HANGER SUSPENSION SYSTEM

A hanger suspension system (60) includes an inner casing hanger (90) having an outer circumferential surface with at least three sets of at least three longitudinally spaced outwardly projecting load bearing members (100,102,104) azimuthally spaced about the outer circumferential surface and separated by linear flow passages. A hanger assembly (125) is positioned on each set of bearing members (100,102,104) and is axially slidable on the outer circumferential surface of the hanger. Each hanger assembly (125) includes a plurality of longitudinally spaced arcuate members (132,134,136) having inwardly extending load bearing shoulders for engaging the load bearing members of the inner hanger (90). The hanger suspension system (60) also includes an outer head having a non-restrictive bore with annular recesses which include load bearing surfaced and camming surfaces. The arcuate members of the hanger assembly (125) include outwardly extending load bearing shoulders for engaging the load bearing surfaces of the outer head and outwardly extending camming shoulders for engaging the camming surfaces in the annular recesses of the outer head. The hanger assembly (125) also includes a trigger member (170) for releasing the bearing member upon alignment with the outer head and includes a deformable alignment tang for locating the recesses in the outer head. The load bearing members (100,102,104) on the inner hanger bear against the arcuate members so as to maintain the arcuate members in engagement with the load bearing surfaces of the outer head. The suspension of the inner hanger (90) within the outer hanger is repeatable so as to allow the reciprocation of the inner casing string within the outer casing string during the cementing operation.

Fig. 9

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