J. E. PROSSER.

SWIVEL SOCKET.

APPLICATION FILED JUNE 21, 1909.

975,067. Patented Nov. 8, 1910.

Fig. 1.

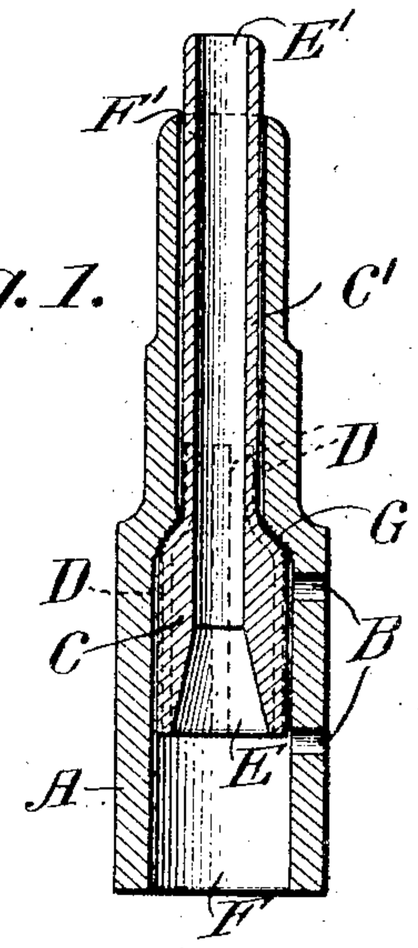


Fig. 2.

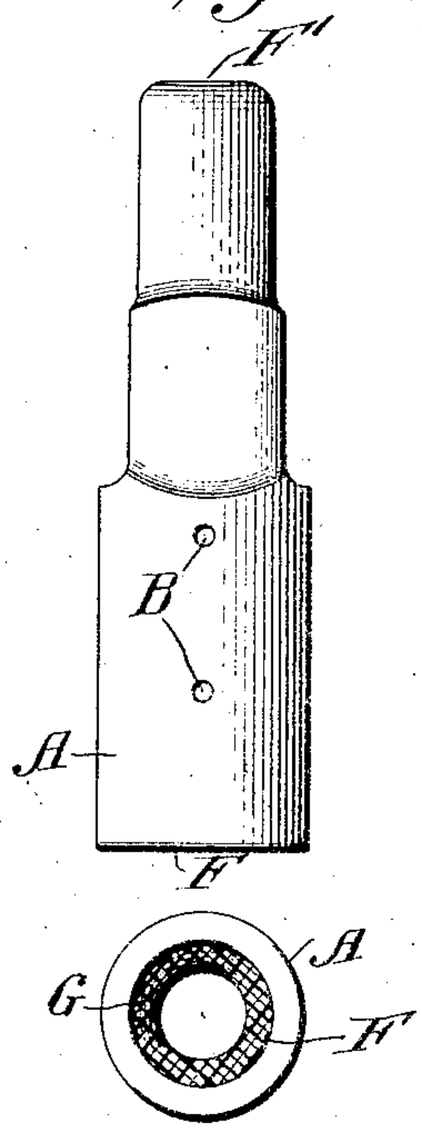


Fig. 3.

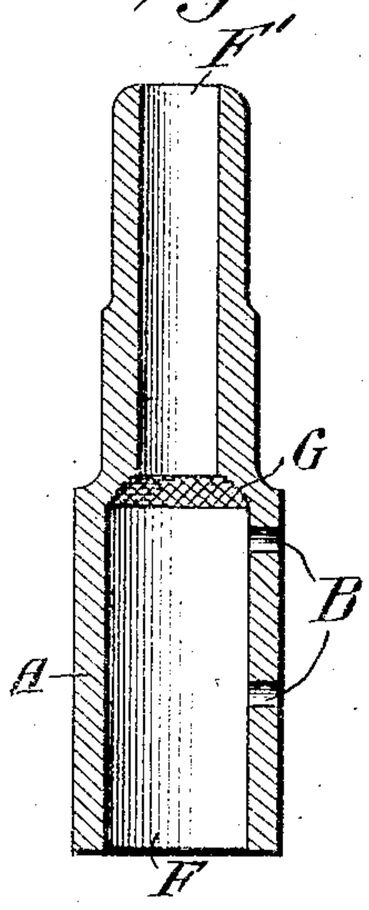


Fig. 4.

