April 26, 1927. 1,626,307

H. L. SULLINS ET AL

SUCKER ROD AND LOCK

Filed April 18, 1925

Fig. 1.

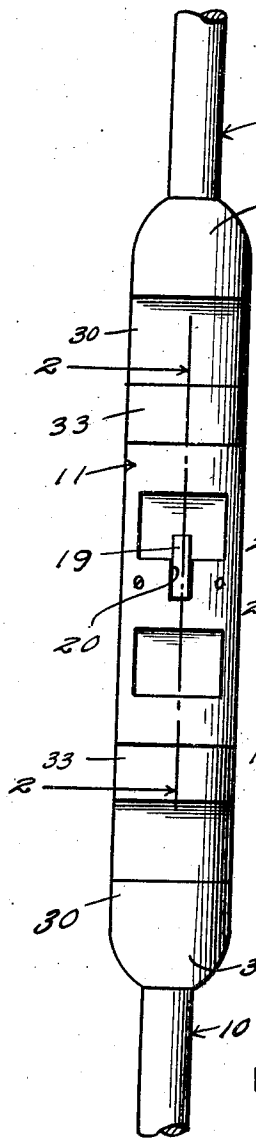


Fig. 2.

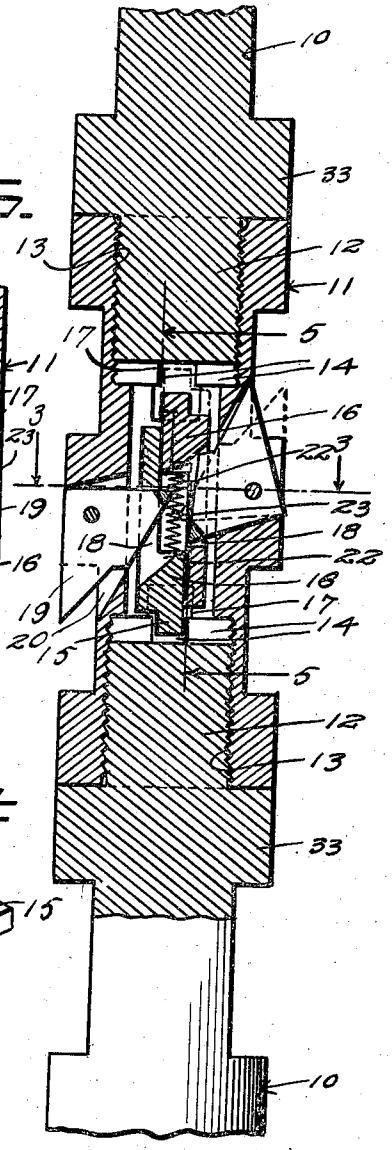


Fig. 5.

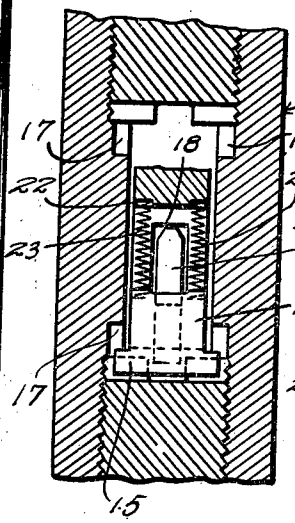


Fig. 4.

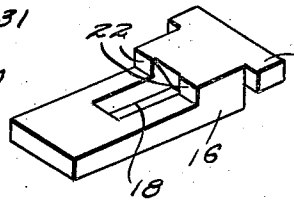
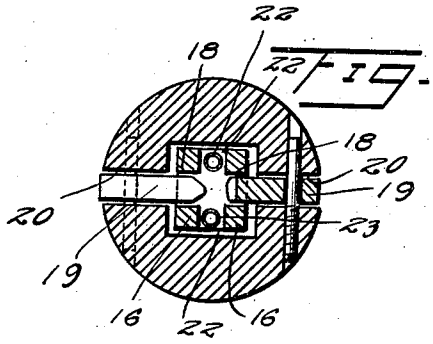


Fig. 3.



Inventor

H. L. Sullins,
J. E. Mustain

By

Attorney

Patented Apr. 26, 1927. 1,626,307

UNITED STATES PATENT OFFICE.

HAROLD L. SULLINS AND JOHN E. MUSTAIN, OF TAFT, CALIFORNIA; SAID MUSTAIN ASSIGNOR OF ONE-FOURTH TO SAID SULLINS AND ONE-FOURTH TO W. D. GRAY.

SUCKER ROD AND LOCK.

Application filed April 18, 1925. Serial No. 24,274.

This invention relates to a sucker rod as used in the pumping of oil wells and particularly to a connection for the sections thereof whereby they may be locked together against parting or unscrewing.

It is aimed to provide a novel construction wherein the lock may particularly be incorporated in one of the sections and especially a sub.

Another object is to provide a construction wherein the lock is automatically displaceable through the attachment of a wrench to the sub for the turning thereof with respect to the rod section.

