WHAT IS CLAIMED IS:

1. A metal wire feeding system, comprising:

a positionally adjustable wire supply spool;

a cabinet comprising an entry wire position detector containing an aperture;

a wire feeding device comprising a first motorized grooved roller, a first passive grooved roller, and a first motor attached to the first motorized grooved roller, wherein the first motorized grooved roller and the first passive grooved roller form a channel therebetween;

a combination of at least three slack wire guides, wherein a first slack wire guide is positioned downstream of the wire feeding device and in line therewith, a second slack wire guide positioned to the right of and below the first slack wire guide, and a third slack wire guide positioned to the left of and below the first slackwire guide, the first slack wire guide, the second slack wire guide and the third slack wire guide together forming a loop pathway from the first wire guide to the second wire guide to the third wire guide and then back to the first wire guide to form a loop of slack wire supported by the second slack wire guide and the third slack wire guide;

a slack wire pulling device comprising a second motorized grooved roller, a second passive grooved roller, and a second motor attached to the second motorized grooved roller, wherein the second motorized grooved roller and the second passive grooved roller form a channel therebetween; and

a cabinet exit guide.

2. The metal wire feeding system of claim 1, where:

the first slack wire guide comprises:

a first dual grooved roller having a first and second groove, the roller being attached to a first arm pivotally connected to a back plate of the cabinet; and

a second dual grooved roller having a first and second groove, where the first groove of the first grooved roller and the first groove of the second grooved roller form a channel therebetween, and the first groove of the first dual grooved roller is biased by a spring on the first arm connected to a first support connected to the back plate of the cabinet;

the second slack wire guide comprises:

a third passive grooved roller attached to a second arm pivotally connected to the back plate of the cabinet; and

a fourth passive grooved roller, where the groove of the third passive roller and the groove of the fourth passive roller form a channel therebetween, and the groove of the third passive roller is biased by a spring on the second arm connected to a second support connected to the back plate of the cabinet; and

the third slack wire guide comprises:

a fifth passive grooved roller attached to a third arm pivotally connected to the back plate of the cabinet; and

a sixth passive grooved roller, where the groove of the fifth passive roller and the groove of the sixth passive roller form a channel therebetween, and the groove of the fifth passive roller is biased by a spring on the third arm connected to a third support connected to the back plate of the cabinet.

3. The metal wire feeding system of any one of claims 1-2, wherein the surface of the groove of any one or a combination of the first motorized grooved roller, first passive grooved roller, second motorized grooved roller, and second passive grooved roller is frictionally enhanced.

4. The metal wire feeding system of any one of claims 1-3, wherein the first motor and the second motor each separately is selected from among a direct-current motor driven by a power control signal and a stepper motor.

5. The metal wire feeding system of any one of claims 1-4, wherein the entry wire position detector further comprises a first sensor that detects a position of a metal wire within the aperture.

6. The metal wire feeding system of claim 5 wherein the first sensor is in communication with a control system that can reposition the wire supply spool in at least one of the X-, Y- or Z-direction or any combination thereof.

7. The metal wire feeding system of claim 6, wherein the cabinet further comprises a transparent window or a transparent door or both to allow viewing of the components in the cabinet without opening the cabinet.

8. The metal wire feeding system of claim 7, wherein the transparent window or transparent door is made of glass, acrylic (poly(methyl methacrylate) or PMMA), polyethylene terephthalate glycol-modified (PETG), or polycarbonate.

9. The metal wire feeding system of any one of claims 1-8, wherein the wire feeding device is configured to feed wire wound on the wire supply spool into the cabinet.

10. The metal wire feeding system of any one of claims 1-9, further comprising a first pressure device to regulate the amount of pressure exerted by the first passive grooved roller.

11. The metal wire feeding system of claim 10, wherein the first pressure device comprises a hydraulically, pneumatically, mechanically or electronically driven piston that when moved in a first direction increases the pressure applied to the first passive grooved roller, and that when moved in a second direction decreases the pressure applied to the first passive grooved roller.

12. The metal wire feeding system of any one of claims 1-11, further comprising a second pressure device to regulate the amount of pressure exerted by the second passive grooved roller.

13. The metal wire feeding system of claim 12, wherein the second pressure device comprises a hydraulically, pneumatically, mechanically or electronically driven piston that when moved in a first direction increases the pressure applied to the second passive grooved roller, and that when moved in a second direction decreases the pressure applied to the second passive grooved roller.

14. The metal wire feeding system of any one of claims 1-13, wherein:

the first motor of the wire feeding device is connected to the first motorized grooved roller to rotate the first motorized grooved roller;

the first motor of the wire feeding device operates independently of the slack wire pulling device; and

the second motor of the slack wire pulling device is connected to the second motorized grooved roller to rotate the second motorized grooved roller.

15. The metal wire feeding system of any one of claims 1-14, wherein the cabinet further comprises a loop sensing device, the loop sensing device comprising:

a) a first sensor in communication with a control system, wherein the first sensor sends a signal to the control system to shut down the wire feeding system and deposition process when the first sensor senses the loop of slack wire; or

b) a second sensor in communication with a control system, wherein the second sensor sends a signal to the control system to feed more metal wire into the cabinet when the second sensor senses the loop of slack wire; or

c) a third sensor in communication with the control system, wherein the third sensor sends a signal to the control system to feed less metal wire into the cabinet when the third sensor senses the loop of slack wire; or

d) a fourth sensor in communication with the control system, wherein the fourth sensor sends a signal to the control system to stop feeding metal wire into the cabinet when the fourth sensor senses the loop of slack wire; or

e) any combination of a), b), c) and d).

16. A method of providing a metal wire to a welding torch, comprising:

advancing a sufficient amount of the metal wire from a wire supply source to a first slack wire guide, a second slack wire guide and a third slack wire guide that together form a loop pathway from the first wire guide to the second wire guide to the third wire guide and then back to the first wire guide to form a loop of slack wire supported by the second slack wire guide and the third slack wire guide;

advancing an amount of slack wire from the loop of slack wire to the welding torch, wherein the welding torch is selected from among a plasma arc welding torch, a plasma transferred arc torch, a gas tungsten arc welding torch, a gas metal arc welding torch, a metal inert gas welding torch, a metal active gas welding torch, a laser device, an electron beam gun or any combination thereof; and

supplying additional metal wire from the wire supply source to compensate for the amount of slack wire advanced to the welding torch to maintain the loop of slack wire,

wherein the amount of slack wire advanced from the wire supply source is sufficient to maintain the loop of slack wire to allow for a continuous delivery of slack wire to the welding torch, and

wherein advancing of the metal wire from the supply source is independent of advancing an amount of slack wire from the loop of slack wire to the welding torch.

17. The method of claim 16, wherein the wire supply source is a positionally adjustable spool on which the metal wire is wound, and the method further comprises:

unwinding the metal wire from the spool to provide the metal wire to be advanced to form the loop of slack wire; and

repositioning the wire supply spool in at least one of the X-, Y- or Z-direction or combinations thereof to maintain the wire being unwound from the spool in a desired position.

18. The method of claims 16 or 17, further comprising rotating a roller in frictional contact with the metal wire to advance the metal wire into the cabinet, wherein the rotating of the roller is accomplished by activating a motor attached to the roller, and the motor is a stepper motor or a direct current motor driven by a power control signal.

19. The method of any one of claims 16-18, further comprising rotating a roller in frictional contact with the slack wire to deliver the slack wire to the welding torch, wherein the rotating of the roller is accomplished by activating a motor attached to the roller, and the motor is a stepper motor or a direct current motor driven by a power control signal.