

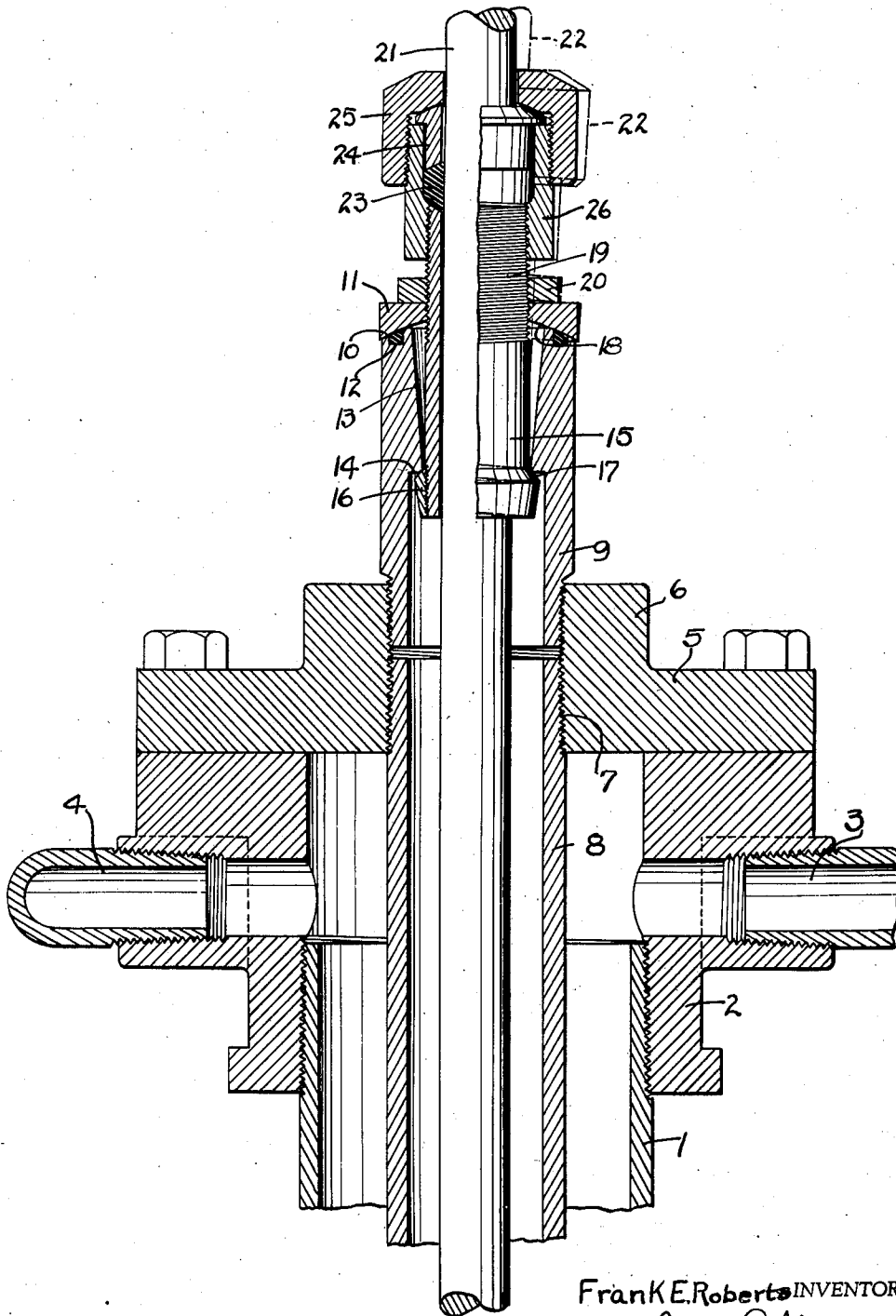
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F. E. ROBERTS

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TUBING HEAD

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BY

Frank E. Roberts INVENTOR.

Josee R. Stone
Lester B. Clark
ATTORNEYS

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TUBING HEAD

Frank Edward Roberts, Los Angeles, Calif.

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1 Claim. (Cl. 285—22)

My invention relates to the construction of a tubing head adapted to be employed with a reciprocating pump rod.