It is also an aim to provide a novel construction of rod of upset type as hereinafter set forth.

Additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a view in elevation;

Figure 2 is a central longitudinal section, one rod section being released;

Figure 3 is a cross section on line 3—3 of Figure 1;

Figure 4 is a perspective of one of the latches, and

Figure 5 is a perspective view of the latches in assembled relation.

The sucker rod is shown as comprising sections 10 for instance as usual of considerable length, say 30 feet, coupled or detachably connected together by a sub or section 11 for instance of 5 inches. Sections 10 at their ends have screw threaded studs 12 which engage female screw threads in the bore of the sub 11 as at 13. The distal ends of the studs have one or more radial slots 14 adapted for engagement by offsets 15 on latches 16. Said offsets are disposed centrally of the bore of the sub. Centrally of the sub and at its bore, the same is materially enlarged to provide guide ribs 17 along which the latches are slidable. Said latches have elongated slots 18 into which extend one end of operating levers 19, generally triangular in shape, occupying slots 20 in the sub and being pivoted to the sub by pins at 21. As a result, the latches cannot become accidentally displaced longitudinally of the subs. The offsets 15 also provide shoulders as at 22 which are engaged by the opposite ends of two expansive coil springs 23 which urge the latches into latching position in which the outer edges of the operating levers 18 are substantially with the longitudinal axis of the sub.

It is to be noted that the latches 16 slide in opposite directions so that the levers 19 are arranged in transverse disalinement and that on opposite sides of the sub, wrench-receiving ways 24 are provided and that the free operating end of each lever 19 extends into the adjacent way so that when a wrench is applied to the respective pairs of ways, the associated lever 19 is rocked and thereby retracts the associated latch 16, to release the same from the adjacent sucker rod or section 10.

As a result of the construction described, as the sucker rod is engaged by a wrench and turned for connection with the screw threaded stud 12 of the adjacent rod or section 10, the latch 16 controlled thereby is retracted and hence the sub may be connected without restriction, but when the wrench is released, the springs act so as to protect the adjacent latch into the nearest radial slot 14, thus holding the sections against danger of parting or separation. This is true with respect to both ends of the sub and the connected rods or sections 10.

The sucker rods or sections 10 may be of any suitable construction so far as the locking feature aforesaid is concerned. However we prefer to employ a particular sucker rod to increase the longevity thereof. At the present time, approximately 90 per cent of the breaks through the twisting of sucker rods, occur within a distance of not more than 6 inches from the end of the rod. To reenforce the rod and avoid such breakage, each rod as at 30, for a distance say of 12 inches from its end is relatively thick and then merges into the main portion of the rod as at 31 which is of less thickness or cross sectional diameter. The ends of the portion 30 may be further thickened or made of greater cross sectional area as at 33. This construction will greatly minimize the breakage aforesaid by reason of the "upset" construction.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

What is claimed is:—

1. A connection for sucker rod sections

or the like, comprising latches to engage the sections, means to urge projection of the latches, levers associated with the latches depressible to retract them, a section carrying the said parts, said section having wrench-receiving ways, and said levers extending into said ways whereby they will be depressed upon engagement of a wrench in the ways.

2. A connection for sucker rod sections or the like, comprising oppositely movable latches in contact with each other to engage the sections, levers associated with the latches depressible to retract them, and spring means common to and engaging both latches and urging projection thereof.

3. A device of the class described consisting of a sub, contacting latches therein slidable in opposite directions to engage rod sections, springs between and engaging each of said latches to urge projection thereof, said latches having slots, operating levers pivoted to the sub and extending into the slots, thereby preventing displacement of the latches.

4. A device of the class described comprising a sub, latches slidable therein in opposite directions for engagement with sucker rod sections, each latch having an offset portion arranged centrally of the bore of the sub, expansive spring means abutting the inner ends of the offset portions and urging projection of the latches, said latches having slots therethrough, levers pivoted to the sub and extending into the slots and thereby preventing displacement of the latches.

5. A device of the class described comprising a sub, latches slidable therein in opposite directions for engagement with sucker rod sections, each latch having an offset portion arranged centrally of the bore of the sub, expansive spring means abutting the inner ends of the offset portions and urging projection of the latches, said latches having slots therethrough, levers pivoted to the sub and extending into the slots and thereby preventing displacement of the latches, the sub having exterior wrench-receiving ways into which the lever extends so as to be engaged by a wrench and thereby automatically retracted.

6. A device of the class described comprising a sub, latches slidable therein in opposite directions for engagement with sucker rod sections, each latch having an offset portion arranged centrally of the bore of the sub, expansive spring means abutting the inner ends of the offset portions and urging projection of the latches, said latches having slots therethrough, levers pivoted to the sub and extending into the slots and thereby preventing displacement of the latches, and the sub being interiorly enlarged into ribs for guiding the latches during sliding movement.

In testimony whereof we affix our signatures.

HAROLD L. SULLINS.
JOHN E. MUSTAIN.