This Sheet Has Been Replaced

TORQUE-RESISTANT, SEAL SETTING FORCE-LIMITED HYDRAULICALLY SETTABLE WELL PACKER STRUCTURE AND ASSOCIATED METHODS

ABSTRACT OF THE DISCLOSURE

A torque-resistant hydraulically settable packer is coaxially positionable within a subterranean well flow conductor and has a tubular body that carries a circumferentially spaced series of radially outwardly movable slip anchors having, on outer side surfaces thereof, gripping teeth with lengths that are sloped relative to the longitudinal axis of the tubular and to a plane perpendicular. Inner side surfaces of the slip anchors are engaged by circumferentially spaced flat outer side surface areas formed on the facing frustroconical ends of an opposed pair of annular setting wedge members coaxially carried by the tubular body and being axially drivable to radially outwardly shift the slip anchors to their setting positions. As the slip anchors are being set, an annular resilient seal structure is simultaneously compressed in an axial direction against a setting force limiting member telescopingly received in one of the setting wedge members, and radially deformed outwardly into sealing engagement with the interior side surface of the well flow conductor. After the slip anchors are set, the seal structure is further compressed in an axial direction by hydraulically shifting the tubular body relative to the slip anchors. If this subsequent axial compression force exerted on the seal structure is above a predetermined maximum level the setting force member is wedgingly driven into its associated setting wedge member to limit the total axial compression force imposed on the seal structure.

Fig. 2A