

**MECHANICALLY ACTUATED DEVICE POSITIONED BELOW MECHANICALLY
ACTUATED RELEASE ASSEMBLY UTILIZING J- SLOT DEVICE**

ABSTRACT

A tool string carrying an external tool, such as a liner hanger, on a release mechanism is lowered into the wellbore. Interlocking lugs and J-slot profile, defined between the exterior surface of the mandrel and interior surface of the release mechanism, allow relative movement of release mechanism and mandrel without releasing the release mechanism. The relative movement allows mechanical operation of a valve or other tool positioned below the release mechanism. Weight-down and rotation of the tool string and mandrel actuates the lower valve assembly by turning a sleeve into alignment with cooperating members of the mandrel. The sleeve, no longer constrained, moves longitudinally in response to a biasing mechanism. Movement of the sleeve allows closure of the valve. After actuation of the valve tool, further weight-down releases the release mechanism from the carried tool.

FIG. 1A