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PULL ROD CARRIER

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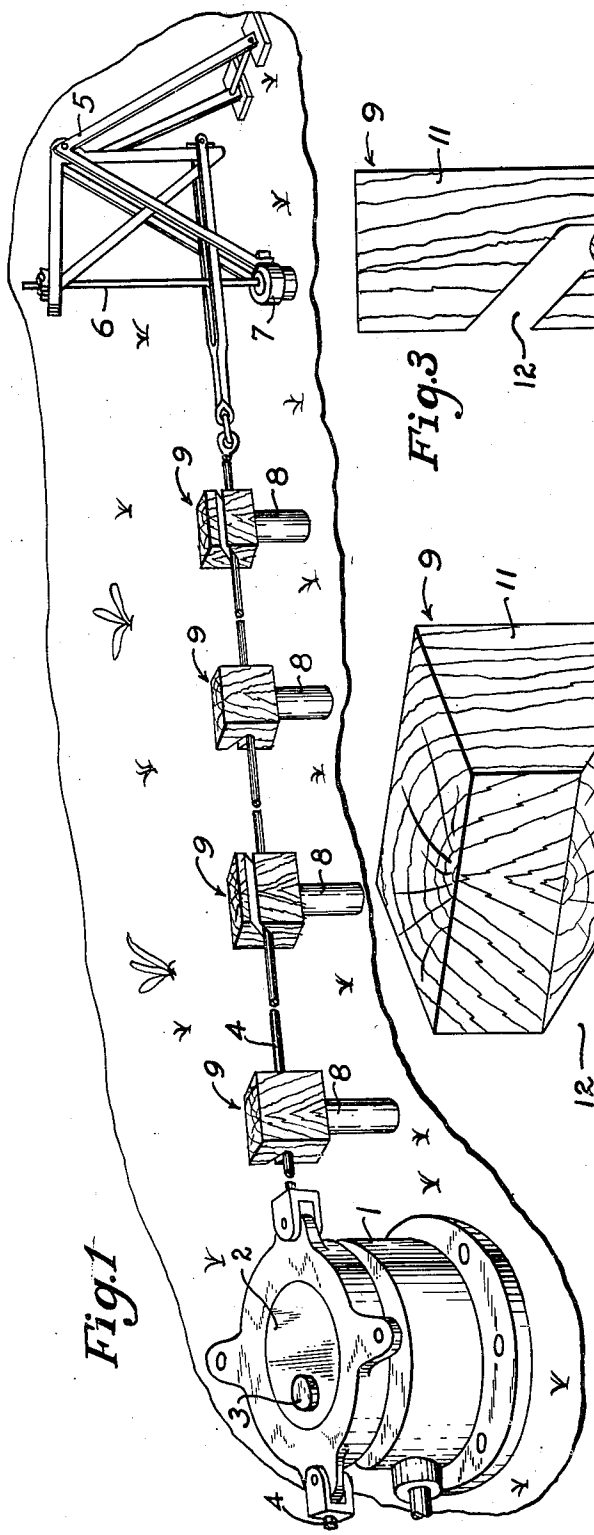


