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(54) **Milling tool.**

(57) A milling tool for use in energy extraction has a tubular member with a longitudinal bore for the passage of fluid and radially extending cutting blades. Upwardly directed parts extend from the bore to a location below the cutting edge of the blades for positive removal of cuttings.

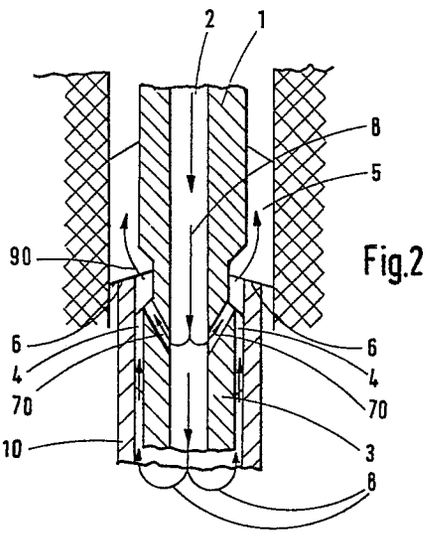

Fig.2

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Description

MILLING TOOL

This invention relates to a milling tool and particularly to a milling tool suitable for use in energy extraction wells, such as oil or gas wells.

A known type of pilot mill currently in use is shown in Fig. 1 in which an oil well casing 1 is required to be cut away. The mill has a tubular member 1 having a central bore 2 for the circulation of mud, i.e. a circulating member for, inter alia, removing cuttings, cooling and lubricating the mill blades, a lower pilot section 3 having radial fins 4 for stabilising the tool within the casing 1 and radial milling blades 5 having cutting edges 6. Extending downwardly from the bore 2 above the cutting edges 6 are radially extending bores 7.

In operation, mud is passed through the central bore 2 as shown by the arrow-headed lines 8 and mud passing right through the central bore is redirected upwardly by the mud pressure acting against the bottom of the oil well bore and is thus directed upwardly past the fins 4. Mud is also passed through the radial bores 7 in a downwards direction and causes an extremely turbulent flow as shown by the arrow-headed lines 9. Because reliance is placed upon a tubulent flow in the area of the cutting edges 6 the cuttings tend to be reground or recut before they are finally removed by the upward flowing mud so that the efficiency of the tool is reduced.

The present invention seeks to provide a milling tool of greater efficiency.

According to this invention there is provided a milling tool for use in energy extraction wells having a tubular member with a longitudinal bore for the passage of fluid, the member having radially extending cutting blades each with a cutting edge and radially extending ports directed upwardly from the bore to a location below the cutting edge of the blades.

Preferably the ports extend to a location below the blades.

The invention will now be described by way of example with reference to Figure 2 which shows a longitudinal cross-section of a pilot milling tool in accordance with the invention.

The pilot milling tool shown in Figure 2 has been given like reference numerals where similar parts are used to those described in relation to the prior art tool of Figure 1.

Upwardly facing ports 70 are provided from the bore 2 to a location below the cutting edge 6 so that in operation the upward flow of mud causes cuttings to be positively moved upwardly in the direction of arrow-headed lines 90.

Claims

1. Milling tool for use in energy extraction wells having a tubular member with a longitudinal bore for the passage of fluid, the member having radially extending cutting blades each with a cutting edge and radially extending ports directed upwardly from the bore to a location below the cutting edge of the blades.

2. A milling tool as claimed in Claim 1 wherein the ports extend to a location below the blades.

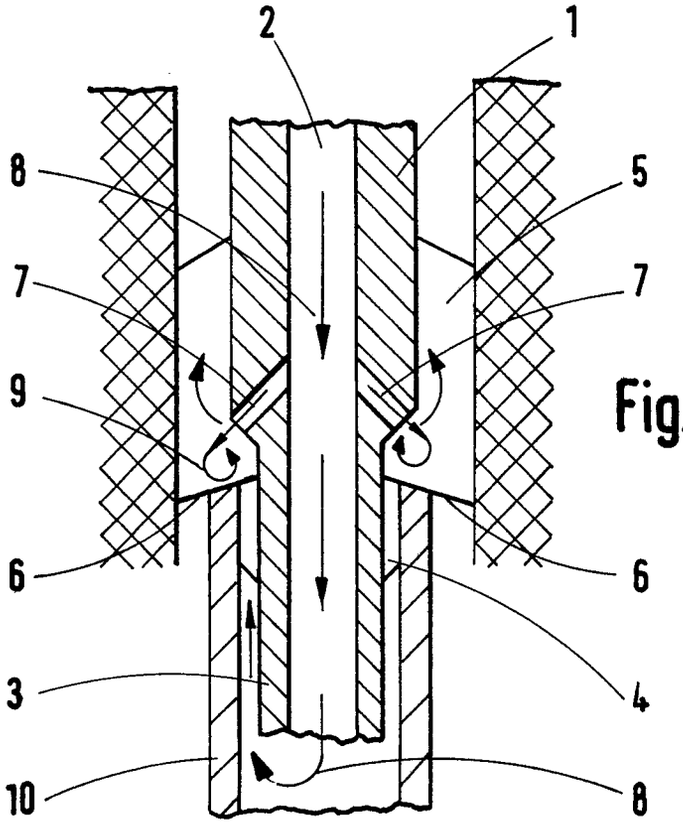

Fig.1

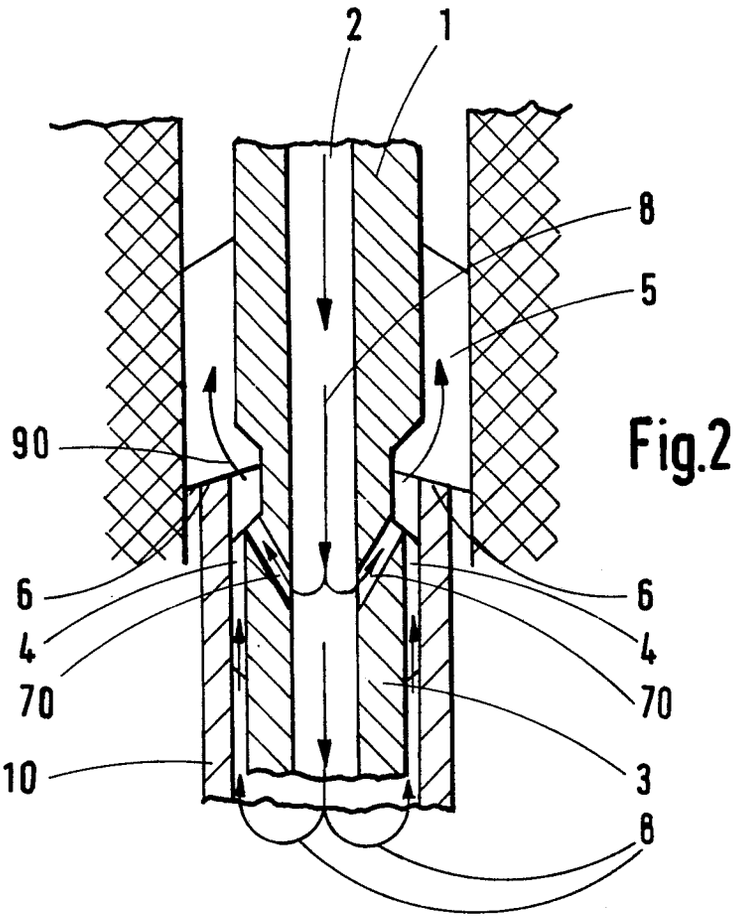

Fig.2