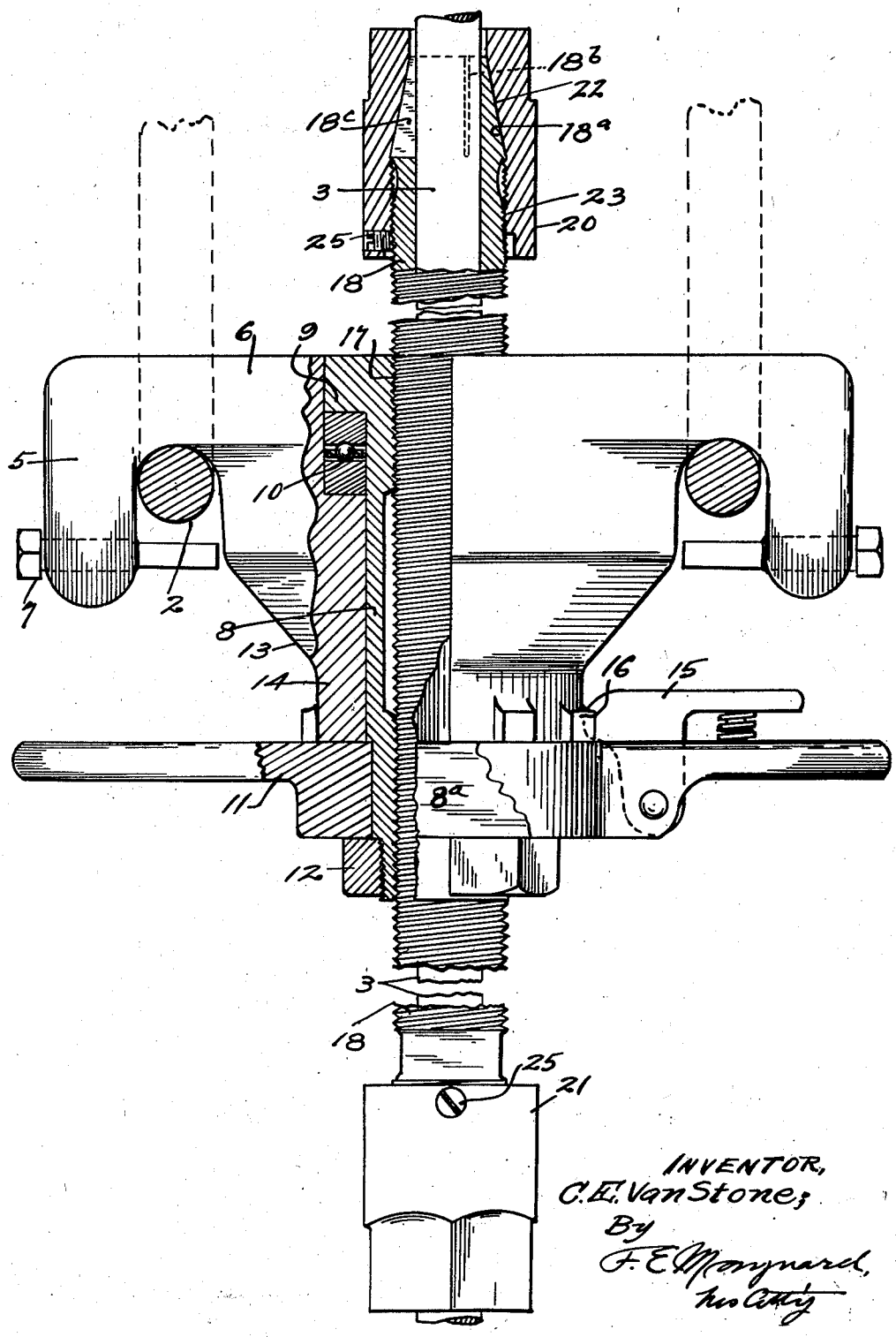
July 13, 1937. C. E. VAN STONE 2,087,174

PUMP ROD AND VALVE ADJUSTER AND SPACER

Filed Aug. 29, 1936



INVENTOR,
C. E. Van Stone;
By
F. E. Maynard,
his Atty

Patented July 13, 1937 2,087,174

UNITED STATES PATENT OFFICE

2,087,174

PUMP ROD AND VALVE ADJUSTER AND SPACER

Clifford E. Van Stone, Taft, Calif., assignor of twelve and one-half per cent to Donald N. Shaffer, Pico; twenty-five per cent to Murray Chancellor, Taft; and twelve and one-half per cent to Bruce Stanford, La Habra, Calif.