In the usual pumping of wells, particularly where a walking beam is employed in reciprocating the pump rod, there is unavoidable sway or lateral movement of the pump rod in the reciprocation thereof. This lateral play in the rod during its operation is objectionable for the reason that it makes a seal around the pump rod, and between the same and the tubing head, difficult to obtain. Ordinary packing around the pump rod becomes worn and mutilated in use so that it quickly deteriorates.

It is an object of my invention to provide a sealing means between the pump rod and the tubing head which is flexible so as to avoid injury to the sealing members.

It is a further object of the invention to provide means for holding the sealing device in a fairly stable position by allowing a lateral movement thereof in use.

The invention consists largely in the elements of construction in my improvement and reference is made to the drawing herewith for a better understanding thereof.

In the drawing is shown a central longitudinal section through the upper end of the usual well equipment showing my improved tubing head therein.

In the drawing I have shown a conventional casing 1 with a casing head 2 thereon. Said casing head has lateral ports 3 and 4 which are shown in the drawing as equipped with a flow pipe and bull plug, respectively.

The upper end of the casing head is closed by a hanger plate 5 said plate being bolted or otherwise tightly secured to the upper end of the casing head and having a central hub 6 which projects upwardly from the plate. Said plate has an axial opening threaded at 7 to receive the well tubing 8. On the upper side of the said threaded recess 7 is secured a tubing head 9. Said tubing head 9 projects upwardly above the plate 5 and has its upper end rounded off at 10 to allow movement relative thereto of the seal plate 11. Said rounded end is provided with an annular channel to receive the rubber packing ring 12 which projects slightly from the upper end of the tubing head.

On the interior of the tubing head there is a downwardly tapered seat 13 which terminates approximately midway between the ends of the tubing head, thus forming a shoulder 14 to cooperate with the rod sleeve 15.

Said rod sleeve is threaded at its lower end to receive a stop ring 16. Said ring has an upper beveled shoulder 17 to engage with the shoulder 14 on the tubing head. This engagement is such as to allow the rod sleeve a certain amount of sway but the contact of the two shoulders will limit the upward movement of the sleeve 15.

The seal plate 11 previously noted has a plain upper surface but its lower side is concaved or saucer-shaped, as shown at 18. The curvature of this surface corresponds to that of the upper end of the tubing head so as to allow the swaying movement as previously noted without interfering with the seal between the seal plate and the tubing head. This plate is screwed upon the threaded upper end 19 of the rod sleeve. Adjacent to the seal plate is a jamb nut 20 which may be employed to lock the seal plate in adjusted position upon the rod sleeve.

A seal is provided between the rod sleeve and the pump rod 21 which reciprocates therein by means of a stuffing box. Said box comprises the box member 22 which is screwed upon the upper end of the rod sleeve and counterbored to receive a packing member 23. Said packing member is adapted to be compressed in the box by means of a gland 24 pressed into position by means of a cap member 25.

In the operation of the pump the sucker rod in reciprocating is also normally given a lateral swaying movement which is indicated in somewhat exaggerated form by the dotted line 22. When such a swaying movement is given to the packing gland it is communicated to the rod sleeve which may move laterally to accommodate this side movement and in so doing the seal plate 11 will slide along the curved surface at the upper end of the tubing head and still preserve a seal at that point without tending to mutilate the packing. If the lower side of the seal plate becomes worn the said plate may be tightened by screwing the same downwardly upon the rod sleeve. When thus adjusted the jamb nut 20 may be employed to lock the seal plate again in adjusted position.

It will be seen that the improved construction of tubing head thus provided will be simple and economical to construct and will provide a seal between the rod and the tubing head which will last for relatively long periods of time without becoming worn so as to be replaced.

What is claimed is:

A combination guide and seal for pump rods wherein the rod is subjected to flexing action including a guide sleeve through which the rod

slides, a stuffing box to seal said sleeve about the rod, a support for the sleeve including a body having a flared opening therein, cooperating shoulders on said sleeve and body to prevent upward movement of the sleeve, cooperating faces on said body and sleeve to prevent downward movement of the sleeve, said last faces be-

ing curved surfaces on a sphere whose center is at the elevation of said shoulders, said shoulder on the body fitting closely about said sleeve so that the sleeve will tilt at such shoulder and said faces will slide uniformly upon each other.

FRANK EDWARD ROBERTS.