Claims

1. A handheld soldering iron (20), comprising:

a power supply (30);

a workstand (50);

a handpiece (60) including a soldering iron tip (10) comprising a hollow cylindrical base (120), a pointed distal end (130) and a proximal end (140) with an ID feedback device (150) including a conductive material coating (222), which when read provides authentication resistance information on the soldering iron tip (10), wherein the ID feedback device (150) includes the conductive material coating (222), and the handpiece (60) is coupled to the power supply (30) and the workstand (50), receiving power from the power supply (30) and heating the soldering iron tip (10) to perform soldering on a work piece,

one or more processors (560) programmed to perform steps comprising: reading resistance information on the conductive material coating (222) from the ID feedback device (150) of the soldering iron tip (10);

determining whether the read resistance information on the conductive material coating (222) from the ID feedback device (150) corresponds to authentication resistance information for the soldering iron tip (10);

continuing supply of power to the handheld soldering iron (20) if the read resistance information on the conductive material coating (222) from the ID feedback device (150) corresponds to authentication resistance information for the soldering iron tip (10);

stopping supply of power to the handheld soldering iron (20) if the read resistance information on the conductive material coating (222) from the ID feedback device (150) does not correspond to authentication resistance information for the soldering iron tip (10).

2. The handheld soldering iron (20) of claim 1, wherein the soldering iron tip (10) includes an entire proximal surface (224) coated with the conductive material coating (222).

3. The handheld soldering iron (20) of claim 2, wherein the conductive material coating (222) includes a known electrical resistance, and reading resistance

information from the ID feedback device (150) of the soldering iron tip (10) includes reading the electrical resistance of the conductive material coating (222) to ground and determining whether the read electrical resistance of the conductive material coating (222) to ground corresponds to authentication resistance information for the soldering iron tip (10).

4. The handheld soldering iron (20) of claim 1, wherein the soldering iron tip (10) includes a partial proximal surface (226) coated with the conductive material coating (222).

5. The handheld soldering iron (20) of claim 4, wherein the partial proximal surface (226) coated with the conductive material coating (222) forms multiple conductive material coating segments (229).

6. The handheld soldering iron (20) of claim 5, wherein the multiple conductive material coating segments (229) include a known electrical resistance, and reading resistance information from the ID feedback device (150) of the soldering iron tip (10) includes reading the electrical resistance of the multiple conductive material coating segments (229) to ground and determining whether the read electrical resistance of the multiple conductive material coating segments (229) to ground corresponds to authentication resistance information for the soldering iron tip (10).

7. A method of authenticating a soldering iron tip (10) including an ID feedback device (150) of a handheld soldering iron (20) according to one of claims 1 – 6, the ID feedback device (150) including a conductive material coating (222), comprising:

reading resistance information on the conductive material coating (222) from the ID feedback device (150) of the soldering iron tip (10);

determining whether the read resistance information on the conductive material coating (222) from the ID feedback device (150) corresponds to authentication resistance information for the soldering iron tip (10);

continuing supply of power to the handheld soldering iron (20) if the read resistance information on the conductive material coating (222) from the ID feedback connection (90) corresponds to authentication resistance information for the soldering iron tip (10);

stopping supply of power to the handheld soldering iron (20) if the read resistance information on the conductive material coating (222) from the ID feedback connection (90) does not correspond to authentication resistance information for the soldering iron tip (10).

8. A soldering iron tip (10) for a handheld soldering iron (20), comprising:
a hollow cylindrical base (120);
a pointed distal end (130);
a proximal end (140) with an ID feedback device (150) including a conductive material coating (222) with a resistivity, which when resistance information thereof is read provides authentication resistance information on the soldering iron tip (10);
wherein the ID feedback device (150) is configured to communicate the resistance information of the conductive material coating (222) to at least one processor.

9. The soldering iron tip (10) of claim 8, wherein the soldering iron tip (10) includes an entire proximal surface (224) coated with the conductive material coating (222).

10. The soldering iron tip (10) of claim 8, wherein the soldering iron tip (10) includes a partial proximal surface (226) coated with the conductive material coating (222).

11. The soldering iron tip (10) of claim 10, wherein the partial proximal surface (226) coated with the conductive material coating (222) forms multiple conductive material coating segments (229).