Application August 29, 1936, Serial No. 98,605

15 Claims. (Cl. 255—18)

This invention is broadly a connector for use in attaching a well pump polish rod to an operating structure, such for instance as the working beam of a deep well pump.

More specifically the invention is a pump rod adjuster and valve spacer.

Deep well pumps commonly involve a standing-valve and a working valve and it is very often desirable to change the distal relation of the valves, and it has been proposed to accomplish this change by axial shift of the polish rod as to the operating pump beam.

An object of the present invention is to provide an extremly simple, very substantial and highly effective connector of this class which is characterized by ease of adjustment to readily provide for the desired relational change of the spatial distance between the valves. A further object is to provide for an angular adjustment of the polish rod, and its suspended associated pump parts so as to vary the working zones of contact from time to time to distribute the wear of the engaging surfaces.

The invention consists in certain advancements in this art as set forth in the ensuing disclosure and having, with the above, additional objects and advantages as hereinafter developed, and whose construction, combination and details of means, and the manner of operation will be made manifest in the description of the herewith illustrative embodiment; it being understood that modifications, variations and adaptations may be resorted to within the scope, principle and spirit of the invention as it is more directly claimed hereinbelow.

The drawing is a full size, vertical sectional elevation of the connector as installed for operation by a pump beam linkage.

Pump beams have divers types of links 2 for attachment of the pump polish rod 3 by one form or another of connecting units.

In the instant case the links 2 are engaged under heavy hooks 5 projecting from opposite sides of a main connecting or head element 6; the hooks being provided with suitable stop screws 7, or other suitable means, to prevent accidental dislodgement of the links from the head 6.

Concentrically swivelled in the head 6 is a barrel 8 having a top rim 9 turnable on antifriction bearings 10 in the head; the rim 9 preferably being flush with the upper face of the head 6, and this being of a generally cylindrical form. The barrel 8 has a slightly reduced, flat-sided portion 8^a extending below the bottom of the head to removably receive a transverse handle 11 which is held in place by a nut 12 screwed onto the externally threaded end of the head.

The body of the head 6 is conically reduced at 13 and its lower end 14 is provided with means to coact with a locking device carried by the handle 11 whereby to lock the swivel barrel 8 against rotation on the head except for intentional angular adjustment of the barrel in the head. As here shown the handle is provided with a substantial spring actuated, pivoted latch lever 15 the inner nose of which is interlockable between adjacent lugs 16 arranged in a row around the end 14 of the head. By merely opening the latch from head interlock the barrel 8 and all parts carried thereby may be rotated to a suitable degree.

The bore of the barrel 8 is provided with screw threads 17 and these are engaged by a means which is provided to rigidly longitudinally receive the usual polish rod 3 to the lower end of which the pump rod string is connected (not here shown).

The rod receiving means includes an elongate sleeve 18 externally threaded to screw into the threads 17 of the barrel 8 and extends beyond each end thereof.

The rod 3 slidably fits in the bore of the sleeve 18 and means are provided whereby to securely clamp the rod in the sleeve at a desired position along the rod. A simple, practical and substantial clamping device here includes chuck thimbles 20 and 21, of substantially duplicate type and having conical bore 22 complementary to tapered ends 18^a of the sleeve which are longitudinally slotted at 18^b to form contractive jaws 18^c. The thimbles are provided with bore threads 23 to screw onto the adjacent external threads of the sleeve ends.

