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PULL ROD CARRIER

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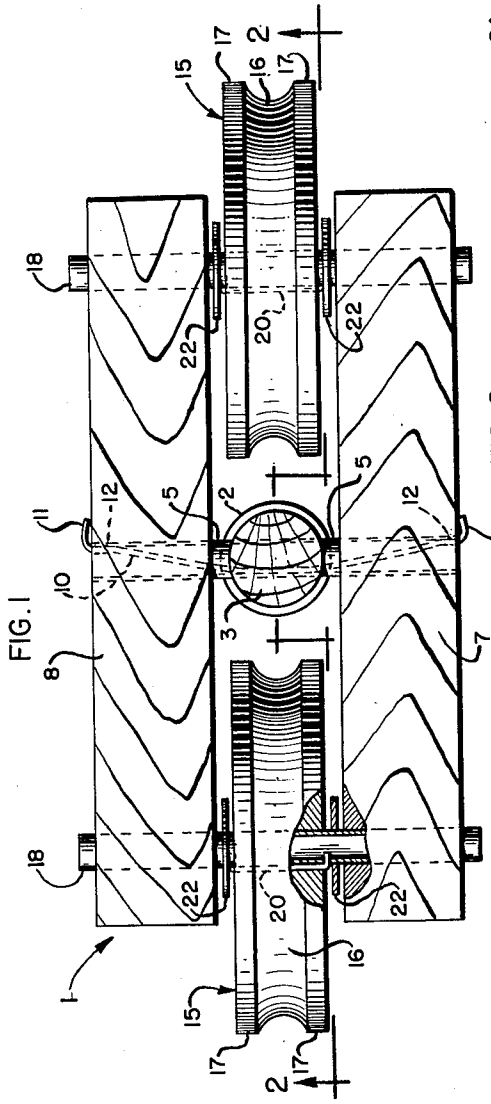

FIG. 1

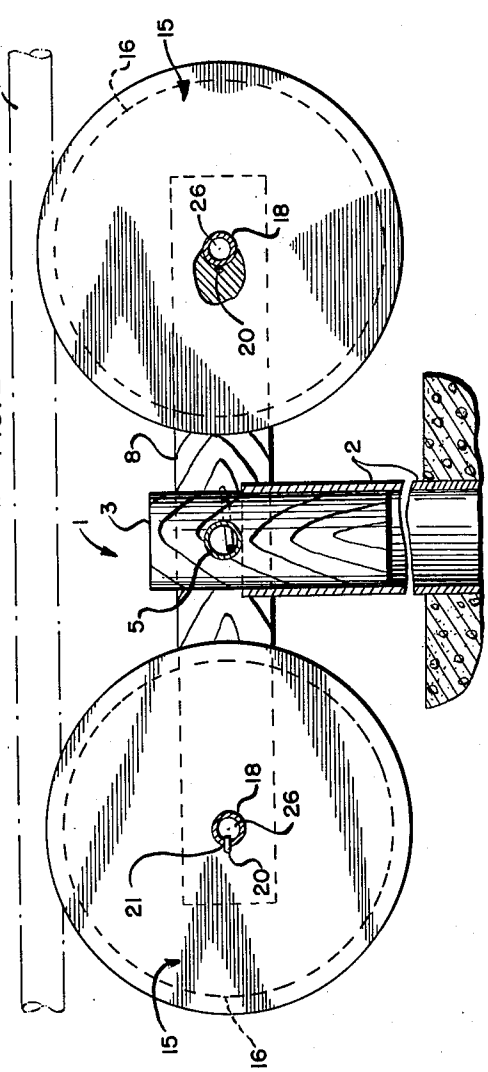

FIG. 2

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PULL ROD CARRIER

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6 Claims. (Cl. 308—7)

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This invention relates to pull rod carriers of the type to be used for supporting horizontally reciprocating pull rods such as are used, for instance, for transmitting power to a deep well oil pump from a remotely located prime mover. Reciprocating pull rods of this character frequently extend great distances and must be supported along their lengths by carriers which will impose minimum drags on the pull rod.

