CLAIMS

What is claimed is:

1. An apparatus for depositing a coating on a part, the apparatus comprising:

a chamber;

a sting assembly for carrying the part and shiftable between:

an inserted condition where the sting assembly holds the part within the chamber for coating; and

a retracted condition where the sting assembly holds the part outside of the chamber;

a source of the coating material, positioned to communicate the coating material to the part in the inserted condition;

a thermal hood comprising a first member and a second member wherein:

the second member is between the first member and the part when the part is in the inserted condition; and

the second member is carried by the sting assembly so as to retract with the sting assembly as the sting assembly is retracted from the inserted condition to the retracted condition.

2. The apparatus of claim 1 wherein:

the source comprises an ingot and an electron source positioned to direct a beam to the ingot.

3. The apparatus of claim 1 wherein:

the first member and the second member are concentric shells.

4. The apparatus of claim 1 wherein:

the first member is mounted to the chamber so as to remain stationary as the sting assembly is moved between the retracted condition and the inserted condition.

5. The apparatus of claim 1 wherein:

the first member comprises a nickel-based superalloy; and

the second member comprises a nickel-based superalloy.

6. The apparatus of claim 1 wherein:

the first member comprises a bent sheet.

7. The apparatus of claim 1 wherein:

the second member comprises a perforated bent sheet.

8. The apparatus of claim 1 wherein:

the sting assembly comprises:

an inner member and an outer member; and

an actuator coupled to the inner member to move the inner member relative to the outer member, and wherein:

the part is held by the inner member and the thermal hood second member is held by the outer member.

9. The apparatus of claim 8 wherein:

the thermal hood second member is attached to the sting outer member by a plurality of struts at a first end of the thermal hood second member.

10. The apparatus of claim 1 wherein:

the sting assembly has respective first and second gas flowpaths respectively coupled to an oxygen source and a scattering gas source.

11. A method for using the apparatus of claim 1, the method comprising:

coating a first said part;

after the coating, retracting the sting assembly from the inserted condition to the retracted condition to retract the first part from the chamber;

replacing the first part with a second said part and replacing the thermal hood second member with a replacement thermal hood second member;

inserting the second part and the replacement thermal hood second member into the chamber; and

coating the second part.

12. The method of claim 11 wherein:

the thermal hood first member remains in place in the chamber during the coating of the first part and the coating of the second part.

13. The method of claim 11 wherein the chamber is a deposition chamber and the apparatus further comprises:

a loading chamber; and

a preheat chamber between the deposition chamber and the loading chamber, the retracting comprising retracting the first part into the loading chamber through the preheat chamber.

14. The method of claim 11 wherein:

during coating, the part being coated is rotated relative to the thermal hood second member.

15. The method of claim 11 wherein:

the coating passes to the part being coated as a vapor.

16. A thermal hood liner for a deposition apparatus comprising:

a metallic body having a plurality of apertures; and

means for mounting the body to a sting shaft.

17. The liner of claim 16 wherein:

the metallic body comprises a nickel-based superalloy sheet;

the apertures comprise drilled holes; and

the means comprise a plurality of radial struts at only one end of the metallic body.

18. The liner of claim 16 further comprising:

at least one gas conduit attached to the body and having a plurality of outlets.

CLAIMS

1. An apparatus (20) for depositing a coating on a part (22), the apparatus comprising:

a chamber (42);

a source (48) of the coating material;

and a thermal hood (140) comprising a first member (142) and a second member (144);

characterised by further comprising a sting assembly (82) for carrying the part (22) and shiftable between:

an inserted condition where the sting assembly (82) holds the part within the chamber (24) for coating; and

a retracted condition where the sting assembly (82) holds the part outside of the chamber (42);

wherein the source (48) of the coating material, is positioned to communicate the coating material to the part in the inserted condition;

by the second member (144) being between the first member (142) and the part (22) when the part is in the inserted condition; and

the second member (144) being carried by the sting assembly (82) so as to retract with the sting assembly (82) as the sting assembly (82) is retracted from the inserted condition to the retracted condition.

2. The apparatus of claim 1 wherein:

the source (48) comprises an ingot and an electron source positioned to direct a beam to the ingot.

3. The apparatus of claim 1 or 2 wherein:

the first member (142) and the second member (144) are concentric shells.

4. The apparatus of any preceding claim wherein:

the first member (142) is mounted to the chamber (42) so as to remain stationary as the sting assembly (82) is moved between the retracted condition and the inserted condition.

5. The apparatus of any preceding claim wherein:

the first member (142) comprises a nickel-based superalloy; and

the second member (144) comprises a nickel-based superalloy.

6. The apparatus of any preceding claim wherein:

the first member (142) comprises a bent sheet.

7. The apparatus of any preceding claim wherein:

the second member (144) comprises a perforated bent sheet.

8. The apparatus of any preceding claim wherein:

the sting assembly (82) comprises:

a sting inner member (92) and a sting outer member (90); and

an actuator coupled to the sting inner member (92) to move the sting inner member (92) relative to the sting outer member (90), and wherein:

the part (22) is held by the sting inner member (92) and the second member (144) of the thermal hood is held by the outer member (90).

9. The apparatus of claim 8 wherein:

the second member (144) of the thermal hood is attached to the sting outer member (90) by a plurality of struts (180,181,182) at a first end (164) of the second member (144) of the thermal hood.

10. The apparatus of any preceding claim wherein:

the sting assembly (82) has respective first and second gas flowpaths respectively coupled to an oxygen source and a scattering gas source.

11. A method for using the apparatus of any preceding claim, the method comprising:

coating a first said part (22);

after the coating, retracting the sting assembly (82) from the inserted condition to the retracted condition to retract the first part (22) from the chamber (42);

replacing the first part (22) with a second said part (300) and replacing the second member (144) of the thermal hood with a replacement second member (144) of the thermal hood;

inserting the second part (22) and the replacement second member (144) of the thermal hood into the chamber (42); and

coating the second part (22).

12. The method of claim 11 wherein:

the first member (142) of the thermal hood remains in place in the chamber (42) during the coating of the first part (22) and the coating of the second part (22); and/or

wherein the chamber (42) is a deposition chamber and the apparatus further comprises: a loading chamber (&2); and a preheat chamber (60) between the deposition chamber (42) and the loading chamber (72), the retracting comprising retracting the first part into the loading chamber (72) through the preheat chamber (60); and/or

wherein during coating, the part (300) being coated is rotated relative to the second member (144) of the thermal hood; and/or

wherein the coating passes to the part being coated as a vapor.