After the rod 3 has been assembled in the sleeve 18, in the connector unit, at the desired position and with the sleeve 18 arranged at the desired longitudinal position in the barrel 8, the end thimbles 20 and 21 are screwed up on the sleeve ends to contract the chuck jaws 18^c, formed by the slotting of the ends of the sleeve, and thereby to securely clamp the rod in place. The thimbles are then fixed by running in their set screws 25.

If, now, it is desired to merely angularly adjust the polish rod and its suspended pump parts it is only necessary to unlock the latch lever 15 from normal engagement with the head teeth 16 and turn the handle 11 and thereby the barrel 8 as to the head 6 to any angular relation wanted.

Then the latch is set again in the adjacent head teeth 16.

To effect a longitudinal shift of the rod carrying sleeve 18 without releasing the rod in the sleeve it is only necessary to screw the sleeve up or down in the swivelled barrel 8 while this is locked to the head 6 by the latch 15.

Angular adjustment or longitudinal shift of the sleeve 18 and its gripped rod 3 may be accomplished at will without it being necessary to stop the pump action or break down the connector in any way.

If the handle 11 is turned with a quick motion rotating the barrel 8 in the head and relative to the rod carrying sleeve 18 it will be seen that the rod and the sleeve will be screwed up or down as to the head 6; this being done while the latch 15 is held open. This action is preferably timed on the down stroke of the pump rod apparatus, that is, following the load pumping stroke.

What is claimed is:

1. A pump polish rod attachment including a grip device for the rod, a suspension head for attachment to a pump beam element, and means turnable and lockable in the head and carrying and providing for the longitudinal and angular adjustment of the grip device therein and as to the head.

2. A pump polish rod attachment including a suspension head attachable to a pump beam element, a rod gripping device, and means swivelled in and lockable to the head and in which said device is supported and longitudinally adjustable.

3. A pump polish rod hanger including a suspension head attachable to a pump beam element, a rod gripping device, and means rotatively supported in the head and lockable therewith against rotation and in which said device is longitudinally adjustable to raise or lower the rod as to the head.

4. A pump rod adjuster and valve spacer including a hanger body attachable to a pump beam element, and a rod gripping device, a carrier turnably supported in the said body, the gripping device being longitudinally adjustable in said carrier to raise or lower the gripped rod, and means to lock the carrier against relative rotation in the body.

5. A pump rod adjuster and valve spacer including a sleeve to receive the rod and having means for attachment thereto against relative movement, and a body attachable to a pump beam element and having a rotative barrel in which the sleeve is angularly and longitudinally adjustable said sleeve having rod clamping means.

6. The device of claim 5, provided with means to lock the barrel against rotation as to the said body.

7. The device as set forth in claim 5, and provided with a swivel element in the said body for the barrel and having means to interlock the barrel as to the said body.

8. A pump rod connector including a body member, a barrel turnable in the said member and lockable therewith, and a rod clamping member longitudinally adjustable in the said barrel.

9. A connector of the class described having a body attachable to a pump beam, a rotary barrel in said body and means to lock it therewith, and a rod carrier and clamping device longitudinally and angularly adjustable in the barrel.

10. A connector as set forth in claim 9, and in which the said device is threaded axially through the barrel.

11. A connector as set forth in claim 9, and in which the said device extends through the barrel from end to end and has rod clamping means at each of its ends.

12. A pump rod connector of the class described, including a body attachable to a pump beam, a barrel supported turnably in said body without endwise movement, means for locking the barrel in the body against rotation, and a tubular rod carrier axially shiftable in the barrel to raise or lower the rod.

13. A connector as set forth in claim 12, and in which the said barrel is provided with a handle to facilitate its rotation in the said body.

14. A connector as set forth in claim 12, and in which the said body is provided at opposite sides with hitch means for pump beam links and with safety stops to retain the applied links in place.

15. A pump rod connector including a body with means providing for its attachment to a pump beam, a barrel turnably supported in the body, latch means for locking the barrel against rotation in the said body, and a rod carrier mounted in the barrel for longitudinal and angular adjustment therein and as to the said body, to raise or lower the rod and change its angular setting.

CLIFFORD E. VAN STONE.