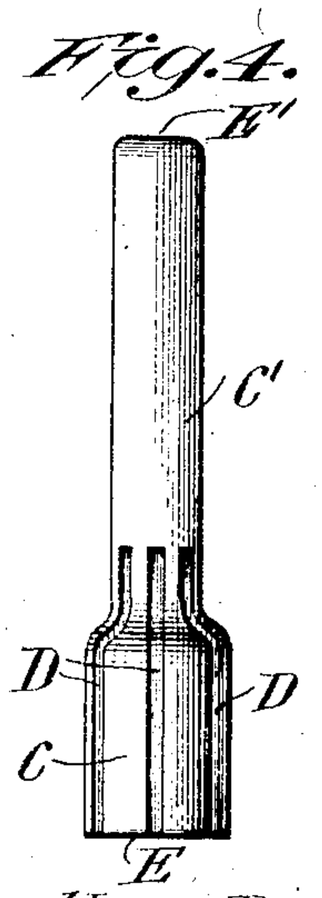


Fig. 5.

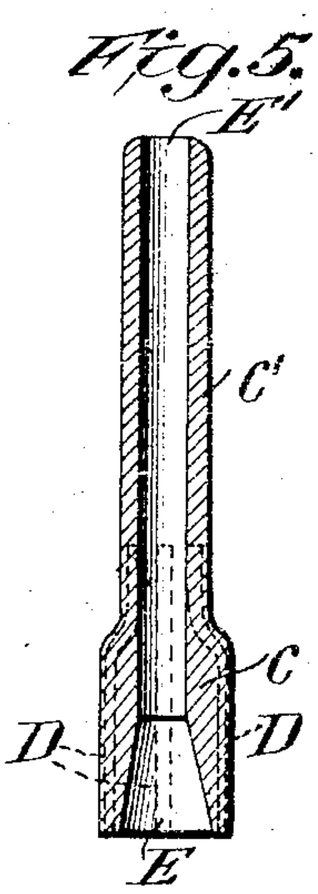
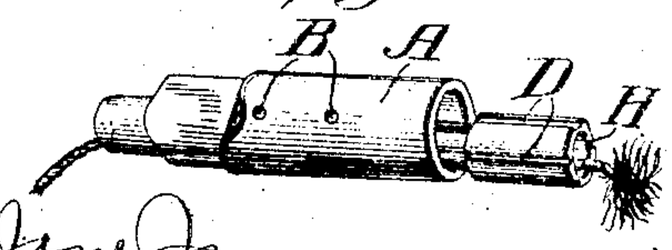


Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN E. PROSSER, OF BARTLESVILLE, OKLAHOMA, ASSIGNOR OF ONE-HALF TO R. E. MARKHAM, OF TULSA, OKLAHOMA.

SWIVEL-SOCKET.

975,067. Specification of Letters Patent. Patented Nov. 8, 1910.

Application filed June 21, 1909. Serial No. 503,551.

To all whom it may concern:

Be it known that I, JOHN E. PROSSER, a citizen of the United States, residing at Bartlesville, in the county of Washington and State of Oklahoma, have invented a new and useful Swivel-Socket, of which the following is a specification.

My invention relates to improvements in swivel sockets used in drilling wells with wire lines or wire cables, in which a grooved, corrugated or perforated swivel turns in the seat of a socket which is pierced with slush holes; and the objects of my improvement are, first, to allow water and sand and other fluid to flow through the swivel socket and pass out while the tools are in operation; second, to provide a continuous and unhampered revolution of the swivel in the socket, without impeding the rotation of the tools in the hole; and third, to prevent "sanding up," encumbering, and obstruction on the inside of the socket as the swivel turns therein. I attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 shows a vertical section of the entire swivel socket; Fig. 2 shows a full elevation of the socket and the bottom plan of same; Fig. 3 shows a vertical section of the socket; Fig. 4 shows a full elevation of the swivel and the bottom view of same; Fig. 5 shows a vertical section of the swivel; and Fig. 6 shows a detailed view in perspective of the knotted wire line in the swivel and the swivel in the barrel ready to be drawn into the seat of the socket.

