Sept. 19, 1939. C. W. CRISWELL 2,173,355

POLISH ROD CLAMP

Filed Feb. 24, 1938

FIG. 2.

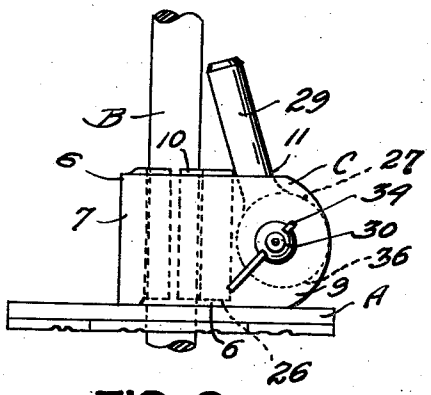


FIG. 1.

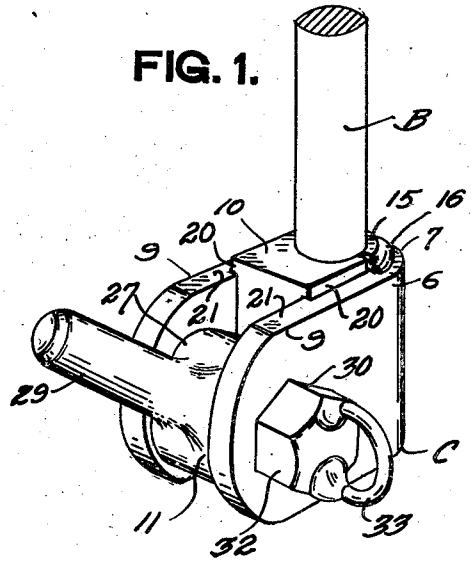


FIG. 3.

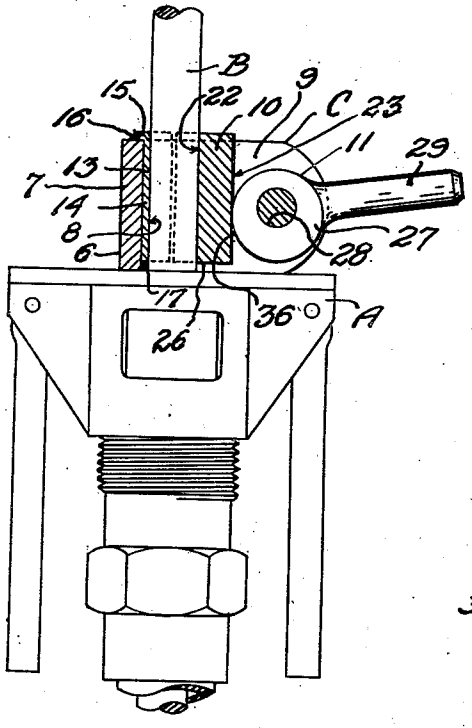


FIG. 5.

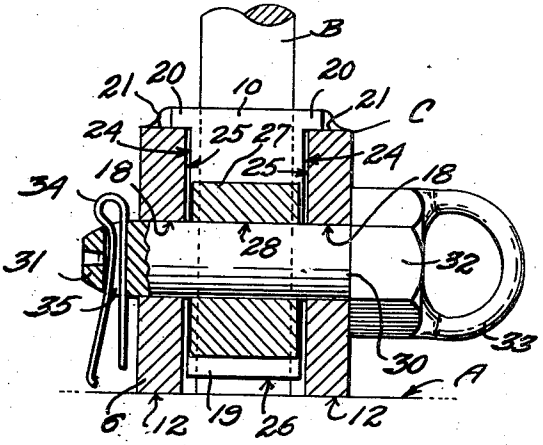
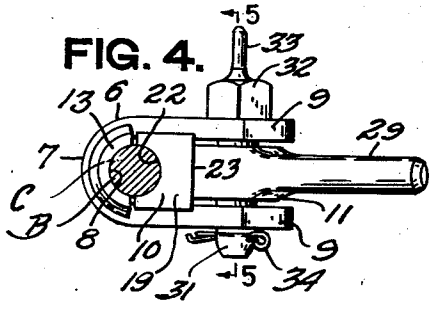


FIG. 4.



