Feb. 14, 1939. G. A. LOWREY 2,147,537

METHOD OF COMPLETING WELLS

Original Filed Aug. 22, 1936

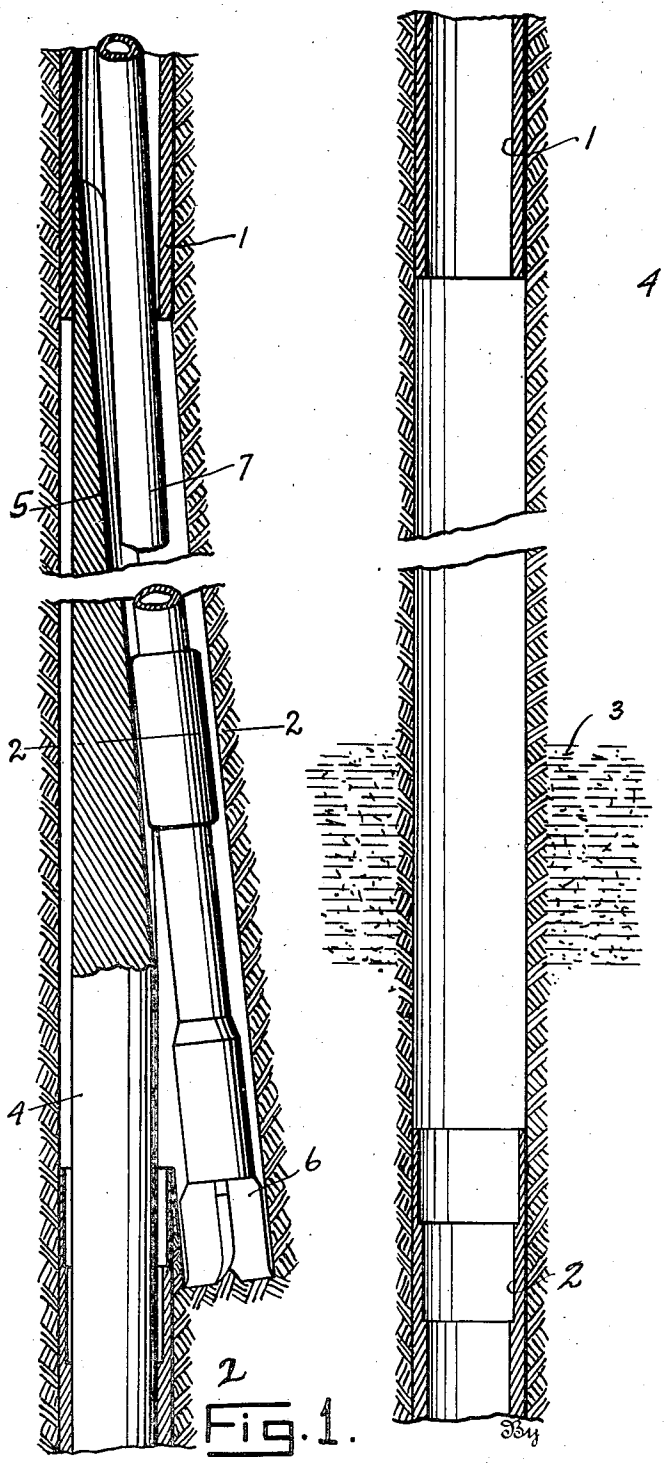


Fig. 1.

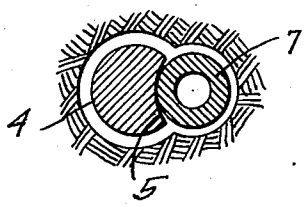


Fig. 2.

Fig. 3.

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METHOD OF COMPLETING WELLS

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Original application August 22, 1936, Serial No. 97,389. Divided and this application October 22, 1937, Serial No. 170,356

3 Claims. (Cl. 255—1)

This invention relates to a method of completing a well.

This is a divisional application, the invention herein described having been divided out of my co-pending application, Serial No. 97,389, filed August 22, 1936.

In carrying on well drilling operations the well bore, at times, becomes obstructed or it may become inclined to such an extent that it is necessary to side track the lower end of the bore to straighten the bore. In either of such events it is common practice to lower a whipstock into the well casing and to anchor it therein above the obstruction or at the point where the bore is to be straightened, for use in connection with a milling tool to mill out the side of the casing so as to form a window, or opening, through which subsequent drilling operations may be carried on. This is a rather difficult and uncertain operation and it is one of the prime objects of the method herein disclosed to completely remove a section of the well casing without the use of a whipstock, the whipstock then being set in the upper end of the lower section with its tapering face opposite the removed portion of the casing and said whipstock used only for the purpose of side tracking the drilling tool while carrying on the subsequent operations.

The method, however, may be confined to the removal of a section of casing set in a well opposite an oil bearing stratum instead of perforating the casing to permit the inflow of oil as is now commonly done.

With the above and other objects in view the invention has particular relation to a novel method, examples of which are given in this specification and illustrated in the accompanying drawing, wherein:—

Figure 1 shows a vertical sectional view of the well casing, showing a section removed and a whipstock and drilling tool therein preparatory to side tracking.

Figure 2 shows a cross-sectional view taken on the line 2—2 of Figure 1, and

Figure 3 shows a vertical sectional view showing a section of the casing, opposite an oil bearing stratum, removed.

Referring more particularly to the drawing, the numerals 1 and 2 designate upper and lower sections of a casing set in a well, an intermediate portion of the casing being shown removed. This intermediate section may be removed in any preferred manner as by means of a milling tool fully described in said co-pending application, or the intermediate section of the casing may be removed by an explosive torpedo which may be lowered to the desired point in the casing and exploded so as to shatter the opposing section of the casing and to drive the shattered particles back into the wall of the formation.

When said section of the casing has been removed to give the required amount of open hole, the fluid such as gas or oil may flow in from the oil bearing stratum 3 and flow or be pumped to the ground surface. If it be desired to side track the bore a whipstock 4 may be lowered into the casing and anchored in the upper end of the lower cut off section of the casing as shown in Figure 1 with its sloping face 5 opposite the open hole. A drilling tool 6 is then attached to the lower end of the stem 7 and it may then be lowered and the sloping face or deflector of the whipstock will deflect the drilling tool so as to side track the original bore as shown in Figure 1.

The drawing and description disclose what is now considered to be a preferred form of the invention by way of illustration only, while the broad principle of the invention will be defined by the appended claims.

What I claim is:—

1. The method of side tracking a well bore having a casing therein which consists in completely removing a section of the casing to provide an open hole, setting a deflector opposite said open hole, then lowering a drilling tool into the casing until it is deflected by the deflector to side track the bore beneath.

2. The method of side tracking a well bore having a casing therein which consists of completely removing a section of the casing in the bore to form an open hole, lowering a drilling tool through the opening thereby formed in the casing and drilling a side tracking bore beneath.

3. The method of completing a well having a casing set therein which consists in cutting and removing an intermediate section of said casing from the well bore to form an unobstructed open hole between the portions of the casing remaining in the well then lowering a drilling tool through between said portions of the casing and drilling a side tracking bore beneath.

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