July 31, 1928. 1,678,829

G. A. SCOTT ET AL

PACKER SLIP SOCKET

Filed June 29, 1927

Fig. 1.

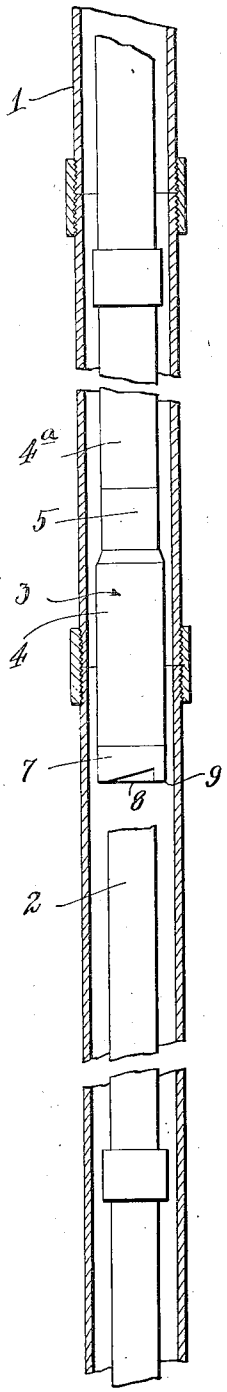
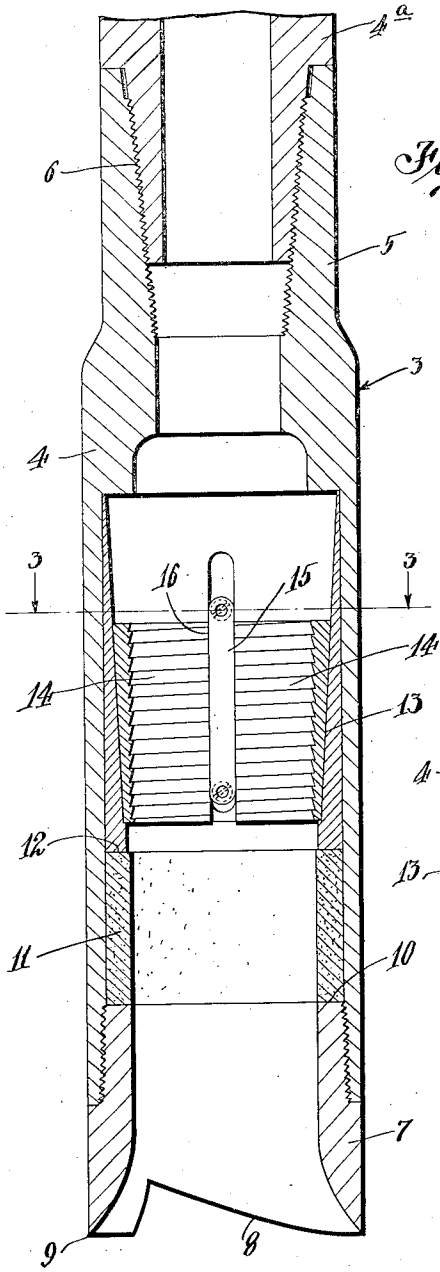


Fig. 2.



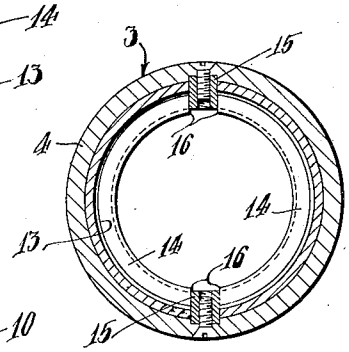


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PACKER SLIP SOCKET.

Application filed June 29, 1927. Serial No. 202,242.

This invention relates to packer slip sockets, and is more particularly related to a slip socket for use in packing off casing and drill pipe in an oil well or during the drilling of an oil well.

Slip sockets are used for the purpose of gripping casing or drill pipe that has been lost in the well. In the withdrawing of the casing or drill pipe from the well or after the same has been gripped, it is often desired to pack off the connection between the slip socket and the casing or drill pipe which has been gripped, in order that the flushing liquid may be forced through the pipe carrying the slip socket and through the casing or drill pipe which has been gripped, in order to aid in releasing the casing or drill pipe from the well at the end thereof to break the hold on the pipe at the foot of the well.

It is therefore an object of this invention to provide a packer slip socket which is adapted to be secured to a pipe and lowered into the well to grip casing or drill pipe, and in which slip socket, means are provided for packing off the connection between the pipe carrying the slip socket and the casing or drill pipe gripped.

Another object of this invention is to provide a packer slip socket including a body carrying in the central bore thereof a sleeve, within which gripping jaws or slips are mounted, and intermediate which sleeve and a shoulder formed in the body there is mounted a packing sleeve which is compressed outwardly when the casing or drill pipe is gripped by the load imparted through the slips onto one end of the packing sleeve, so that the packing sleeve is expanded outwardly to make a fluid tight connection between the slip socket and the well casing or drill pipe.