Inventor

Charles W. Criswell

By Lancaster, Allwine & Rommel

Attorneys

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POLISH ROD CLAMP

Charles W. Criswell, Eureka, Kans.

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2 Claims. (Cl. 24—249)

The present invention relates to clamps or gripping devices for the polish rods of pumping oil or water wells.

It is sometimes desirable to render the pumping mechanism of wells inoperative for pumping purposes precisely upon the end of the upstrokes of the polish rods, by suspending the polish rods, sucker rods, etc., on the surface parts of the wells, while the walking beams continue to move for at least short periods of time. In order to accomplish this, the clamp at the particular well must be assembled about the polish rod while it is moving and rendered tight thereabout at the right moment. Polish rod clamps have been proposed which require the use of wrenches to operate threaded members of the clamps or other tools to drive wedges, but in practice these have been found unsatisfactory at least to the extent that they are often difficult to assemble about the polish rods or cannot be operated to grip the polish rods at precisely the moment when the polish rods reach the ends of the upstrokes.

The present invention is designed to overcome these disadvantages and has among its several objects to provide a polish rod clamp which may be readily and quickly assembled about the polish rod, say upon the stuffing box or other surface part of the well, with comparative safety, and then operated without the use of a wrench, hammer or similar tool and without liability of moving parts of the clamp rubbing on the supporting structure, to quickly and firmly grip the polish rod at precisely the moment when the polish rod has reached the end of its upstroke.

Other objects of the invention are to provide a polish rod clamp which is light in weight, has ample strength for the service recommended, and easily operated.

Further objects and advantages of the invention will appear in the following detailed description, taken in connection with the accompanying drawing, forming a part of this specification, and in which drawing—

Figure 1 is a perspective view of a polish rod clamp constructed according to my invention shown in gripping relation to a polish rod.

Figure 2 is a side elevation of the clamp, showing its relationship to a polish rod and support when the device is not in clamping relation to the polish rod.

Figure 3 is a view partly in elevation and partly in vertical section showing the relative position of the parts when the device is in gripping relation to the polish rod.

Figure 4 is a plan view of the clamp, the polish rod being shown in horizontal section.

Figure 5 is an enlarged vertical sectional view on the line 5—5 of Figure 4, looking in the direction of the arrows.

In the drawing, A designates a surface portion of an oil or water well, such as a stuffing box; B a polish rod; and, C a clamp constructed according to the present invention.

The clamp C comprises a main body portion 6 preferably of U-shape in plan so as to include an abutment or bight portion 7 providing an upright abutment wall 8 for engaging the polish rod, and spaced parallel supports 9; a slidable jaw 10 for engaging the polish rod, vertically removable with respect to and guided by the supports 8; and, means 11 carried by the support 9 for forcing the jaw 10 into intimate gripping relation to the polish rod.

By way of example, the body portion 6 may be formed from a piece of flat bar metal bent at its central portion so that its major faces are concavo-convex, thus producing an arcuate bight portion 7 and spaced parallel arms or supports 9, the lower faces 12 of which are in the same plane to rest upon a surface part of the well as shown in Figures 2, 3 and 5. If desired, a filler piece 13 may be welded in the concavity of the bight portion 7, instead of shaping the concavity to precisely the arc of the polish rod surface it is to engage. In the example shown, the filler piece 13 has a body portion 14 arcuate in cross section, the inner surface of which is struck from a radius substantially that of the polish rod B; and, a flange 15 engaging upon the upper face of the bight portion 7 where it may be welded as at 16. The body portion 14 of the filler piece may be of less height than that of the main body portion 6 of the clamp, as shown in Figure 3, and welded at its lower end to the bight portion 7, as at 17. This construction makes possible the production of filler pieces of different sizes, say for polish rods ranging from ⅝ to 1½" and a selected filler piece, for the particular size polish rod, welded or made integral with the bight portion 16. It also permits of the selection of a metal for the filler piece suitable for gripping the polish rod without liability of damaging same and which metal may be different from that used in making the bight portion 7 and arms 9. In the example shown the arms or supports 9 are provided with aligned circular openings 18 for a purpose to be subsequently set forth.