It is one of the objects of the present invention which will provide a pull rod carrier wherein the pull rod rests on a pair of rollers spaced from one another in a direction lengthwise of the pull rod and wherein the load is equally distributed between the two rollers regardless of the inclination or change of inclination of the pull rod being supported by the carrier. It is a further object of the present invention to provide a pull rod carrier which can be easily and quickly mounted in place on a standard pipe which is mounted in a vertical position and wherein the carrier is free to turn about two axes at right angles to one another to make the carrier self-aligning with respect to the pull rod.

It is a still further object of the present invention to provide a pull rod carrier of the above mentioned character which consists of a few parts that may be easily assembled or disassembled to enable ready replacement either of a complete carrier or of a portion of a carrier.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is a plan view of a carrier embodying the present invention; and

Figure 2 is a sectional view taken along the line 2—2 of Figure 1 and looking in the direction of the arrows.

The carrier 1 of the present invention is mounted on a steel pipe 2 which may be a standard steel pipe, approximately two inches in diameter, that is mounted in a vertical position either by being driven into the ground or by setting the same in a concrete foundation as is usual in the art. After the pipe has been driven into the ground the burr at its top is reamed out to permit free entry of the carrier support. The carrier 1 includes a mounting member or support 3. The support 3 is of a cylindrical shape and may consist of a block of wood of a diameter sufficient to enable it to fit snugly into the end

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of the pipe and yet be free to turn therein. The support 3 is drilled to receive a steel tube 5 which extends snugly through the support and in turn supports a pair of side members 7 and 8. Each one of the side members consists of a rectangular wooden beam. A galvanized steel wire 10 extends through the tube 5 and is bent at its outward ends, as indicated at 11—11, so that the ends 11—11 bear against the outer sides of the side members and hold the side members against spreading apart. The portion of the wire 10 within the tube 5 is bowed so that the wire bears against the tube at the two ends thereof indicated at 12—12 and also midway between those ends, thus keeping the spring wire against rattling within the tube 5.

A pair of identical grooved rollers 15—15 are mounted in tandem between the opposite ends of the side members 7—8. Each roller has a grooved portion 16 that extends around the entire periphery thereof, and flanges 17—17. A steel tube 18 extends through the side members 7—8 and through each roller 15 and acts as a support for the roller. The roller is keyed to the tube 18 by a galvanized wire 20 that extends through the roller and is bent to a U shape with the ends thereof inserted in holes 21 in the tube 18. A pair of circular washers 22—22 surround the tube 18 on opposite sides of the wire 20.

All of the wood parts are preferably made of hard maple. The carrier itself is immersed in crude oil for about two weeks before installation. The wood parts therefore become soaked with the crude oil which thereafter not only acts as a preservative for the carrier but also acts as a lubricant.

A pull rod 24 extends over the two rollers 15—15 and is supported thereby. In the event that the pull rod is not truly horizontal or if the pipe 2 is not truly vertical the carrier 1 is free to turn upon the longitudinal axis of the tube 5 so that the weight of the pull rod on the carrier is equally divided between the two rollers 15—15. As a result the wear on the rollers and other parts of the carrier is equalized.

In assembling the carrier the ends of the U-shaped wire 20 are inserted into holes 21 in the tube 18 and pressed thereinto so that the wire is held by the tube and extends axially along the length thereof as an outwardly projecting key. Each roller 15 has a small off center circular hole drilled therein and then a large central hole 26 drilled therein and reaching to the small hole. The roller 15 is pressed onto the tube 18 in such angular position that the wire

20 enters the small hole. Each roller 15 is locked to the tube 18, and the tube 18 is slidable axially in the supports 7 and 8. Likewise, the tube 5 is longitudinally slidable through the support 3 and the side members 7—8 are slidable along the tube 5. By reason of this rather loose arrangement the rollers 15—15 can shift with respect to the pipe 2 to bring the rollers immediately under the pull rod even if there is a small offset between the pull rod and the location of the pipe 2 in a direction transversely of the pull rod.

