June 22, 1926. 1,589,918

A. P. WORTHINGTON

GRIP HANGER

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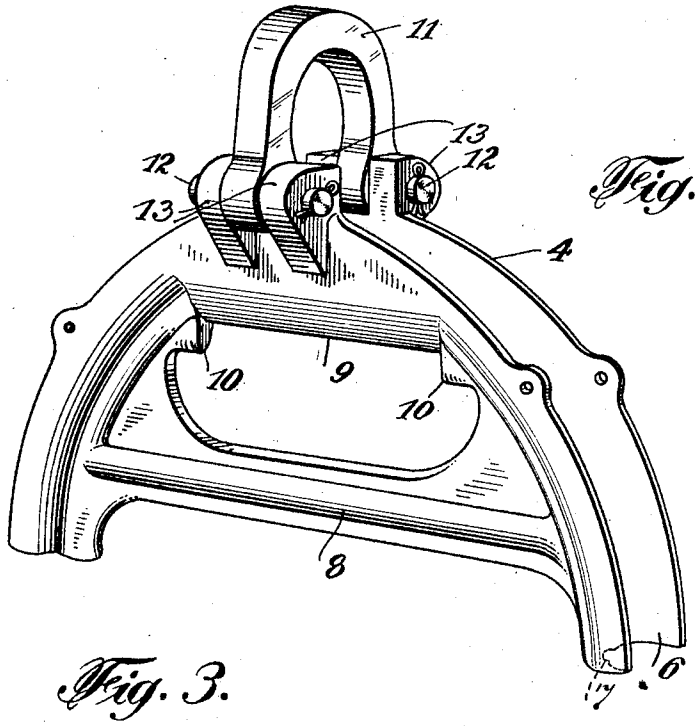


Fig. 1.

Fig. 3.

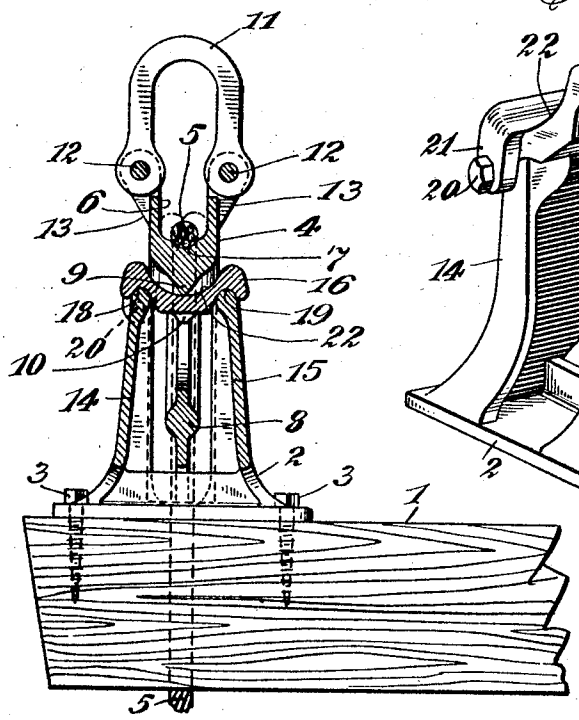
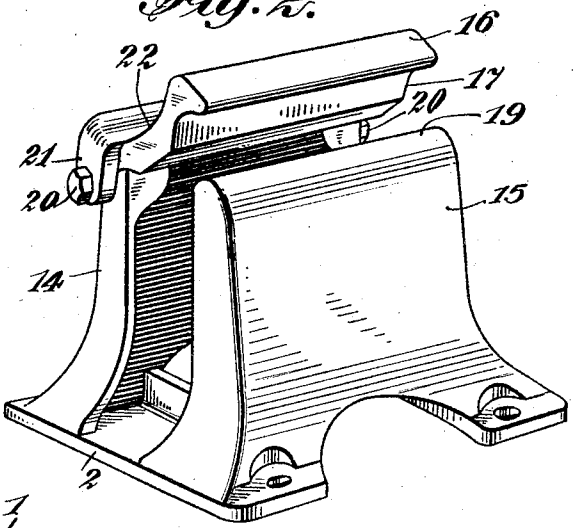


Fig. 2.



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GRIP HANGER.

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This invention pertains to pumping apparatus and has to do with an improved and efficient means for connecting a pumping grip, which usually carries sucker rods, with a walking beam of a pump apparatus.

It is well known in the operation of pump apparatus that the end of the walking beam reciprocates in a path which is an arc of a circle, and that the sucker rods, which depend upon the walking beam for their movements, reciprocate in vertical paths. It is, therefore, desirable in providing the most efficient connecting means between the beams and the rods to design the parts to reduce the wear and friction to a minimum, while at the same time permitting quick and easy assembly and disassembly of the connection.

