This invention relates to a sucker rod as used in the pumping of oil wells and particularly to a construction whereby the sections thereof may be quickly or rapidly connected together and locked against parting.

Another object is to provide a construction wherein the parts may be incorporated especially in a sub and wherein the parts form a novel particular construction as will be hereinafter described in connection with accompanying drawings illustrating an operative embodiment and wherein:

Figure 1 is a view illustrating the invention in section through a sub and in connection with the ends of sucker rods.

Figure 2 is a view of the parts of Figure 1 taken at a right angle thereto and with the sub in section;

Figures 3 and 4, respectively, are detail sectional views taken on the lines 3—3 and 4—4 of Figure 1, and

Figure 5 is a detail perspective view of one of the latches.

The sucker rod is shown as comprising sections 1 for instance as usual of considerable length, say thirty feet, coupled or detachably connected together by a sub or section 11, for instance of five feet in length. Sections 1 at their ends diametrically opposite each other have short longitudinally extending grooves 2, which lead to transverse arcuate grooves 3, for instance triangular in cross section as shown. Said ends of the sections 1 extend removably into the bore of a sub 11. Integral with the sub and extending into the bore at each end are a plurality of studs 4. During the insertion of the sections into the sub, the sections are so arranged that grooves 2 register with the studs or lugs 4 after which the sections are slid into the sub with such studs disposed in the grooves 2, after which, the sections are turned so as to dispose the studs 4 in the transverse grooves 3.

The distal ends of the rods 1 have diametric 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 slideable. 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 can not become accidentally displaced longitudinally of the sub. 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 said latching position the outer edges of the operating levers 19 are substantially aligned with the longitudinal axis of the sub.

It is to be noted that the latches 16 slide in an opposite direction so that the levers 19 are arranged in transverse disalignment 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 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 1.

As a result of the construction described, the sucker rods may be rapidly or quickly connected together by means of the sub. To this end, the rods 1 are inserted into the opposite ends of the sub with the grooves 2 and accommodating the studs 4, after which the rod sections 1 are turned. Before turning the rod sections, it will be realized that the inner ends of the rod sections engage portions 15 of the latches, thus depressing the latches or moving them inwardly, which enables the studs 4 to reach the slots 3. Thereupon, upon the turning of the rods, studs 4 will be disposed in the grooves 3. Turning to the extent of 90° will register the slots 14 with the portions 15 of the latches and such portions 15 will move into the slots automatically under urgency of the springs 23, thus locking and holding the parts connected together.

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

What is claimed is:

1. A device of the class described comprising a sub having a stud in its bore, a rod section having a substantially L-shaped groove to coact with the stud, said section having a diametric slot communicating with the groove, a latch slideable within the sub
to engage said slot, spring means to urge projection of the latch, said latch being displaceable through engagement of the end of the rod with the end of the latch.

2. A device of the class described comprising a sub having a stud in its bore, a rod section having a substantially L-shaped groove to coact with the stud, said section having a diametric slot in its end and communicating with the groove, a latch within the sub and slidable longitudinally thereof to engage said slot, spring means to urge projection of the latch, said latch being displaceable through engagement of the end of the rod with the end of the latch, and a lever pivotally engaging the sub and associated with the latch to retract it.

3. A connection for sucker rod sections or the like comprising a sub, latches there-

in slidable in opposite directions, each of said latches having an offset engaging the other latch and spacing them apart, spring means common to both latches and engaging said offsets to urge projection of the latches, stud and groove connections between the rod sections and the sub, said rod sections having slots, and said slots being disposable for engagement by the offsets on the latches incidental to attachment of the sections to the sub.

4. A device of the class described comprising a sub, latches slidable therein in opposite directions, each of said latches having an offset engaging the other latch and spacing them apart, spring means common to both latches to urge projection of the latches, a plurality of studs in the bore of the sub at each end, in combination with sucker rods each having two L-shaped grooves in adjacent ends for coaction with the studs, each rod having a diametric slot connecting the grooves thereof, said rods through engagement with the offsets serving to depress said offsets so that the rods may be turned to aline the slots with the latches and to receive the latter under urgency of the spring means, and triangular shaped levers pivotally engaging the sub and engaging slots in the latches to retract them.

In testimony whereof I affix my signature.

HAROLD L. SULLINS.