Another object of this invention is to provide a packer slip socket which is adapted to be secured to a pipe and lowered into a well to grip a section of like pipe "hung up" or stuck in the well and provide a packed coupling which may be left in the well.

Another object of this invention is to provide a means of gripping a parted casing or drill stem, to be used in place of the commonly used "die nipple", and which will slip over the end of the parted casing and grip the same so as to permit the continuation of the drilling operation without the necessity of rotating the casing or drill pipe to cut threads on the parted section of pipe.

Other objects and advantages of this invention will be apparent from the following detailed description of a preferred embodiment thereof, as illustrated in the accompanying drawings.

In the drawings:—

Figure 1 is a side elevation of a slip socket embodying this invention, illustrating the same as suspended within an oil well by a pipe and gripping a drill pipe or casing shown in section.

Figure 2 is a sectional side elevation of a packer slip socket embodying this invention.

Figure 3 is an end sectional view taken substantially on the line 3—3 of Fig. 2.

In the preferred embodiment of this invention illustrated in the accompanying drawings, 1 illustrates the outer casing of an oil well within which a casing or drill pipe 2 has been inserted and lost. A packer slip socket 3 embodying this invention is illustrated as secured to a pipe 4^a and lowered into the well through the casing 1 to grip the casing or drill pipe 2.

The packer slip socket 3 comprises a tubular body 4, which has formed at its upper end a tool joint 5, by means of which the same is screw-threaded to a section of the pipe 4^a, the threads 6 being preferably right-hand threads. Screw-threaded at the lower end of the body 4 is a bell collar 7, which is open at its lower end 8. The bell collar 7 is preferably tapered throughout its length to an edge, as illustrated at 9, so as to permit easy positioning of the collar 7 over the casing or drill pipe which has been lost in the well. The bell collar 7 is internally screw-threaded to the body 4 and provides a circumferential shoulder 10 at its upper end, upon which a packing sleeve 11 rests. The packing sleeve 11 may be of any desired or suitable construction and may be constructed of any suitable material such, for example, as rubber canvas composition.

Slidably mounted within the body 4 above the packing sleeve 11 and in position so that the same rests upon the upper edge 12 thereof, is a tapered sleeve 13. The sleeve 13 is tapered outwardly from its lower to its upper end and mounted within the sleeve 13 are slips or gripping members

14. The slips 14 are provided with a complementary taper, tapering in the opposite direction from the taper of the sleeve 13, so that the same are firmly lodged within the sleeve 13. The serrations or gripping edges formed within the slips 14 are preferably the edges of left-hand threads which are formed within the sleeve 13.

Means are preferably provided for preventing the rotating of the sleeve 13 and slips 14 within the body 4, so as to enable the backing off of the slips 14 from gripping the drill pipe or casing when it is found impossible or impractical to jar loose the drill pipe or casing. For this purpose, keys 15 are provided which fit within slots 16 formed through the sleeve 13 and into slots formed in the outer periphery of the slips 14, and also fit within keyways or slots formed in the inner surface of the body 4. In order to permit the easy assembly of the packer slip socket, the keys 15 are preferably mounted between the edges of the two slips 14 so that the same may be easily inserted in position from the end of the body 4.

In operation, the packer slip socket is inserted into the well on the tubing 4^a until the bell collar 7 engages and is slipped over a drill pipe or casing. As the drill pipe or casing passes through the slips 14, the slip socket is raised by pulling upward on the pipe 4^a until the slips 14 engage the drill pipe or casing. On continuing the raising of the slip socket so that there is a load imposed upon the slips 14, the slips 14 impart a pressure through the sleeve 13 onto the upper edge of the packing sleeve 13 to expand the same outwardly against the drill pipe or casing and against the inner wall or surface of the body 4 of the packer slip socket, thereby providing a fluid tight connection between the drill pipe or casing and the slip socket.

Having fully described the preferred embodiment of our invention, it is to be understood that we do not wish to be limited to the exact details herein set forth, which may obviously be varied without departing from the spirit of our invention as set forth in the appended claims.

We claim:—

1. In a device of the class described, the combination of a tubular body having a circumferential shoulder at its upper end forming an abutment, a bell collar secured to the lower end thereof and providing a circumferential shoulder at its upper end, a packing sleeve mounted within the body and resting on the shoulder, a sleeve slidably mounted within the body in position to engage the upper edge of the packing sleeve and the shoulder at the upper end of the tubular body, and slips mounted in the slidably mounted sleeve.

2. In a device of the class described, the combination of a tubular body having a chamber therein with an inwardly extending annular shoulder at its upper extremity, a bell collar secured within the lower end of the body providing a circumferential abutment at its upper edge, a packing sleeve mounted within the body and resting on said abutment, a sleeve slidably mounted within the chamber of the body engaging the upper end of the packing sleeve and confined between the sleeve and the said shoulder, and slips mounted in the slidably mounted sleeve.

Signed at Ventura, California, this 16 day of June, 1927.

GLENN A. SCOTT.
JAMES M. COCHRAN.