

ABSTRACT

LINER HANGER TOP PACKER

A liner hanger top packer comprising a main body (10) and, sleeved sequentially from top to bottom on the main body, an adjusting sleeve (20), a retaining apparatus (30), a base-sealing apparatus (40), a base-hanging apparatus (50), and a locking mechanism (60) arranged between the base-sealing apparatus (40) and the base-hanging apparatus (50). The locking mechanism (60) comprises a locking ball sleeve (61), a ball socket (62), and a steel ball (63). During a descent process, as the lower part of the liner hanger top packer is met with friction, the arrangement of the steel ball (63) restricts relative axial movements between an upper gauge ring (41) of the base-sealing apparatus (40), the locking ball sleeve (61), and an upper conical body (51) of the base-hanging apparatus (50), therefore, the friction transmitted to the upper conical body (51) is not transmitted to a lower gauge ring (43) of the base-sealing apparatus (40), but is transmitted directly to the upper gauge ring (41) via the steel ball (63), and is further transmitted to the adjusting ring (20) via the retaining apparatus (30). As such, relative movements are not generated between the upper gauge ring (41) and the lower gauge ring (43), while a plastic cylinder (42) does not deform, thus preventing the possibility to premature base-sealing.

FIG. 1