Fig.1

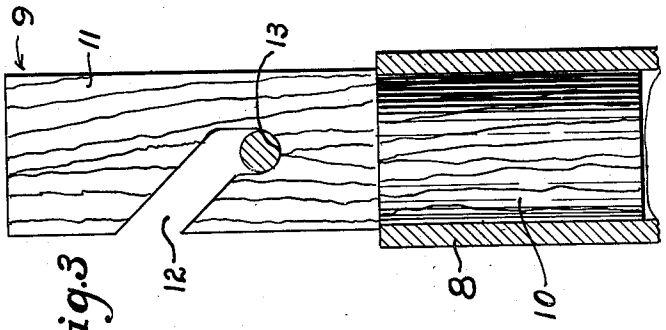


Fig.3

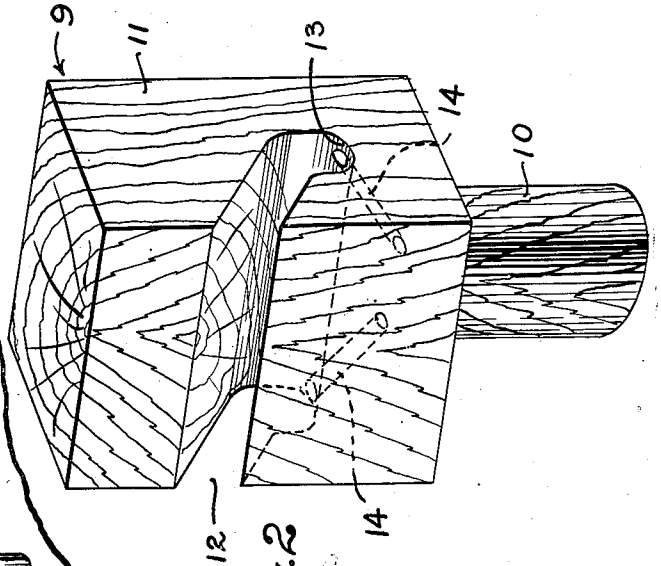


Fig.2

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PULL ROD CARRIER

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3 Claims. (Cl. 308—4)

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This invention relates to improvements in pull rod carriers, such as are used to support pull rods that are used in the pumping of oil wells and the like.

Various forms of pull rod carriers have been proposed heretofore made of both wood and metal or a combination of the two materials, but these have been either so expensive as to counteract any practical utility they might possess, or so poorly constructed as to improperly support the rod lines, or allow them to become readily misplaced either by accident or during the normal operation thereof.

The present invention has been so constructed as to make accidental misplacement or removal of the pull rods therefrom practically impossible, yet it is so simple and inexpensive in construction that it can be used freely and replaced as needed. Removal of the pull rod from the carrier, for a purpose, can be readily, easily and quickly accomplished by the proper manual manipulation of the rod.

The primary object of this invention is to provide a pull rod carrier that is simple in construction, that will provide an operating bearing surface for the longitudinal movement of the pull rod, and which will secure the pull rod against accidental misplacement.

Another object of this invention is to provide a pull rod carrier that is simple and inexpensive in construction, easy to install and effective in supporting the pull rod, and any one of which may be replaced without disturbing the other pull rod carriers in the series.

An embodiment of this invention is illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a power unit, pull rod line and pump jack, showing a series of pull rod carriers spaced in operating position along the pull rod line;

Fig. 2 is a perspective view of the pull rod carrier; and

Fig. 3 is a side elevational view of the pull rod carrier, with the pull rod shown in section as it operates in the carrier, and with the tubular pull rod carrier supporting post shown in section.

With more detailed reference to the invention the numeral 1 designates a power which is designed to pump a multiplicity of wells, which power may be driven by any conventional source of motive power. An eccentric member 2 is mounted on the upper end of an upstanding shaft 3 so that when the eccentric 2 is rotated by the shaft 3 a rod line 4 will be reciprocated. The reciprocation of the rod line 4 operates the pump

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jack 5 to reciprocate a plunger rod 6 within the well 7 to pump oil or water therefrom.

Posts 8 having carriers, generally designated by the numeral 9, are positioned at intervals along the pull rod line between the power 1 and the pump jack 5. These pull rod carriers 9 support the rod line and present a bearing surface for the reciprocating movement thereof. It is preferable that these pull rod carriers be made of hardwood, such as oak or maple, or other suitable hardwood, and with the grain of the wood running longitudinally thereof. The lower end of the carrier head 9 has a projection 10 which extends downwardly therefrom and is received by and adapted to fit into post 8, as will best be seen in Fig. 3. This projection 10 is of sufficient length and fits into the post 8 with sufficient tightness so as to maintain it against any ordinary misplacement due to jarring or during the normal operation of the pull rod. However, the pull rod carriers may be manually removed from the post readily and easily by the proper manipulation thereof.

