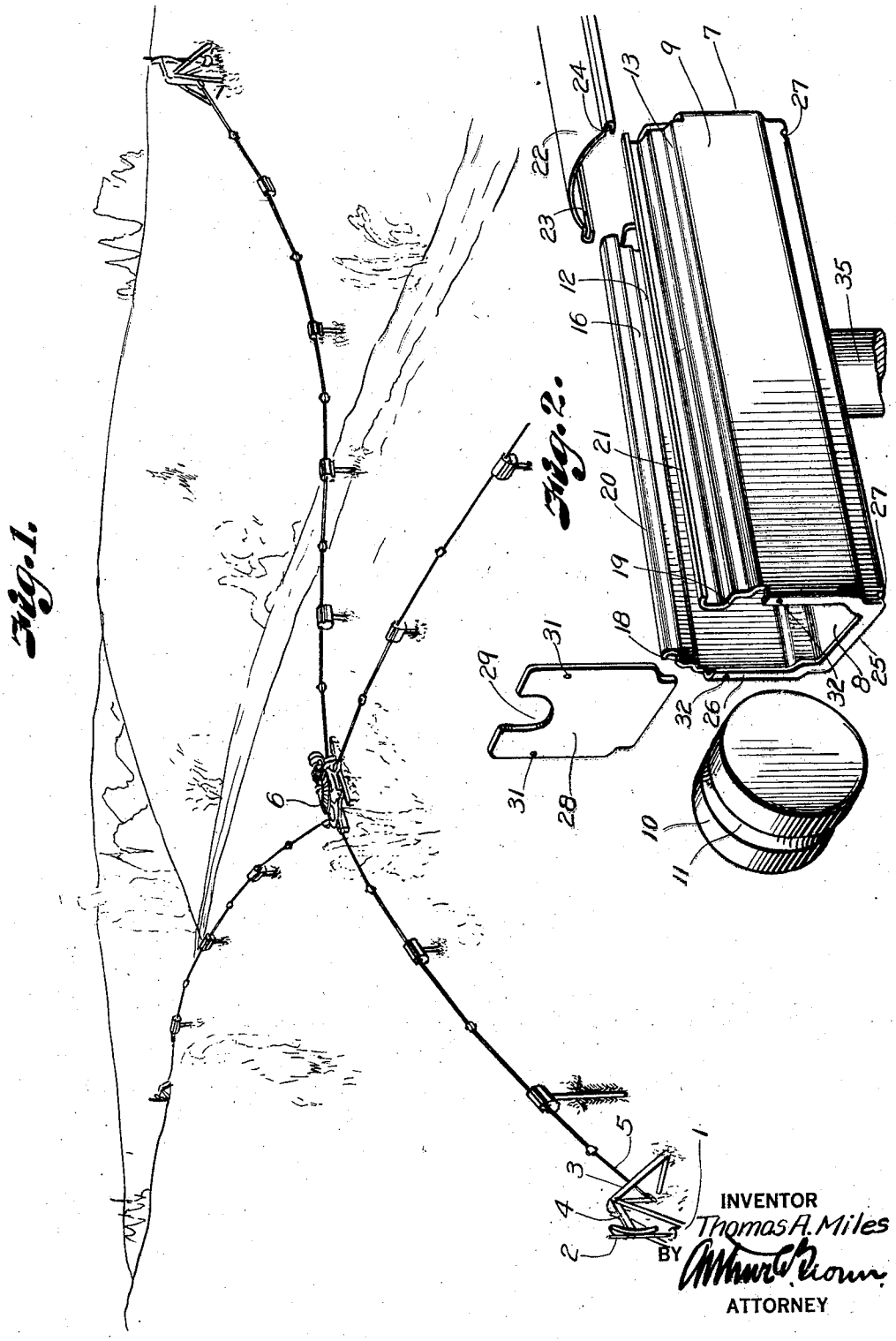
Aug. 26, 1930. T. A. MILES 1,774,103

PULL ROD CARRIER

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PULL ROD CARRIER

Filed Feb. 15, 1926 2 Sheets-Sheet 2

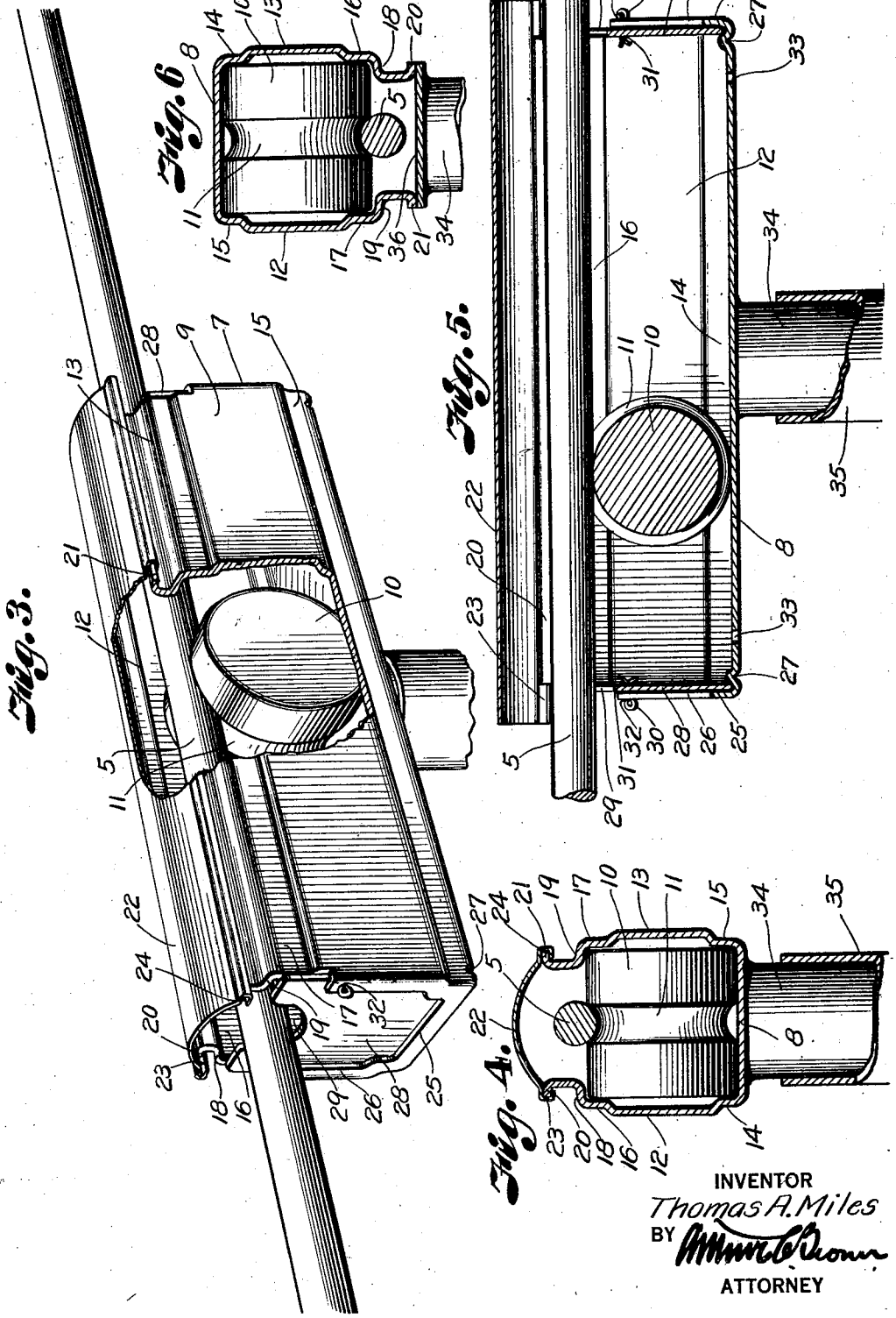


Fig. 3.

Fig. 6.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE

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PULL-ROD CARRIER

Application filed February 15, 1926. Serial No. 88,419.

My invention relates to pull rod carriers and more particularly to a carrier for supporting the pull rod of an oil well pump intermediate the pump and the power mechanism whereby the pump is operated.