The slidable jaw 10 may also be made of a metal suitable for gripping the polish rod B with

least liability of damaging, and in the example shown comprises a polygonal body portion 19 of a size to fit freely between the arms or supports 9, and lateral flanges 20 adapted to rest and slide upon the upper faces 21 of the arms or supports 9. This arrangement enables a workman to drop the jaw 10 into place after the remainder of the clamp has been assembled about the moving polish rod. The body portion 19 preferably has a concaved face 22 struck from a radius substantially that of the radius of the polish rod B; an opposite flat face 23 upon which means 11 acts; and parallel side faces 24 for confronting relation to the inside faces 25 of the arms or supports 9. The body portion 19 terminates as at 26, short of the plane of the bottom faces 12 of the arms or supports 9, as shown in Figures 2, 3 and 5, so that no portion of the jaw 10 engages the surface portion A of the well upon which the main body portion 6 rests. The jaw 10 is then thus free to move toward the polish rod without that friction which would occur if the body portion 19 terminated in the plane of the lower faces 12 of the arms or supports 9.

In the example shown, the means 11 preferably includes a cam 27, having a circular opening 28; a lever 29 rigid with the cam; a bolt 30 including a shank 31, a head 32 and an eye 33 on the head 32; and, a cotter key 34 received in a transverse opening 35 in the end of shank 30 opposite head 32. The shank 31 is detachably received in the openings 18 of arms or supports 9 and the opening 28 in cam 27. It is preferred to extend the lever 29 from the cam 27 in such relationship to the throw side 36 of the cam that when the lever 29 is upright, the throw side 31 of the cam is remote from the space occupied by the jaw 10, thus leaving ample room to drop the jaw 10 into place, and when the lever 29 is swung away or downwardly from the polish rod B, the throw side 36 of the cam 27 acts upon the face 23 of jaw 10 and forces it into intimate, gripping relation to the polish rod B. While I have shown in the drawing a stub lever 29, it is to be understood that this is merely by way of example, and that an extension, not shown in the drawing (such as a piece of pipe) may be placed on the stub lever to facilitate operation of the clamp.

When using the clamp, the workman, preparatory to assembling the clamp in proper relationship to the polish rod, removes the slidable jaw 10 from the main body portion 6, and dismembers the means 11 to the extent that the cotter key 34, the bolt 30 and the cam 27 are disconnected from the main body portion 6. The main body portion is then placed in embracing relation to the polish rod B, which may be moving up and down. Then means 11 is reassembled, and holding the lever 29 upright, the jaw 10 may be dropped into place intermediate the cam and polish rod. By close observation of the walking beam or other part of the motion transmitting means, the lever 29 may be swung downwardly at precisely the end of the upstroke of the polish rod, gripping the polish rod so as to suspend it and the parts carried thereby, on the surface portion of the well.

I claim:

1. A polish rod clamp comprising a body part substantially U-shaped in plan, including a bight portion and arms to lie in embracing relation to the polish rod and engage upon a surface portion of the well, a filler piece secured to said bight portion and having a concaved face struck at a radius substantially equal to the radius of the polish rod, a jaw slidable between and supported by said arms, said jaw terminating short of the plane of the bottoms of said arms and also having a concaved face struck at a radius substantially equal to the radius of the polish rod for engaging the rod at its side opposite said bight portion; and, means carried by said arms for forcing said jaw into intimate contact with the polish rod.

2. A polish rod clamp comprising a body part substantially U-shaped in plan, the bight portion of which to abut one side of the polish rod and the arms to lie in embracing relation to the polish rod and engage upon a surface portion of the well, a jaw for engaging said polish rod at its side opposite said bight portion, said jaw extending loosely between said arms, movable toward and from said polish rod, terminating short of the plane of the bottoms of said arms and provided with side flanges engaging and slidable along the top faces of said arms, whereby the jaw may be vertically placed or removed with respect to the body part of the clamp, and means detachably carried by the free end portions of said arms for forcing said jaw toward said bight portion and into intimate contact with the polish rod.

CHARLES W. CRISWELL.