Feb. 1, 1938. J. E. CHAMBERS 2,107,234

PULL ROD SUPPORT

Filed July 10, 1935

Fig 1

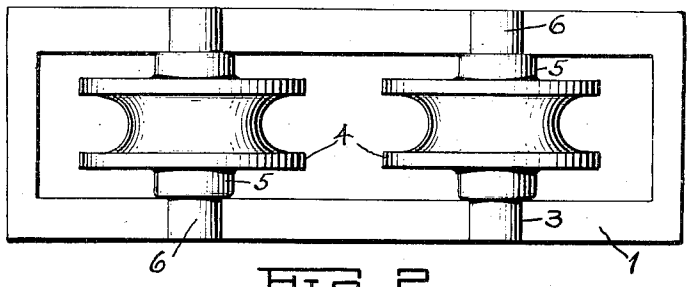


Fig. 4.

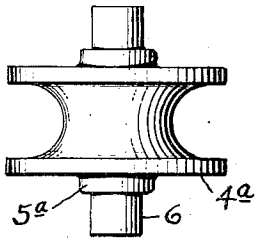


Fig 2

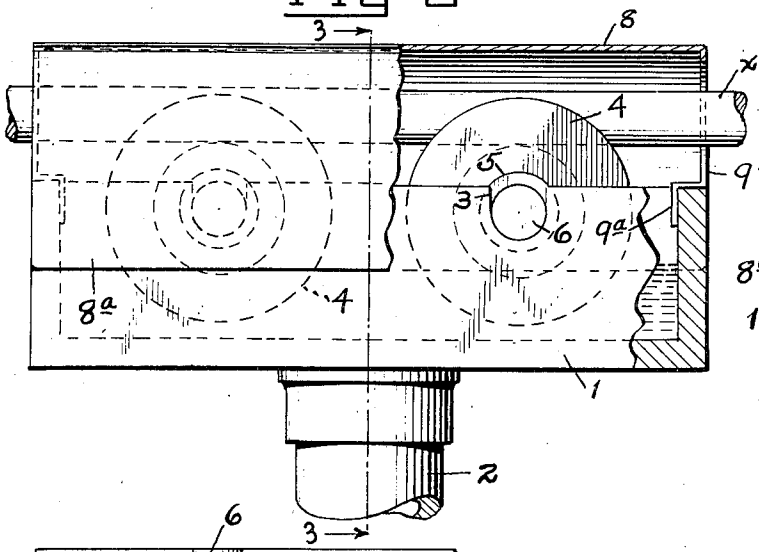
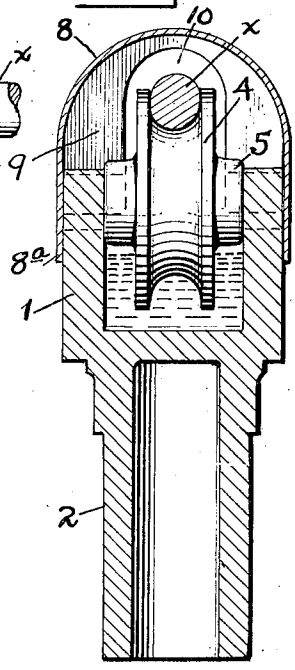


Fig. 3.



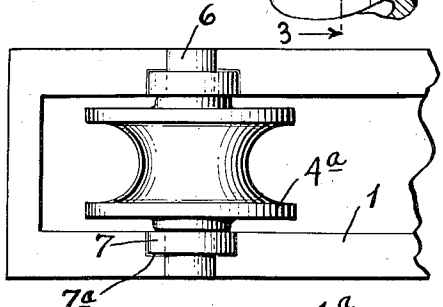


Fig 5

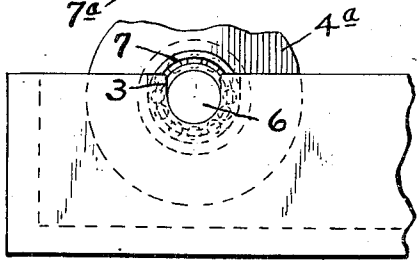


Fig 6

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PULL ROD SUPPORT

James E. Chambers, West Palm Beach, Fla.

Application July 10, 1935, Serial No. 30,683

1 Claim. (Cl. 308—6)

This invention relates to oil field apparatus and more particularly to means for supporting the pull rods commonly employed in certain fields to transmit power from an engine or the like to pump jacks.

Where the distance between the engine and jacks is great, and the rods long, it is necessary to support these rods at intervals throughout their length. This has heretofore been usually done by means of wooden blocks supported on suitable posts and having a notch or groove in their upper surface through which the rod slides. It has been found in practice, however, that the friction incident to such an arrangement is excessive and greatly reduces the power available for operating the jack. One object of the present invention, therefore, is to provide a rod support of simple and rugged construction, capable of continuous service, and by means of which the frictional load on the rod will be reduced to a minimum. The invention, to this end, contemplates supporting the rods on grooved pulleys running in oil.

The size of the rods employed under different conditions varies considerably, and a further object of the invention is to so design my improved device that the pulleys may be made interchangeable and provided with grooves of different sizes, so that the proper size to fit any given rod may be readily selected and employed.

Where the rods are small and of considerable length, it frequently happens in practice that severe vibrations are set up in the rod line, and these sometimes become so violent as to bend or kink the rod at the point where it passes over the support. A still further object of the present invention, therefore, is to provide a support in which the rod will have a relatively long or extended bearing, so that the tendency to bend or kink is largely overcome. To this end I propose to provide a pair of pulleys spaced apart lengthwise of the rod.

