

CLAIMS

1. A downhole tool for transmitting rotation to a casing string, comprising:
a tool body (402), the tool body (402) having a bore (536) extending from a first end to a second end;
a cam (530) positioned within the tool body (402), the cam (530) being axially translatable along an axis (500) of the bore (536);
a recess (522), formed in an outer diameter of the cam (530), the recess (522) having a smaller recess diameter than a planar section (534) of the outer diameter; and
a locking mechanism (524), positioned at least partially within the tool body (402), the locking mechanism (524) comprising:
a tool key (518), the tool key (518) being movable between a retracted position where at least a portion of the tool key (518) is positioned within the recess (522) and an extended position where at least a portion of the tool key (518) extends radially outward beyond a tool diameter (520); and
a biasing member (526), the biasing member (526) driving the tool key (518) toward the retracted position.
2. The downhole tool of claim 1, further comprising:
a pin assembly (540), the pin assembly (540) including a pin (542) biased to extend into the bore (536), the pin (542) engaging the recess (522) of the cam (530) when the recess (522) is aligned with the pin (542).
3. The downhole tool of claim 1, further comprising:
a notch (548) formed in a cam bore (546), the notch (548) being positioned within a reduced diameter portion (802) of the cam bore (546).
4. The downhole tool of claim 3, wherein the notch (548) is adapted to receive an actuating tool (600) to drive movement of the cam (530) in an axially upward direction.
5. The downhole tool of claim 1, wherein the tool key (518), when in the extended position, engages a casing recess (508) formed in a casing profile (506).

6. The downhole tool of claim 1, further comprising:
a seal (538) positioned between the cam (530) and the tool body (402).
7. The downhole tool of claim 1, further comprising:
a ball (800) positioned within a cam bore (546), the ball (800) having a ball diameter (806) greater than a cam bore diameter (804), wherein pressure applied to the ball (800) from an uphole direction drives movement of the cam (530) in an axially downward direction.
8. A system for running casing, comprising:
a tool string (120);
a running tool (202), coupled to the tool string; and
a casing torque tool (204), coupled to the running tool, and configured to releasably engage at least a portion of a casing string (302), the casing torque tool comprising:
a translatable cam (530) within a casing torque tool bore (536), the cam (530) having a recess (522) formed in an outer diameter and a notch (548) formed in the inner diameter;
a tool key (518) adapted to move radially with respect to the casing torque tool bore (536), the tool key (518) bearing against at least a portion of the translatable cam (530) and, in response to movement of the translatable cam (530), transitioning between a retracted position and an extended position; and
a pin (542) adapted to move radially with respect to the casing torque tool bore (536), the pin (542) translating into the casing torque tool bore (536) in response to being at least partially aligned with the recess (522).
9. The system of claim 8, further comprising:
a biasing member (526) engaging the tool key (518), the biasing member (526) driving the tool key (518) radially inward toward the casing torque tool bore (536).
10. The system of claim 8, wherein the notch (548) is formed at a reduced diameter portion (802) of the inner diameter.

11. The system of claim 10, further comprising:

a ball (800) positioned within the inner diameter, the ball (800) having a ball diameter (806) greater than the reduced diameter portion, wherein pressure applied to the ball (800) from an uphole direction drives movement of the translatable cam (530) in an axially downward direction.

12. The system of claim 8, further comprising:

the casing string (302), the casing string having a casing profile (506) including a casing recess (508), the casing recess (508) positioned to receive the tool key (518) when the tool key (518) transitions to the extended position.

13. The system of claim 12, wherein the casing profile (506) is formed in at least one of a casing (302) or a casing hanger (300).

14. The system of claim 8, further comprising:

an activation tool (600), the activation tool (600) engaging the notch (548) to drive movement of the translatable cam (530) in an axially upward direction.

15. The system of claim 14, wherein the tool key (518) transitions out of the recess (522) when the translatable cam (530) is moved in the axially upward direction and bears against the outer diameter.