As previously stated, the wire 20 keys the roller 15 to the tube 18, the tube 18 then rotating in the side members 7 and 8 as the roller is rotated. It is to be noted that side members 7—8 are of appreciable width in comparison with the width of the roller 15. As a result the unit stress between the tube 18 and the side members 7—8 is very low so that upon turning of the tube 18 there is very little wear on the side members 7—8.

The wire 20 serves not only to key the roller 15 to the tube 18 but also to prevent retraction of the tube from the two side members 7—8. The tube 18 has a limited amount of longitudinal play between the side members 7—8 thereby permitting the roller 15 to move closer to either one of the side members 7—8 to bring the roller 15 into proper position with respect to the pull rod, but the wire 20 limits the extent of that movement.

In compliance with the requirements of the patent statutes I have here shown and described a preferred embodiment of my invention. It is, however, to be understood that the invention is not limited to the precise construction here shown, the same being merely illustrative of the principles of the invention. What I consider new and desire to secure by Letters Patent is:

1. A pull rod carrier comprising a pair of rollers in tandem adapted to support a pull rod, said carrier having a mounting member between the rollers and at right angles to the axes of the rollers and adapted to be mounted on a vertical post and said rollers being movable with respect to the mounting member parallel to their axes of rotation to bring them into alignment with a pull rod even if the mounting member is mounted on a post which is out of alignment with the pull rod.

2. A pull rod carrier comprising a pair of rollers in tandem for supporting a pull rod, parallel shafts supporting the rollers, means for keying the rollers against rotation with respect to the shafts so that the shafts turn with the rollers, a pair of side members supporting the shafts, means for supporting the side members including a horizontal pivot member between the shafts and about which the side members are pivotally supported for turning about a horizontal axis and a post between and at right angles to the longitudinal axes of the roller shafts and supporting said horizontal pivot member.

3. A pull rod carrier comprising a mounting member adapted to be swiveled on a vertical post for turning about a vertical axis, a frame comprising a pair of longitudinal side members on opposite sides of the mounting member, a cylinder extending through the mounting member and through the longitudinal side members and constituting a pivot support for the longitudinal side members, the frame loosely surrounding the mounting member and slidable on the cylinder towards and from the mounting member, means for limiting the movement of the longitudinal side members with respect to the cylinder in a direction outwardly of the mounting member, and pull rod supporting means carried by the frame.

4. A pull rod carrier comprising a mounting member adapted to be swiveled on a vertical post for turning about a vertical axis, a frame comprising a pair of longitudinal side members on opposite sides of the mounting member, a cylinder extending through the mounting member and through the longitudinal side members and constituting a pivot support for the longitudinal side members, the frame loosely surrounding the mounting member and slidable on the cylinder towards and from the mounting member, means for limiting the movement of the longitudinal side members with respect to the cylinder in a direction outwardly of the mounting member, and pull rod supporting means carried by the frame and comprising a pair of rollers in tandem, each roller being slidable towards and from the longitudinal side members.

5. A pull rod carrier comprising a mounting member adapted to be swiveled on a vertical post for turning about a vertical axis, a frame comprising a pair of longitudinal members on opposite sides of the mounting member, a tube extending through the mounting member and through the longitudinal members and constituting a pivot support for the longitudinal members, means for limiting the movement of the longitudinal members with respect to the tube in a direction outwardly of the mounting member comprising a bowed spring extending through the tube and extending over the longitudinal members adjacent the tube, and pull rod supporting means carried by the frame.

6. A pull rod carrier comprising an oil-soaked wood mounting member adapted to be swiveled on a vertical post for turning about a vertical axis, a frame comprising a pair of oil-soaked longitudinal wood beams on opposite sides of the mounting member, a cylinder extending through the mounting member and through the beams and constituting a pivot support for the beams, the beams loosely embracing the mounting member and slidable on the cylinder towards and from the mounting member, means for limiting the movement of the beams with respect to the cylinder in a direction outwardly of the mounting member, and pull rod supporting rollers journalled in the beams.

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