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(54) Title: A SURFACE CONTROLLED WELLBORE DIRECTIONAL STEERING TOOL

(57) Abstract

A tool for controlling azimuth and/or inclination in a wellbore and methods for utilizing the same is disclosed. The tool generally comprises a freely rotating mandrel (11), for transmitting drilling forces, contained within two eccentric sleeves (12, 13). The outer sleeve (13) has an eccentric longitudinal bore that forms a pregnant or weighted side (20) that seeks the low-side of the wellbore. Two gauge inserts or stabilizer shoes (21) are provided on either side of the outer sleeve (13) at ninety degrees to the pregnant housing (20). The inner sleeve (12) has a further eccentric longitudinal bore that contains the freely rotating mandrel (11). The mandrel (11) is attached to the drill string at one end and to the drilling bit at the other. The position of the inner sleeve (12) may be controlled, at will from the surface, so that the eccentric is kept to one side of the outer housing (13), thus transmitting a fulcrum force to the bit and controlling the azimuth and/or inclination of the wellbore. The pregnant housing (20) contains drive means and assorted logic for controlling the position with respect to the pregnant housing (20) of the eccentric bore of the inner sleeve (12).

