CLAIMS

I claim:

1. A bending apparatus for coiled tubing, said apparatus comprising:

a conduit having a proximal end and a distal end opposite said proximal end,

wherein said proximal end is positioned relative to said distal end so as to determine a conduit bend angle of said conduit,

wherein said conduit is comprised of:

a bend portion having an injector end toward said proximal end and a spool end toward said distal end opposite said spool end,

wherein said injector end is positioned relative to said spool end so as to determine a bend angle of said bend portion; and

a flexible portion having a first flexible end toward said proximal end and a second flexible end toward said distal end and opposite said first flexible end,

wherein said first flexible end is positioned relative to said second flexible end so as to determine a flexible bend angle of said flexible portion,

wherein said conduit bend angle is comprised of said bend angle and said flexible bend angle, and

wherein said flexible bend angle is less than said bend angle; and

a table mount connected to said proximal end of said conduit, said table mount being comprised of a table plate at the proximal end; and a table base in swiveling engagement to said table plate, said conduit and said table plate being rotatable together relative to said table base.

2. The bending apparatus, according to claim 1, wherein said bend portion is between said flexible portion and said proximal end.

3. The bending apparatus, according to claim 1, wherein said flexible portion is between said bend portion and said proximal end.

4. The bending apparatus, according to claim 1, wherein said bend portion is rigid, said bend angle being constant.

5. The bending apparatus, according to claim 1, wherein said bend portion is flexible, said bend angle being variable.

6. The bending apparatus, according to claim 1, further comprising:

a proximal flange bracket at said proximal end; and

a distal flange bracket at said distal end.

7. The bending apparatus, according to claim 1, wherein said bend portion is comprised of a plurality of impingement sleeves concentrically aligned with each other from said injector end to said spool end.

8. The bending apparatus, according to claim 8, wherein each impingement sleeve has an inner surface and an outer surface, and wherein each impingement sleeve is

comprised of a core forming said inner surface, a shielding around said core, and a plurality of bearings on said inner surface, said outer surface or both.

9. The bending apparatus, according to claim 1, wherein said bend portion is lubricated, further comprising: a containment vessel at said proximal end.

10. The bending apparatus, according to claim 1, wherein said bend portion is pressurized.

11. The bending apparatus, according to claim 10, further comprising:

means for pressurizing said bend portion from said injector end to said spool end,

wherein the means for pressurizing comprises a pressure hose in fluid connection with said bend portion at said injector end.

12. The bending apparatus, according to claim 1, wherein said flexible portion is comprised of a support means, and

wherein said support means is comprised of a first support bracket at said first flexible end, and a second support bracket at said second flexible end, and a plurality of support arms, each support arm being connected to said first support bracket and said second support bracket.

13. The bending apparatus, according to claim 3, wherein said flexible portion is comprised of a support means, and

wherein said support means is comprised of a first support bracket at said first flexible end, and a second support bracket at said second flexible end, and a plurality of support arms, each support arm being connected to said first support bracket and said table plate.

14. The bending apparatus, according to claim 1, further comprising an additional flexible portion,

wherein said bend portion is between said flexible portion and said proximal end and said additional flexible portion is between said bend portion and said proximal end,

wherein said additional flexible portion has an additional first flexible end toward said proximal end and an additional second flexible end toward said distal end and opposite said additional first flexible end,

wherein said additional second flexible end is positioned relative to said additional first flexible end so as to determine an additional flexible bend angle of said additional flexible portion,

wherein said conduit bend angle is comprised of said bend angle and said flexible bend angle and said additional bend angle, and

wherein said additional flexible bend angle is less than said bend angle.

15. A bending apparatus for coiled tubing, the apparatus comprising:

a conduit having a proximal end and a distal end opposite said proximal end,

wherein said proximal end is positioned relative to said distal end so as to determine a conduit bend angle of said conduit,

wherein said conduit is comprised of:

a bend portion having an injector end toward said proximal end and a spool end toward said distal end opposite said spool end,

wherein said injector end is positioned relative to said spool end so as to determine a bend angle of said bend portion; and

a flexible portion having a first flexible end toward said proximal end and a second flexible end toward said distal end and opposite said first flexible end,

wherein said second flexible end is positioned relative to said first flexible end so as to determine a flexible bend angle of said flexible portion, and

wherein said conduit bend angle is comprised of said bend angle and said flexible bend angle;

a bend support means,

wherein said bend support means is comprised of a first bend support bracket at said injector end, a second bend support bracket at said spool end, and a plurality of support arms, each support arm is connected to said first bend support bracket and said second bend support bracket; and

an additional flexible portion,

wherein said bend portion is between said flexible portion and said proximal end and said additional flexible portion is between said bend portion and said proximal end,

wherein said additional flexible portion has an additional first flexible end toward said proximal end and an additional second flexible end toward said distal end and opposite said additional first flexible end,

wherein said additional first flexible end is positioned relative to said additional second flexible end so as to determine an additional flexible bend angle of said additional flexible portion, and

wherein said conduit bend angle is comprised of said bend angle and said flexible bend angle and said additional bend angle.

16. A bending apparatus for coiled tubing, the apparatus comprising:

a conduit having a proximal end, and a distal end opposite said proximal end,

wherein said proximal end is positioned relative to said distal end so as to determine a conduit bend angle of said conduit, and

wherein said conduit is flexible, said conduit bend angle being variable;

a support means being comprised of a first support bracket at said proximal end, and a second support bracket at said distal end,

wherein said support means is further comprised of a first plurality of support arms connected above said second support bracket and to a top side of said second support

bracket, and a second plurality of support arms connected below said second support bracket and to a bottom side of said second support bracket; and

means for pressurizing said conduit from said proximal end to said distal end,

wherein said conduit is pressurized, and

wherein the means for pressurizing comprises:

a pressure hose in fluid connection to said conduit at said proximal end.