It is common practice in oil fields where a number of wells are located in the same vicinity and on the same property to install a power mechanism at a relatively central point and extend pull rods from the single power mechanism to a number of wells, so that all of the wells in the group may be pumped simultaneously from the single source of power. The pull rods employed for this purpose usually comprise sections or joints of steel rods twenty-five feet in length and five-eighths, three-fourths or seven-eighths inch in diameter, a sufficient number of joints being clamped end to end to extend from the power to the well, and having the rigidity to push and pull the pumping element to effect the pumping operation. In order to avoid friction of the rods on the ground, the rods are usually supported on carriers and as the ground is frequently uneven, it is necessary at some points to support the rod and at others to hold it down in order that proper working connection may be made between the power and pump.

It is the object of my invention to provide a device which may be employed either as a support or hold-down, and in either instance to provide a roller bearing for the rod which will be operable under varying conditions of temperature and weather, without the usual close attention to lubrication and other requirements ordinarily encountered with the type of carrier heretofore in common use.

In accomplishing this object I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein

Fig. 1 is a perspective view of a group of oil wells and a power mechanism with pull rod connection between the power and pumps, particularly illustrating uneven topographical conditions encountered in the employment of such structures.

Fig. 2 is a detail perspective view of a carrier, showing the several parts in separated but relative relation.

Fig. 3 is an enlarged detail perspective view of a carrier with its rod, a part of the carrier being broken away for better illustration.

Fig. 4 is a transverse, vertical section of the same.

Fig. 5 is a longitudinal, vertical section of the same.

Fig. 6 is a transverse, vertical section of the device, illustrating its use as a hold-down.

Referring more in detail to the drawings, and with specific reference to one of a plurality of oil wells in a group with its connection to the power mechanism,

1 designates an oil well and 2 a pump rod extending from the top of the well. Located adjacent the well is a pump derrick 3 carrying a lever 4, one arm of which is connected with the pump rod and the other with the usual pull rod 5, which extends in sections to a central power mechanism 6 of conventional form.

Located at suitable spaced intervals between the well and power are carriers for the pull rod, those illustrated herein being constructed in accordance with my invention and comprising the following details of structure:

The body of the carrier comprises a housing 7 of sheet metal of proper gauge stamped to form a closed bottom 8, side walls 9 and an open top, the housing being substantially square in cross section and of sufficient length to accommodate a roller bearing within the limits of its operative travel.

The bearing consists of a circular block 10 of hard wood or metal having a central, peripheral groove 11 of a diameter to seat the pull rod which it is adapted to support. In order to confine the roller bearing for free travel but without lost motion within the housing and with a minimum of frictional contact against the housing walls, I expand the sides of the housing longitudinally as at 12 and 13 and restrict the upper and lower portions of the side walls to form the rail parts 14—15 and 16—17, the rails forming guides against which the ends of the bear-

ing may have limited frictional contact during its rolling travel on the bottom 8.

The side walls are inturned at the upper edges of the rails 16 and 17 to form keeper flanges 18 and 19 which confine the roller bearing against vertical displacement from the housing, and the inner edges of the keeper flanges are extended upwardly and lipped as at 20 and 21 to carry a cover 22. The cover 22 is preferably bent upon itself to form the edge grooves 23 and 24 for receiving the lips 20 and 21 when the cover is slid over the upper edges of the housing to enclose the housing after it has been applied to a pull rod.

The bottom and side walls of the housing are inturned to form the stop portions 25 and guide flanges 26, and the bottom of the housing is upstruck to form the keeper lips 27. The upper rails 16 and 17 are back cut from the flanges 26 to provide spaces for receiving the sliding doors 28 which are adapted for projection into the housing within the flanges 26 and between the stops 25 and keeper lips 27, the upper edges of the door members having concaved recesses 29 through which the pull rod may extend, the depth of the recesses being such that when the rod is supported on the roller bearing within the housing it may work freely within the recesses of the door members.

The door members may be securely attached to the housing by cotter pins 30 or other fastening devices which may be extended through apertures 31 in the door members and apertures 32 in the flanges 26 at the ends of the housing.

The bottom of the housing is preferably provided with holes 33 through which water condensing in the housing or blown thereinto as rain or snow, may drain.

Welded or otherwise securely attached to the bottom of the housing is a tapered pin 34 adapted for drive fit into a tube 35 which forms the ground support for the carrier.

When the device is intended for use as a hold-down as distinguished from a support, a plate 36 may be welded or otherwise rigidly and permanently connected with the free edges of the housing member and in turn welded to the pin 34, so that the housing member may be inverted to locate the roller bearing over the pull rod as distinguished from location of the roller beneath the same when the device is employed as a carrier.

