CLAIMS

1. A method of treating a nickel alloy surface comprising the steps of:

a) plating a nickel alloy surface with a plating material including at least some nickel for a thickness greater than or equal to 0.0001 inch (.000254 cm) and less than 0.0005 inch (0.00127 cm);

b) then exposing said nickel alloy surface to a fluoride ion cleaning to remove impurities on the surface, and leaving at least some of said plating material; and

c) said nickel alloy surface including at least one of aluminum and titanium, said fluoride ion cleaning being hydrogen fluoride ion cleaning, said nickel alloy surface being part of a component having a crack with oxides to be cleaned by said hydrogen fluoride ion cleaning, said component having internal cavities, and an inner wall spaced inwardly from an outer wall, and said crack being in said inner wall, and the plating step (a) is done on said inner wall.

2. The method as set forth in claim 1, wherein said component has an airfoil.

3. The method as set forth in claim 2, wherein said component is a gas turbine engine component.

4. The method as set forth in claim 1, wherein said nickel plating is deposited in a thickness that is generally less than a depth of said crack.

5. The method as set forth in claim 1, wherein said crack is repaired after said fluoride ion cleaning.

6. The method as set forth in claim 1, wherein the plating is done with an electroless plating technique.

7. The method as set forth in claim 6, wherein said plating is provided by a nickel alloy.

8. The method as set forth in claim 6, wherein said crack extends from said inner wall to said outer wall, and the plating of step (a) is done on both said outer wall and said inner wall.

9. The method as set forth in claim 1, wherein the thickness of said nickel plating is less than or equal to about 0.0002 inch (0.000508 cm).

10. The method as set forth in claim 1, wherein said plating is deposited in a thickness that is generally less than the depth of said crack.

11. The method as set forth in claim 10, wherein the thickness of said plating is less than or equal to about 0.0002 inch (0.000508 cm).

12. A method of repair comprising the steps of:

a) plating a nickel alloy component that has a crack to be repaired with a plating material including at least some nickel, the plating being greater than or equal to about 0.0001 inch (0.000254 cm) and less than 0.0005 inch (0.00127 cm) thick;

b) exposing said component to a fluoride ion cleaning to remove impurities in the crack, and leaving at least some of said plating;

c) repairing the crack in the component; and

d) wherein said nickel plating is deposited in a thickness that is generally less than the depth of said crack.

13. The method as set forth in claim 12, wherein said component has internal cavities, and an inner wall spaced inwardly from an outer wall, and said crack is in said inner wall, and the plating of step (a) is done on said inner wall with electroless plating technique.

14. The method as set forth in claim 13, wherein said plating is provided by a nickel alloy.

15. The method as set forth in claim 12, wherein said nickel plating is deposited in a thickness that is generally less than the depth of said crack.

16. The method as set forth in claim 12, wherein a thickness of said nickel plating is less than or equal to about 0.0002 inch (0.000508 cm).

17. The method as set forth in claim 1, wherein said nickel plating being deposited in a thickness less than or equal to about 0.0002 inch (0.000508 cm).

CLAIMS

1. A method of treating a nickel alloy surface comprising the steps of:

a) plating a nickel alloy surface with a plating material including at least some nickel for a thickness greater than or equal to 0.0001 inch (.000254 cm) and less than 0.0005 inch (0.00127 cm);

b) then exposing said nickel alloy surface to a fluoride ion cleaning to remove impurities on the surface, and leaving at least some of said plating material; and

c) said nickel alloy surface including at least one of aluminum and titanium, said fluoride ion cleaning being hydrogen fluoride ion cleaning, said nickel alloy surface being part of a component having a crack with oxides to be cleaned by said hydrogen fluoride ion cleaning, said component having internal cavities, and an inner wall spaced inwardly from an outer wall, and said crack being in said inner wall, and the plating step (a) is done on said inner wall.

2. The method as set forth in claim 1, wherein said component has an airfoil.

3. The method as set forth in claim 2, wherein said component is a gas turbine engine component.

4. The method as set forth in claim 1, wherein said nickel plating is deposited in a thickness that is generally less than a depth of said crack.

5. The method as set forth in claim 1, wherein said crack is repaired after said fluoride ion cleaning.

6. The method as set forth in claim 1, wherein the plating is done with an electroless plating technique.

7. The method as set forth in claim 6, wherein said plating is provided by a nickel alloy.

8. The method as set forth in claim 6, wherein said crack extends from said inner wall to said outer wall, and the plating of step (a) is done on both said outer wall and said inner wall.

9. The method as set forth in claim 1, wherein the thickness of said nickel plating is less than or equal to about 0.0002 inch (0.000508 cm).

10. The method as set forth in claim 1, wherein said plating is deposited in a thickness that is generally less than the depth of said crack.

11. The method as set forth in claim 10, wherein the thickness of said plating is less than or equal to about 0.0002 inch (0.000508 cm).

12. A method of repair comprising the steps of:

a) plating a nickel alloy component that has a crack to be repaired with a plating material including at least some nickel, the plating being greater than or equal to about 0.0001 inch (0.000254 cm) and less than 0.0005 inch (0.00127 cm) thick;

b) exposing said component to a fluoride ion cleaning to remove impurities in the crack, and leaving at least some of said plating;

c) repairing the crack in the component; and

d) wherein said nickel plating is deposited in a thickness that is generally less than the depth of said crack.

13. The method as set forth in claim 12, wherein said component has internal cavities, and an inner wall spaced inwardly from an outer wall, and said crack is in said inner wall, and the plating of step (a) is done on said inner wall with electroless plating technique.

14. The method as set forth in claim 13, wherein said plating is provided by a nickel alloy.

15. The method as set forth in claim 12, wherein said nickel plating is deposited in a thickness that is generally less than the depth of said crack;

wherein the thickness of said nickel plating is less than or equal to about 0.0002 inch (0.000508 cm).

16. The method as set forth in claim 1, wherein said nickel plating being deposited in a thickness less than or equal to about 0.0002 inch (0.000508 cm).