CLAIMS

1. A wrench assembly, comprising;

an upper clamp assembly; and

a lower clamp assembly coupled to the upper clamp assembly, wherein the lower clamp assembly comprises a plurality of grippers each having a grip head configured to grip a tubular, and each grip head comprises:

a die plate surrounded by a primary contact plate, the die plate being disposed in a central cavity of the primary contact plate, the central cavity being formed at least partially in a surface of the primary contact plate, wherein the surface of the primary contact plate is configured to contact the tubular prior to a gripping surface of the die plate contacting the tubular.

2. The wrench assembly of claim 1, wherein the primary contact plate has rounded corners configured to center the tubular within the wrench assembly.

3. The wrench assembly of claim 2, wherein the primary contact plate is biased by a biasing member toward the tubular.

4. The wrench assembly of claim 3, wherein the gripping surface of the die plate is disposed on one side of a plane of the primary contact plate during an initial contact of the surface of the primary contact plate with the tubular.

5. The wrench assembly of claim 4, wherein the biasing member is configured tocompress such that the gripping surface of the die plate extends beyond the plane of the primary contact plate during gripping of the tubular.

6. The wrench assembly of claim 5, wherein the rounded corners are configured to push the tubular toward a center axis of the wrench assembly before the die plate engages the tubular.

7. The wrench assembly of claim 6, wherein the rounded corners comprise a bevel, a radius, or a chamfer.

8. The wrench assembly of claim 7, wherein the upper clamp assembly is configured to grip and rotate a second tubular relative to the tubular gripped by the lower clamp assembly to make-up or break-out a threaded connection between the second tubular and the tubular gripped by the lower clamp assembly.

9. The wrench assembly of claim 3, wherein the biasing member comprises a spring.

10. The wrench assembly of claim 1, wherein the primary contact plate includes a plane, and the die plate is movable between a first position and a second position, wherein the gripping surface is on one side of the plane in the first position, and the gripping surface is on another side of the plane in the second position.

11. The wrench assembly of claim 10, wherein the surface of the primary contact plate is disposed at least partially in the plane.

12. A wrench assembly, comprising;

an upper clamp assembly; and

a lower clamp assembly coupled to the upper clamp assembly, wherein the lower clamp assembly comprises a plurality of grippers configured to grip a tubular, each gripper comprising:

a primary contact plate comprising a central cavity, and

a die plate disposed in the central cavity of the primary contact plate, the die plate being movable relative to the primary contact plate between a first position and a second position, and the die plate comprising a gripping surface that is spaced from the tubular in the first position and is engaged with the tubular in the second position.

13. The wrench assembly of claim 12, wherein the primary contact plate includes a plane, and the gripping surface of the die plate is on one side of the plane in the first position, and the gripping surface is on another side of the plane in the second position.

14. The wrench assembly of claim 12, wherein the primary contact plate has rounded corners configured to center the tubular within the wrench assembly.

15. The wrench assembly of claim 14, wherein the primary contact plate is biased by a biasing member toward the tubular.

16. The wrench assembly of claim 15, wherein the gripping surface of the die plate is disposed on one side of a plane of the primary contact plate during an initial contact with the tubular.

17. The wrench assembly of claim 16, wherein the biasing member is configured to compress such that the gripping surface extends beyond the plane of the primary contact plate during gripping of the tubular.

18. The wrench assembly of claim 17, wherein the rounded corners are configured to push the tubular toward a center axis of the wrench assembly before the die plate engages the tubular.

19. The wrench assembly of claim 18, wherein the rounded corners comprise a bevel, a radius, or a chamfer.

20. The wrench assembly of claim 19, wherein the upper clamp assembly is configured to grip and rotate a second tubular relative to the tubular gripped by the lower clamp assembly to make-up or break-out a threaded connection between the second tubular and the tubular gripped by the lower clamp assembly.

21. The wrench assembly of claim 20, wherein the biasing member comprises a spring.