the longitudinal axis 615 as shown in Figure 6A, the first tubular 630 may slide along the surface 700 towards the longitudinal axis 615 of the gripper 150. When contacted by other grippers 150 of the lower clamp assembly 140, the first tubular 630 may be contacted by the respective primary contact plates 510 and move toward the respective longitudinal axes 615 as shown in Figure 5A.

[0028] Figure 6B shows the primary contact plate 510 in a second position such that the gripping surface 620 of the die plate 515 extends beyond the plane 625. Once the first tubular 630 is centered, continued movement of the grip head 405 along the longitudinal axis 615 overcomes the bias force of the biasing member 710 and compresses the biasing member 710 such that the gripping surface 620 of the die plate 515 is urged into engagement with the first tubular 630 to grip the first tubular 630. The die plate 515 may be hardened steel with a roughened gripping surface configured to grip the tubular 630.

[0029] In this position, the primary contact plate 510 may be spaced a second distance 70513 from the piston 505, which is less than the first distance 705A. Thus, the gripping surface 620 of the die plate 515 may bite into the surface of the first tubular 630 and grip the first tubular 630. Indexing pins 715 may fasten the primary contact plate 510 to the piston 505. The primary contact plate 510 may include recesses 720 where the indexing pins 715 may be positioned. The primary contact plate 510 may include openings 725 where a portion of the indexing pins 715 may extend through.

[0030] The wrench assembly 110 having grip heads 405 as described herein help center the first tubular 630 within the wrench assembly 110 before the die plate 515 engages the first tubular 630. The centering of the first tubular 630 aligns the center axis of the first tubular 630 with the center axis of the wrench assembly 110. Since the center axis of the wrench assembly 110 is the axis about which maximum torque is applied, then wrench assembly 110 effectively ensures that the maximum amount torque is being applied to the first tubular 630 to make up or break out a threaded connection.