Claims

1. A wrench assembly, comprising;

an upper clamp assembly comprising an upper plate and a lower plate;

a lower clamp assembly coupled to the upper clamp assembly, the lower clamp assembly comprising an upper plate and a lower plate, wherein the upper plate of the lower clamp assembly is below the lower plate of the upper clamp assembly; and

an alignment device disposed between the upper and lower clamp assemblies, wherein the alignment device is configured to allow the upper clamp assembly to move laterally offset from the lower clamp assembly when rotated relative to the lower clamp assembly, the alignment device comprising:

a wedge disposed at least partially in an opening formed in an upper surface of the upper plate of the lower clamp assembly and at least partially in a groove formed in a lower surface of the lower plate of the upper clamp assembly.

2. The wrench assembly of claim 1, wherein the groove forms one or more tapered surfaces of the lower plate of the upper clamp assembly, and the wedge engages the one or more tapered surfaces of the groove.

3. The wrench assembly of claim 1, wherein the wedge has an arcuate shape and an arc length along the upper surface of the upper plate of the lower clamp assembly, and the groove formed in the lower surface of the lower plate of the upper clamp assembly has an arcuate shape and an arc length along the lower surface of the lower plate of the upper clamp assembly, wherein the arc length of the groove formed in the lower surface of the lower plate of the upper clamp assembly is greater than the arc length of the wedge.

4. The wrench assembly of claim 2, wherein the wedge is biased into engagement with the one or more tapered surfaces of the groove.

5. The wrench assembly of claim 2, wherein the wedge is coupled to a spring that biases the wedge into the groove, and the spring is disposed between the upper plate of the lower clamp assembly and the lower plate of the lower clamp assembly.

6. The wrench assembly of claim 5, wherein the spring is engaged with a pin that aligns the wedge.

7. The wrench assembly of claim 6, wherein the spring and the pin are at least partially housed within a cylindrical cover.

8. The wrench assembly of claim 1, wherein the alignment device comprises a second wedge configured to engage with the groove formed in the lower surface of the lower plate of the upper clamp assembly.

9. The wrench assembly of claim 8, wherein each of the wedges and the groove have an arcuate shape and an arc length.

10. The wrench assembly of claim 1, wherein the alignment device is configured to allow the upper clamp assembly to move laterally relative to a center axis of the wrench assembly when rotated relative to the lower clamp assembly, and the wedge is movable upwardly and downwardly.

11. A wrench assembly, comprising;

an upper clamp assembly comprising an upper plate and a lower plate;

a lower clamp assembly coupled to the upper clamp assembly, the lower clamp assembly comprising an upper plate and a lower plate, wherein the upper plate of the lower clamp assembly is below the lower plate of the upper clamp assembly; and

an alignment device disposed between the upper and lower clamp assemblies, wherein the alignment device is configured to adjust an axis about which the wrench assembly applies torque by allowing the upper clamp assembly to move laterally offset from the lower clamp assembly, the alignment device comprising:

a wedge disposed at least partially in an opening formed in an upper surface of the upper plate of the lower clamp assembly and at least partially in a groove formed in a lower surface of the lower plate of the upper clamp assembly.

12. The wrench assembly of claim 11, wherein the wedge is movable relative to the upper plate of the lower clamp assembly.

13. The wrench assembly of claim 11, wherein the wedge has an arcuate shape and an arc length along the upper surface of the upper plate of the lower clamp assembly, and the groove formed in the lower surface of the lower plate of the upper clamp assembly has an arcuate shape and an arc length along the lower surface of the lower plate of the upper clamp assembly, wherein the arc length of the groove formed in the lower surface of the lower plate of the upper clamp assembly is greater than the arc length of the wedge.

14. The wrench assembly of claim 11, wherein the groove forms one or more tapered surfaces of the lower plate of the upper clamp assembly, and the wedge is biased into engagement with the one or more tapered surfaces of the groove.

15. The wrench assembly of claim 14, wherein the wedge is coupled to a spring that biases the wedge into the one or more tapered surfaces the groove, and the spring is disposed between the upper plate of the lower clamp assembly and the lower plate of the lower clamp assembly.

16. The wrench assembly of claim 15, wherein the spring is engaged with a pin that aligns the wedge.

17. The wrench assembly of claim 16, wherein the spring and the pin are at least partially housed within a cylindrical cover.

18. The wrench assembly of claim 11, wherein the alignment device comprises a second wedge configured to engage with the groove formed in the lower surface of the lower plate of the upper clamp assembly.

19. The wrench assembly of claim 18, wherein each of the wedges and the groove have an arcuate shape and an arc length.

20. A wrench assembly, comprising;

a center axis;

an upper clamp assembly comprising an upper plate and a lower plate;

a lower clamp assembly coupled to the upper clamp assembly, the lower clamp assembly comprising an upper plate and a lower plate, wherein the upper plate of the lower clamp assembly is below the lower plate of the upper clamp assembly; and

an alignment device disposed between the upper and lower clamp assemblies, wherein the alignment device is configured to allow the upper clamp assembly to move laterally relative to the center axis when rotated relative to the lower clamp assembly, the alignment device comprising:

a wedge disposed at least partially in an opening formed in an upper surface of the upper plate of the lower clamp assembly and at least partially in a groove formed in a lower surface of the lower plate of the upper clamp assembly.