June 7, 1938. S. SIRACUSA 2,119,797

SLIP TYPE RELEASING SOCKET

Filed Feb. 5, 1936

Fig. 1.

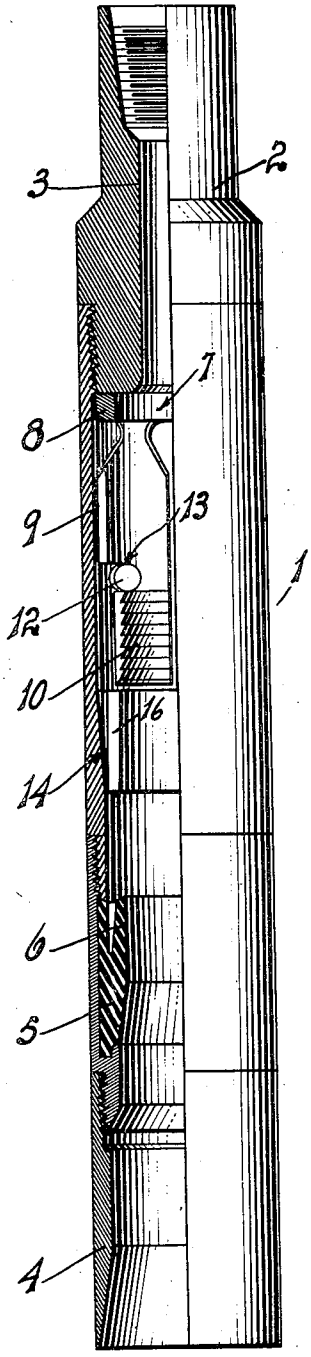


Fig. 2.

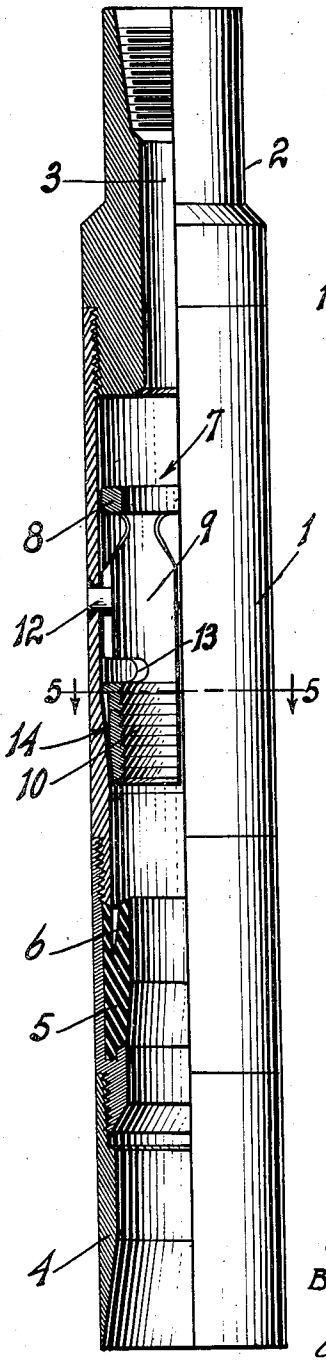


Fig. 3.

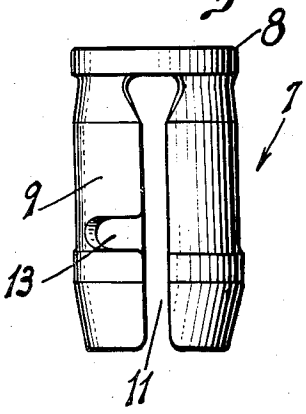


Fig. 4.

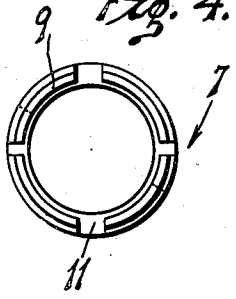
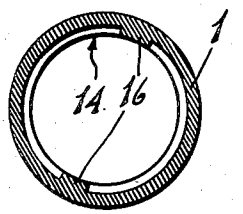


Fig. 5.



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SLIP TYPE RELEASING SOCKET

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Application February 5, 1936, Serial No. 62,407

2 Claims. (Cl. 294—102)

This invention relates to a slip type releasing socket, by means of which certain tools or appliances may be removed from a well in event that said tools or appliances become separated from the rest of the equipment.

An object of my invention is to provide a releasing socket, the slips of which have a spring action within themselves which tends to force them inwardly against the appliance to be recovered whereby said slips are moved into a position to firmly grip the appliance.

Another object is to provide a releasing socket of the character stated in which the slips are non-rotatably held relative to the body of the tool when said slips are engaging the fish.

