end of the housing 11. The guide 13, which is slidably engaged by the surface of the tube 1, acts to scrape sand from the tube on the downward stroke so that this sand flows outwardly with the fluid through the apertures 12 and is thus kept away from the cups in the working barrel on which the tapered end 9 of the sleeve 8 is seated. Thus old style cups can be used without being cut up by the sand and the structure will consequently be more efficient than those devices wherein means other than the old type cups 7 are employed. During the operation of this device fluid will come in through the seat at the lower end of the tube 1 and travel through this tube, ultimately escaping past the valve 3. The perforated housing 11 is at all times covered with fluid because the well tubing will be full while the pump is working.

What is claimed is:

1. A device of the class described including a tube, a cage at each end thereof, a valve within each cage, a travelling valve depending from the lower cage having cups and followers, a tapered sleeve adapted to be seated on a working barrel in which the tube is adapted to be suspended, said tube extending through the sleeve, a frusto-conical scraper

mounted on the sleeve and extending around the tube, and a perforated housing supported by the sleeve and enclosing the scraper.

2. In a device of the class described a tube
5 having a valved cage at each end, a travelling valve depending from the lower cage having cups and followers, a housing having apertures, said tube being slidable within the housing, means for supporting the
10 housing above the upper end of a working barrel in which the tube is adapted to be suspended, and means within the housing for scraping sand from said tube and directing it with fluid through the apertures in
15 the housing.

3. The combination with a tube having a valved cage at each end and a travelling valve depending from the lower cage, of a sleeve on the tube adapted to be seated on
20 the upper end of a working barrel in which the tube is adapted to be suspended, a perforated housing supported by the sleeve and surrounding the tube, and means within the housing for scraping sand from the tube and

directing it with fluid through the apertures 25 in the housing.

4. The combination with a tube having a valved cage at each end and a travelling valve depending from the lower cage, of a sleeve on the tube adapted to be seated on
30 the upper end of a working barrel in which the tube is adapted to be suspended, a perforated housing supported by the sleeve and surrounding the tube, means within the housing for scraping sand from the tube
35 and directing it with fluid through the apertures in the housing, a spring upon the tube and bearing against the upper end of the housing, and means movable with the tube
40 for compressing the spring during each downward stroke of the tube, thereby to agitate sand and prevent it from accumulating on the upper end of the housing.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature. 45

MONROE M. MUCKELRATH.