This invention, therefore, aims to provide a connection between the walking beam and the rods in which is included a novel grip hanger of sturdy construction and an arrangement of the parts thereof which reduces friction and wear to the minimum. It is a further aim of this invention to provide an improved construction of the parts that will permit ready attachment and detachment of the working connections between the sucker rods and the walking beam.

Other objects and aims of this invention will be set forth and fully described in the detailed description which follows.

The present invention relates in particular to pumping apparatus as well as my Patent No. 1,482,335, granted January 29, 1924, for grip hangers, but it is to be understood that it is not entirely limited to such restricted use.

In the drawings forming part of this specification, and in which like reference numerals designate corresponding parts, the various features of the invention are shown in their most improved form and arrangement. In this drawing,

Fig. 1 is a perspective view of a cable supporting member;

Fig. 2 is a perspective view of a suitable frame for supporting the cable member, showing in particular a seat adapted to receive the cable supporting member; and

Fig. 3 is a view partly in section of the frame and the cable support in assembled relation as positioned on the end of a walking beam.

Referring now to the drawing, an end portion 1 of a walking beam of a pump apparatus is shown with a grip hanger frame 2 firmly attached in a suitable manner, as by screws 3, and a cable supporting member 4 assembled on the frame and carrying a cable 5, which is connected to a suitable pumping grip (not shown) which in turn is adapted to grasp the ends of one or more sucker rods.

It has been found by experience that the cable support member 4 must be of sufficient width to straddle the walking beam, and, therefore, I have shown in Fig. 1 the preferred construction of my cable supporting member. In this support I provide a groove 6 having an inner groove 7 which readily receives and definitely positions a single cable, but which is adapted to receive two cables side by side, as illustrated in dotted lines in Fig. 3. A reinforcing brace 8 of suitable construction is arranged to connect the ends of the groove portion of the cable supporting member, thereby preventing collapsing of these end portions, as the cable, when normally carrying its load, has considerable tendency to squeeze the supporting member. This cable supporting member is provided with a bearing edge 9, preferably of sharp or V-shaped construction, sometimes known as a knife edge. This edge and suitable shoulders 10 formed at the ends of edge 9 engage the bearing portion of the frame in a manner to be later described. For purposes of ease of assembling and disassembling the member 4 from the frame 2, I have provided a cleave 11 to be held by suitable means, such as pins 12 placed in lugs 13 which are preferably formed integral with the cable supporting member 4. It will readily be seen that the hook of a block and tackle may engage the cleave 11 and lift the member 4 free of the frame 2, thereby allowing the walking beam to be moved out of the way and the sucker rods to be withdrawn from the drill holes.

Referring now to Fig. 2, there is shown my preferred construction of a frame arranged to be affixed to the walking beam, and for the further purpose of supporting the cable supporting member 4 in a most improved fashion, which permits free and easy compensating movement between the cable supporting member and the walking beam. At the same time the construction is so designed that the brace 8 of the cable supporting member 4 may be readily positioned within the frame, while the bearing surfaces

9 engages a suitable portion of the frame. Preferably, this frame 2 is constructed with two upstanding portions 14 and 15 arranged to receive a suitable seat 16 across the top edges thereof. The underside of the seat 16 may be designed in any suitable manner to engage the upstanding portions 14 and 15, usually providing relatively large bearing surfaces. My preferred construction for accomplishing this end is to provide grooves 17 in the seat 16 and to form rounded parts 18 and 19 at the top of the upstanding portions 14 and 15 respectively. This seat is movable in relation to the frame, and I prefer to pivotally attach the seat to the frame by bolt 20, as shown in Figs. 2 and 3. Suitable lugs 21 which receive the pin 20 engage the sides of the upstanding portion 14, thus preventing, longitudinal movement of the seat.

The top surface 22 of the seat member is preferably concaved to form a bearing surface for the reception of bearing edge 9 of the cable supporting member, as illustrated in Fig. 3. By reason of making this concaved surface of large radius, it is found that the bearing edge 9 settles at the lowermost position and has a relatively small area of contact therewith, thus reducing the wearing and the friction to a minimum.

It will be seen from the foregoing description that the cable supporting member may be readily assembled in the frame 2 by raising the seat 4, thus permitting brace 8 to be introduced in the frame between the two upstanding portions 14 and 15, and thereafter closing the seat across parts 19 and permitting bearing surface 9 to engage the seat, thereby holding the cable supporting member in efficient engagement with the frame. At the same time shoulders 10 engage the edges of the seat, thus preventing longitudinal movement of member 4 over the seat 16. It will also be readily seen that in dismounting this improved grip hanger that cable supporting member 4 may be lifted from the frame 2 without requiring special attention, and without requiring that the frame 2 be removed from the walking beam.

It is understood that several modifications and changes may be made in the construction of the improved grip hanger herein illustrated and described which will reduce wear and friction, and which will permit ready assembly or disassembly of the parts, but such changes are considered as being within the scope of my invention as outlined by the subjoined claims.