Assuming the carrier to be constructed as described, its use is as follows:

Ground supporting members 35 are located between the power and well in sufficient number and properly spaced to provide one support for each joint of rod. The housing having been constructed as described and welded to the top of an anchor pin, is mounted on the ground support, a roller bearing seated within the housing through one of the end openings and the doors fastened in place to close the ends of the housing and confine the bearing. The pull rod is then seated on the roller bearing within the housing and the cover slid into place to confine the rod. When the rod is supported from the carrier at proper intervals between the well and power, and the power operated, the rod is reciprocated back and forth to operate the pump. During its reciprocation the rod rotates the roller bearing within its housing, the range of movement of the bearing being slightly in excess of the extent of reciprocation of the rod to avoid contact of the bearing with the ends of the housing. It is apparent that under this operation, the bearing rolls on the bottom of the housing in limited frictional end contact with the rails of the side walls and without lost motion, due to the dimensioning of the housing relative to the size of the roller.

With such a construction no lubrication is necessary as there is no sliding contact of the rod with the carrier, but only a rolling contact of the bearing with the bottom and side rails of the housing member.

Should it be necessary to replace the bearing, one of the doors may be removed, the bearing member rolled out of the housing and a new one rolled in. If a rod is to be replaced, the cover of the housing may be removed, the rod lifted out of its seat therein, and a new one installed.

It is apparent that whether the device is employed as a support or a hold-down, it will perform its function with a minimum service requirement and expense of upkeep, and with a better average of performance than is possible with the type of carrier now in common use, in that it is not subject to failure of lubrication because of melting grease in hot weather and hardening grease in cold weather, nor to the grinding wear incident to sliding surfaces.

What I claim and desire to secure by Letters Patent is:

1. In a pull rod carrier, a housing formed from a single piece of sheet metal including a flat bottom and side walls, and a cylindrical bearing member having rolling support on the flat bottom of the housing and provided with a peripheral rod groove and, removable means for closing the ends of the housing.

2. In a pull rod carrier, a housing formed from a single piece of sheet metal including a flat bottom and side walls, and a cylindrical bearing member having rolling support on the flat bottom of the housing and provided with a peripheral rod groove, the sides of the housing being stamped to form upper and lower longitudinal guide rails and intermediate portions spaced from line of contact with the ends of the bearing member.

3. In a pull rod carrier, a housing formed from a single piece of sheet metal including a flat bottom and side walls, and a cylindrical bearing member having rolling support on

the flat bottom of the housing and provided with a peripheral rod groove and means for closing the ends of the housing comprising keeper lips on said walls and gate members slidably engaging said lips.

4. In a pull rod carrier, a housing formed from a single piece of sheet metal including a flat bottom and side walls, and a cylindrical bearing member having rolling support on the flat bottom of the housing and provided with a peripheral rod groove, means for closing the ends of the housing comprising keeper lips on said walls and gate members slidably engaging said lips, and means for closing the top of the housing comprising longitudinal guide flanges on said side walls and a cover member slidably engaging said flanges.

5. A pull rod carrier including a sheet metal housing having a flat bottom, and side members bent to form upper and lower lateral guide rails, overhanging keeper flanges having lipped free edges spaced on the top of the housing, the side members being bulged between the upper and lower guide rails to avoid frictional contact with a contained bearing, a cylindrical block having rolling bearing on the bottom of the housing and confined by the guide rails and keeper flanges and having a peripheral rod groove, and a cover member slidably confined by the lipped edges of the side members.

6. A pull rod carrier including a sheet metal housing having a flat bottom, and side members bent to form upper and lower lateral guide rails, overhanging keeper flanges having lipped free edges spaced at the top of the housing, the side members being bulged between the upper and lower guide rails to avoid frictional contact with a contained bearing, a cylindrical block having rolling bearing on the bottom of the housing and confined by the guide rails and keeper flanges and having a peripheral rod groove, and a cover member slidably confined by the lipped edges of the side members, the bottom having upstruck lips near the ends of the housing and the bottom and sides having inturned stop flanges at the ends of the housing, and door members engaging the stop flanges and upstruck lips to close the ends of the housing.

In testimony whereof I affix my signature.

THOMAS A. MILES.