A feature of my invention is the combination of a novel packing rubber in the socket which is forced against the surface of the fish when the tool is in operation.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description, and the appended claims.

In the drawing

Figure 1 is a quarter sectional view of my releasing socket with the slips in released position.

Figure 2 is a view similar to Fig. 1, but with the slips in engaged position.

Figure 3 is a side elevation of the slip assembly.

Figure 4 is a bottom plan view of the slip assembly.

Figure 5 is a transverse sectional view of the shell only, taken on line 5—5 of Fig. 2.

Referring more particularly to the drawing, my socket includes a shell 1 on the upper end of which a collar 2 is screwed. The drill pipe (not shown) screws into the collar 2. The usual circulating bore 3 is provided in the collar so that the circulating mud can be forced downwardly into the shell 1.

A shoe 4 screws onto the bottom of the shell 1 for the purpose of guiding the fish into the shell. An annular rubber packer 5 is provided in the shell 1 above the shoe 4, and this packer is provided with an annular lip 6 on the inner surface thereof, the purpose of which is to tightly grip the surface of the fish, due to the mud pressure within the shell 1. That is, the pressure will be exerted between the lip 6 and the outer wall of the packer, thus forcing the flexible lip inwardly against the surface of the fish.

The slip assembly 7 is mounted in the shell 1 and comprises a solid ring 8 and a plurality of fingers 9, which depend therefrom. The inner face of each of the fingers 9 is formed with helical or inclined wickers 10 which grip the fish, as will be further described.

Each of the fingers 9 is separated by a vertical slot 11. A pin 12 extends inwardly from the wall of the shell 1 and is adapted to fit in one of the slots 11. A bayonet slot 13 extends from the slot 11 in which the pin 12 operates. In raised, or released position, as shown in Fig. 1, the pin 12 extends into the slot 13, thus holding the slip assembly, as shown. The fingers 9 have a tendency to spring inwardly to engage the fish. Consequently, when the tool is lowered over the fish, the wickers 10 will engage the same, and the shell 1 is then pulled upwardly, forcing the fingers 9 into the tapered seat and thus further forcing and holding the fingers in the fish. The pin 12 is in the slot 11 when the tool is being lowered in the well, and the slip assembly is free to drop downwardly to the position shown in Fig. 2. In this position, the slip assembly cannot rotate relative to the shell, as will be further described.

An annular tapered seat 14 is provided within the shell 1 and when the slip assembly drops downwardly, the lower or wicker portions of the fingers 9 are pressed inwardly against the fish, due to the tapered seat 14, and also due to the taper on the lower portion of the slip assembly.

When the slip assembly 7 is in the lowered position, as shown in Fig. 2, said assembly is non-rotatably held relative to the shell 1, by the following arrangement—the shell 1 is provided with a plurality of inwardly extending lugs 16 on the tapered seat 14. Two are shown in the present instance. The lugs 16 enter the slots 11 when the slip assembly is in the position shown in Fig. 2. Consequently, the slip assembly is non-rotatably held relative to the shell 1, and the wickers will therefore more effectively grip and hold the fish, even tho it should be necessary to rotate the drill pipe and screw the wickers off of the fish.

When entering the well, the pin 12 is positioned in the slot 11 so that the slip assembly is free to move vertically. When the tool is withdrawn from the well, and to prevent engagement of the fish, the pin 12 is moved into the bayonet slot 13 by first lowering the shell 1, and then rotating said shell to the right.

Having described my invention, I claim:

1. A slip type releasing socket comprising a shell, a slip assembly in the shell including a ring, a plurality of fingers depending from the ring,

wickers on the inner face of each of said fingers, said slip assembly having a vertical slot between adjacent fingers and a bayonet slot extending from the vertical slot, a pin projecting inwardly from the shell into the bayonet slot, said fingers being sprung inwardly to grip a fish, and a tapered seat in the shell against which the fingers bear in lowered position, lugs on the tapered seat adapted to enter the slot between the fingers whereby the slip assembly is non-rotatably held when in lowered position.

2. A slip type releasing socket comprising a shell, a slip assembly in the shell including a ring, a plurality of fingers depending from the ring, wickers on the inner face of each of said fingers, said slip assembly having vertical slots between adjacent fingers and a bayonet slot extending from one of the vertical slots, a pin projecting inwardly from the shell into the bayonet slot, said fingers being sprung inwardly to grip a fish, a tapered seat in the shell against which the fingers rest when in lowered position, inwardly extending lugs on the tapered seat, said lugs extending into the vertical slots between the fingers whereby the slip assembly is non-rotatably held only when in lowered position.

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