Similar letters refer to similar parts throughout the several views.

(A) is the barrel of the socket, through the bore of which (F F′) the shaft (C′) of the swivel passes; (G) is the interior or shoulder of the barrel of the socket against which the swivel works; (B, B) are 1/2″ slush holes or apertures drilled through the barrel at the upper and lower part of the seat of the socket to allow the water and sand to pass out; the interior or shoulder of the barrel of the socket is milled or furrowed also to allow the water and sand to flow through easily; (C) is the swivel through the bore of which (E E′) the wire line passes; (H) is the end view of the swivel wherein the knot on the end of the line is drawn; (D, D, D) are recesses or corrugations or grooves or holes in the swivel to allow the water and sand and other fluid to pass out.

In rigging up for operation, the knotted end of the wire line or wire cable is drawn into the seat of the swivel (H) as shown in Fig. 6, it is then pulled in as far as possible and driven home with a sledge and suitable pin. The swivel with the knotted wire line passed through its bore, is then run up through the barrel of the socket and drawn up ready for drilling.

The grooves or corrugations or perforations (D, D, D) in the swivel (C) and the apertures or slush holes (B, B) in the barrel (A) and the milled or furrowed seat of the socket, constitute the essence of the improvement, for thereby, as explained above the swivel socket is rendered self-cleaning. It will not sand up or fail to work at any time. While the wall of the swivel is formed to fit the wall of the socket so that the swivel will be thereby guided in its movement, yet the grooves or channels D provide a broken, roughened surface on the swivel that will interrupt the contact between the said walls and provide conducting spaces or channels through which water and sand escape. In like manner the milled or furrowed surface on the interior of the shoulder of the socket at G provides an interrupted contacting surface between that part of the socket and the swivel, also permitting the passage of water and sand between the parts. The tools rotate in one direction all the time; this is caused by the weight of the stem on the ascent after hitting bottom taking the natural twist out of the line, causing the tools to turn one way, and as the tools relax on the descent and on touching bottom, the swivel acts and allows the twist of the line to return to its natural condition.

I am aware that prior to my invention, swivel sockets have been made and used. I therefore, do not claim such an appliance broadly; but

I claim:

1. A well-drilling tool having a hollow socket member apertured through its wall to permit the escape of foreign matter, and a swivel member within said socket member having its outer surface bearing against and guided by the inner surface of the socket member and having said surface roughened or broken whereby the swivel member is

guided by the wall of the socket member while at the same time passage-ways between the members are formed for the passage of foreign matter between the two members, substantially as described.

2. A well-drill tool having an outer apertured socket member and an inner swivel member having its exterior surface bearing against the inner face of the socket member whereby the swivel member is guided and having its surface exteriorly channeled to permit of the escape of foreign matter between the swivel member and the socket member, substantially as described.

3. A well-drill tool having an outer socket member apertured through the side wall thereof, an inner rope-clamping swivel member longitudinally movable in the outer member bearing against and guided by the wall thereof and having longitudinally extending exterior channels formed on the exterior surface of the swivel member, substantially as described.

4. A well-drill tool comprising a hollow socket member having a shoulder, a swivel member loosely mounted in said socket member and adapted to abut against said shoulder, said swivel member having its exterior surface in contact with and guided by the wall of the said socket member, said surface being roughened or broken to interrupt the contact between the members to thereby permit the passage of foreign matter between their walls, said roughened or broken surface extending along the exterior of the swivel member beyond the point of engagement of said member with the shoulder, substantially as described.

5. A well-drill tool having an exteriorly shouldered member, a sliding swivel member adapted to fit within said shouldered member and having means to abut against said shoulder, said outer member provided at said shoulder with a roughened or broken surface in contact with the swivel member and said swivel member provided on its outer surface with a broken or interrupted surface portion adapted to bear against the inner surface of the socket member, said outer member having an escape aperture in its wall, substantially as described.

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