The upper or head portion of the carrier 9 is formed substantially rectangular in shape, as is indicated at 11, and has a horizontal slot 12 disposed across the face thereof, which slot slopes inwardly and downwardly at an angle of approximately forty five degrees from the vertical to form a groove in the head approximately one half the depth thereof, as is best seen in Fig. 3. The inner face of this slot 12 is still further grooved to form a pocket 13 of proper shape to receive the pull rod 4, which pull rod may be inserted thereinto through the slot 12 to seat inward and downward into the pocket 13 where it is held against misplacement during the normal operation thereof. Oil reservoir holes 14 are drilled inward at an angle from the bottom of pocket 13, which holes may be filled with a lubricant such as oil or grease for lubricating the lower side of the pocket and the pull rod as the rod is reciprocated by means of the power 1.

When these pull rod carriers 9 are installed on posts 8 the slotted face of the heads are faced alternately in opposite directions, whereby the pull rod is retained against lateral misplacement and the manner in which the slot is formed in the carrier retains the rod against upward misplacement. The pull rod may be removed from any one of the rod carriers and freed therefrom for replacement of such carrier when necessary by manually urging the pull rod angularly upward and outward out of the slot 12 of such carrier.

Should the rod line 4 accidentally be dislodged

from the slot 12 of one of the carriers 9 it will be thrown out of alignment approximately one-half the thickness of the carrier. During the normal operation the pull line 4 will have a tendency to re-align with the carrier. Since the spacing of the carriers is usually a distance of approximately twenty-five feet, the unsupported length of pull rod line will sag several inches when it is free of load and when a load is suddenly applied the rod line will tend to whip upward above the normal line of pull a distance only slightly less than the downward sag. With the pull rod line out of lateral alignment and in contact relation with the slotted side of the carrier, the rod will usually have enough upward whip to enter the slot 12 and slip angularly downward into vertical slot 13 in alignment with the rod in the adjacent carriers.

Since the movement upward and outward must be combined to remove the rod from the carrier, and the heads of the carriers having the slots therein faced in opposite directions alternately, there is very little likelihood that the rod line will become accidentally mislocated. However, as stated before, by manually lifting the rod upward and outward, it can be readily removed from the slot 12 and any one rod carrier may be replaced without disturbing the rest of the line.

It can be readily appreciated that the rod line can be removed from the rod carriers when desired, but it must be removed from each carrier and therefore the rod line can remain supported by a carrier wherever necessary, so that such carriers may be removed and replaced.

The manner of supporting a rod line as described above saves much labor and expense and the pull rods are at all times maintained in the proper operating position with a minimum of care and expense.

I claim:

1. In a pull rod system having a power unit and a pump jack, a pull rod interconnecting said power unit and said pump jack, a series of posts disposed in alignment with said pull rod and having a rod line carrier mounted on the upper end of each post, said rod line carrier having a slotted opening in a face thereof which opening slopes inwardly and downwardly to a point approximately mid-way of said block, said pull rod carriers having the slots in the faces thereof disposed alternately in opposite directions so as to retain the pull rod against horizontal misplacement.

2. In a pull rod carrier for supporting pull rods used in operating pump jacks, a block having a slot disposed in a side thereof, which slot slopes inwardly and downwardly and has the lower side thereof approximately in a medial plane passing through the block, said slot being adapted to receive a pull rod therein, said slot having a vertical pocket formed in the inner space thereof which pocket has a depth greater than one-half the diameter of the pull rod, and holes disposed in the lower surface of said vertical pocket and converging downwardly into the block and adapted to receive a lubricant therein.

3. In a pull rod system having a power unit and a pump jack, a pull rod interconnecting said power unit and said pump jack for reciprocation, a series of posts disposed in alignment with said pull rod and having a rod line carrier mounted on the upper end of each post, said rod line carrier having a slotted opening disposed in a face thereof above the normal line of pull of said pull rod when loaded, said slotted opening sloping inwardly and downwardly to a point above the normal line of sag of said pull rod when free of load, said pull rod carriers having the slot in the faces thereof disposed alternately in opposite directions so as to retain the pull rod against horizontal displacement.

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