In order that the invention may be readily understood, reference is had to the accompanying drawing, forming part of this specification, and in which:

Fig. 1 is a plan view of my improved rod support with the cover or housing removed;

Fig. 2 is a side elevation thereof, showing the cover in position, some of the parts being shown in vertical section;

Fig. 3 is a transverse section taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a plan view showing a pulley having a wider groove and being interchangeable with those shown in Fig. 1;

Fig. 5 is a fragmentary plan view similar to Fig. 1 showing a slightly modified construction; and

Fig. 6 is a side elevation of the device shown in Fig. 5.

Referring to the drawing in detail, my improved rod support comprises a hollow bracket or box 1 preferably formed of cast iron or the like and being of rectangular form, as shown in Fig. 1. This box is provided with a central depending stud or shank 2 adapted to be inserted in the upper end of a hollow post driven into the ground and preferably formed of a piece of pipe. In this way, the box or bracket 1 is pivotally supported on the post so that it may swing in a horizontal plane, to adapt itself at all times to the angular position of the rod.

The box 1 is constructed with straight parallel side walls, as shown in Fig. 1, and in the upper edges of these walls are formed two pairs of open bearing notches 3.

Adapted to be supported in these notches are a pair of grooved pulleys 4, each having a hub portion 5 and rigid trunnions 6 projecting therefrom at each end of the hub. It will be understood that the hub portions 5 are of a length substantially equal to or slightly less than the distance between the side walls of the box, so that when the trunnions 6 are set into the notches 3 the hub portions 5 will center the pulleys with respect to the box and maintain them in accurate alinement.

The box 1 is adapted to receive lubricating oil and, as shown in Figs. 2 and 3, may be filled with such oil almost up to the level of the bottom of the notches 3. The pulleys dip into this oil, and as they rotate not only are the grooves of the pulleys thoroughly lubricated but the oil is also carried up and flows down into the notches 3 and over the trunnions 6.

In Figs. 2 and 3 a fragment of the pull rod is illustrated at x and by reference to Fig. 2 it will be seen that by virtue of providing a pair of pulleys, spaced apart in tandem as shown, a relatively long bearing for the rod is provided. This tends to keep the rod rigid and prevent it from bending or kinking. It will be noted by reference to Fig. 2 that the pull rod x lies in the grooves of the pulleys 4 and extends parallel to the plane of the axes of said pulleys.

The invention contemplates the provision of a set of interchangeable pulleys having grooves of different widths so as to accommodate rods of

different sizes, and in Fig. 4 I have shown by way of example one of these interchangeable pulleys having a wider groove than those shown in Fig. 1. Thus the pulleys illustrated in Fig. 1 may be suitable for 5/8 or 3/4 inch rods while the pulley 4a shown in Fig. 4 may accommodate 7/8 or 1 inch rods. It will be particularly noted, however, that the trunnions 6 of all of the pulleys are of the same size so that the pulleys may be interchangeably mounted in the notches 3 as desired, it being merely necessary to lift out one pulley and set in another one. It will further be observed that the hub portions of the various pulleys are all of the same length so as to fit snugly between the side walls of the box. Where, however, a pulley, such as 4a has a wider groove, as shown in Fig. 4, the hub portion 5a appears to be shorter, that is to say, such hub portion at each side of the pulley is of less length, in order to compensate for the increased width of the pulley, while maintaining the total length of the hub the same.

While in Figs. 1, 2 and 3 I have shown the pulleys equipped with plain bearings, it will be understood that I also contemplate the use of anti-friction bearings if desired. In such cases I may assemble a suitable anti-friction bearing, such as a ball bearing 7 on the trunnions 6 themselves and form a special pocket or seat 7a, as shown in Figs. 5 and 6, to receive such bearings, the seat 7a being provided on the inner faces of the side walls of the box and adjacent the notches 3. In many cases, owing to the almost complete elimination of friction and longer wear, these ball bearings, such as illustrated in Figs. 5 and 6, are preferred. Roller bearings may, of course, be employed, if desired. Regardless of the type of bearing, it will be understood that the pulley and bearing assembly may be set into or lifted out of the notches and pockets 7a as desired, the same as with plain bearings.

In order to keep water and other foreign matter out of the box and also to prevent undue wasting of the oil, I preferably provide a housing or cover 8, as illustrated in Figs. 2 and 3. This can conveniently be formed of sheet metal. The sides or skirts 8a of the housing preferably closely hug the outside face of the box and cover or enclose the open outer ends of the notches 3 so as to prevent the excessive escape of oil therefrom. The housing 8 has end walls 9 provided with openings 10 to accommodate the rod, the lower portion of the end walls 9, at either side of the openings 10 being preferably bent inward to form a flange 9a adapted to fit into and engage the inner surface of the ends of the box, as shown in Fig. 2. Other methods of constructing and attaching the housing may, of course, be employed without departing from the spirit of the invention.

What I claim is:

The combination with a pull rod, of a rod support comprising a bracket member, means for pivotally mounting said member on a post, and a pair of grooved pulleys journaled in said member in tandem and spaced apart, said rod lying in the grooves of said pulleys and extending parallel to the plane of their axes, whereby said pulleys provide a relatively long bearing for the rod.

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