What I claim is:—

1. In a grip hanger the combination of a frame constructed to be affixed to a walking beam, and a member for supporting a cable, the same being constructed to be assembled with said frame, a portion of said frame being movable to admit a part of said supporting member to pass to a position within the confines of said frame.

2. In a grip hanger the combination of a frame to be affixed to a walking beam, a cable supporting member constructed to be assembled on said frame for normal operation, said frame constructed to permit a portion of said cable supporting member to pass to a position within the confines of said frame to accomplish the assembly, and means on said cable supporting member to engage a portion of said frame for preventing said member from sliding from said frame.

3. In a grip hanger the combination of a frame constructed to be attached to the top of a walking beam and to have all parts of said frame positioned above the top of said beam, a cable supporting member constructed to be assembled on or completely removed from said frame at will, said member having substantially all of its parts held above the top of said beam, and means associated with said cable supporting member for preventing the cable from leaving said support during normal operations.

4. In a device of the character described, in combination, a frame constructed to be attached to a walking beam, a cable supporting member adapted to be assembled on said frame, said cable supporting member being provided with a reinforcing arm between the ends thereof, said arm adapted to be received within the confines of said frame, said frame having a portion thereof movable to permit at will the assembly or disassembly of said cable supporting member with said frame.

5. In a device of the character described, in combination, a frame arranged to be attached to a walking beam, a movable seat held by and cooperating with said frame, and a cable supporting member arranged to temporarily engage said seat and to have a portion of said member positioned within said frame when said member is normally in engagement with said seat.

6. In a device of the character described, in combination, a frame arranged to be affixed to a walking beam, a pivoted seat affixed to said frame, and a cable supporting member adapted to be associated with said frame and to be held by said seat.

7. In a device of the character described, in combination, a frame arranged to be affixed to a walking beam, a seat pivotally associated with said frame near the top thereof, said seat being provided with a concaved bearing surface, and a cable supporting member adapted to be associated with said frame and to be held by said seat.

8. In a device of the character described, in combination, a frame arranged to be affixed to a walking beam, a seat pivoted near

the top of said frame, and a cable supporting member adapted to be positioned on said seat and having a sharp edge portion which engages said seat.

9. In a device of the character described, in combination, a frame arranged to be affixed to a walking beam, a seat pivoted near the top of said frame, a cable supporting member adapted to be positioned on said seat and having a sharp edge portion which engages said seat, and shoulders on said member for engaging the edges of said seat to prevent longitudinal movement of said member on said seat.

10. In an article of the character described, in combination, a frame arranged to be affixed to a walking beam, said frame being so constructed as to have two upstanding portions thereof, a seat pivoted to the top of one of said portions and adapted to overlap the top of the other portion, and a cable supporting member arranged to engage said seat and to be supported thereby, a portion of said cable supporting member adapted to be positioned between said upstanding portions of said frame when said member is supported on said seat.

11. In an article of the character described, a frame adapted to be supported upon and affixed to a walking beam, said frame having two upstanding separated portions, and a seat member affixed to one of said portions and adapted to close on to the other of said portions, said seat having its top surface concaved to form a bearing, and a cable supporting member adapted to have engagement with the concaved surface of said seat.

12. In an article of the character described, the combinaion of a unit frame having two upstanding portions, a seat pivoted to one of said portions and adapted to close on to the other portion, a cable supporting member adapted to be assembled with said frame by engaging said seat, said member having a reinforcing bar extending between its ends and arranged to be received between said upstanding portions of said frame and below the seat thereof when said member is assembled with said frame.

13. In an article of the character described, the combination of a frame adapted to be affixed to a walking beam, a cable supporting member arranged to be assembled on said frame, said member having a groove formed therein for supporting a single cable in a definite position and also arranged to support two cables side by side in definite positions, and a clevis temporarily affixed to the top of said member for receiving a hook to withdraw said member entirely from said frame.

14. In an article of the character described, the combination of a frame, a seat pivotally carried by said frame, a cable supporting member adapted to be held by said frame and to be assembled therewith by having a reenforcing bar of said member lowered to a position below said seat and having a sharp edged bearing portion of said member arranged to engage the top of said seat, and interengaging means between said frame and said member for preventing relative longitudinal movement of said member on said frame.

15. In an article of the character described, the combination of a frame adapted to be supported by and permanently affixed to a walking beam and being provided with two upstanding separated portions, a seat arranged to lie across the tops of said upstanding portions and being pivotally attached to one of them, said seat being provided with a concaved bearing surface, a cable supporting member arranged to be supported by said frame and having a groove for supporting one or more cables in definite positions, and having a reenforcing bar extending between the ends thereof, said member being provided with a substantially V-shaped portion for engagement with said seat and also having shoulders for engaging the edges of said seat to prevent longitudinal movement of said member, and a clevis temporarily attached to the top of said member for receiving a hook to withdraw said member from said frame.

This specification signed this 15th day of October, 1923.

ALBERT P. WORTHINGTON.