CLAIMS

1. An apparatus for the treatment of a component using a fluidised bed of powder fluidised by a gas flow, the apparatus including:
a treatment chamber (100) for receiving at least a treatment part of the component and for containing the fluidised bed;
a fluidising gas inlet (108) for providing fluidising gas to the treatment chamber;
a fluidising gas outlet (112) for removing used fluidising gas from the treatment chamber;
a powder screen (104) located between the treatment chamber and the fluidising gas outlet, the powder screen operable substantially to prevent loss of powder from the fluidising bed entrained in the fluidising gas removed from the treatment chamber.

2. An apparatus according to claim 1 wherein the fluidising gas inlet is supplied with fluidising gas via a fluidising gas inlet conduit (106), the fluidising gas inlet conduit being connected to a source (116) of pressurised fluidising gas and the treatment chamber being moveable with respect to the source of pressurised fluidising gas.

3. An apparatus according to claim 1 or claim 2 wherein a distribution unit is located between the fluidising gas inlet and the treatment chamber, the distribution unit being provided in order to distribute the incoming fluidising gas in order to generate the required fluidised bed.

4. An apparatus according to any one of claims 1 to 3 wherein the footprint area of the powder screen is greater than the footprint area of the distribution unit.

5. An apparatus according to any one of claims 1 to 4 wherein the treatment chamber includes more than one fluidising gas inlet.

6. An apparatus according to any one of claims 1 to 5 wherein the apparatus includes more than one treatment chamber (100, 200), each treatment chamber for use to treat different treatment parts of the same or different components.

7. An apparatus according to any one of claims 1 to 6 wherein the treatment to be applied to the component is a thermal treatment, and the fluidised bed is heated or cooled by heating/cooling means provided in contact with the treatment chamber.

8. An apparatus according to any one of claims 1 to 6 wherein the fluidising gas is heated or cooled by fluidising gas heating/cooling means located remote from the treatment chamber, the treatment chamber being movable with respect to said fluidising gas heating/cooling means.

9. An apparatus according to any one of claims 1 to 8 wherein the apparatus is adapted to allow at least one treatment part of the component to be placed in the fluidised bed and at least one non-treatment part of the component to be located substantially outside the chamber and out of contact with the fluidised bed, wherein in use the boundary between the treatment part and the non-treatment part of the component is defined by a boundary containment surface at a fixed location with respect to the component.

10. An apparatus according to claim 9 wherein the boundary containment surface includes at least one seal member (47, 48) to seal between the component and the treatment chamber.

11. A process for the treatment of a component using a fluidised bed of powder fluidised by a gas flow, wherein the fluidised bed is formed in a treatment chamber and in contact with at least a treatment part of the component, the fluidised bed formed using a fluidising gas flowing into the treatment chamber from an inlet, fluidising gas being removed from the treatment chamber via a fluidising gas outlet, wherein a powder screen is located between the treatment chamber and the fluidising gas outlet, the powder screen operating substantially to prevent loss of powder from the fluidising bed entrained in the fluidising gas removed from the treatment chamber.

12. A process according to claim 11 wherein fluidising gas is recycled, the fluidising gas outlet being in communication with a fluidising gas outlet conduit (110).

13. A process according to claim 12 wherein the fluidising gas outlet conduit is in communication with a fluidising gas reservoir, the fluidising gas in the reservoir being subjected to a heat exchange process in order to recover thermal energy from the fluidising gas.

CLAIMS

1. An apparatus for the treatment of a treatment part of a component using a fluidised bed of powder fluidised by a gas flow, the component having a treatment part and a non-treatment part, the apparatus including:
a treatment chamber for receiving a treatment part of the component and for containing the fluidised bed;
a fluidising gas inlet for providing fluidising gas to the treatment chamber;
a fluidising gas outlet for removing used fluidising gas from the treatment chamber;
a powder screen located between the treatment chamber and the fluidising gas outlet, the powder screen operable substantially to prevent loss of powder from the fluidising bed entrained in the fluidising gas removed from the treatment chamber;
wherein the fluidising gas inlet is supplied with fluidising gas via a fluidising gas inlet conduit, the fluidising gas inlet conduit being connected to a source of pressurised fluidising gas and the treatment chamber being moveable with respect to the source of pressurised fluidising gas.

2. An apparatus according to claim 1, wherein a distribution unit is located between the fluidising gas inlet and the treatment chamber, the distribution unit being provided in order to distribute the incoming fluidising gas in order to generate the required fluidised bed.

3. An apparatus according to claim 2 wherein the distribution unit is provided in the form of a distribution plate and the area of the powder screen is larger than the area of the distribution plate.

4. An apparatus according to any one of claims 1 to 3 wherein the treatment chamber includes more than one fluidising gas inlet.

5. An apparatus according to any one of claims 1 to 4 wherein the apparatus includes more than one treatment chamber, each treatment chamber for use to treat different treatment parts of the same or different components.

6. An apparatus according to any one of claims 1 to 5 wherein the treatment to be applied to the component is a thermal treatment, and the fluidised bed is heated or cooled by heating/cooling means provided in contact with the treatment chamber.

7. An apparatus according to any one of claims 1 to 5 wherein the fluidising gas is heated or cooled by fluidising gas heating/cooling means located remote from the treatment chamber.

8. A process of treatment of a treatment part of a component, the component having a treatment part and a non-treatment part, the process using a fluidised bed of powder fluidised by a gas flow, wherein the fluidised bed is formed in a treatment chamber and in contact with a treatment part of the component, the fluidised bed formed using a fluidising gas flowing into the treatment chamber from an inlet, fluidising gas being removed from the treatment chamber via a fluidising gas outlet, wherein a powder screen is located between the treatment chamber and the fluidising gas outlet, the powder screen operating substantially to prevent loss of powder from the fluidising bed entrained in the fluidising gas removed from the treatment chamber, and wherein the fluidising gas inlet is supplied with fluidising gas via a fluidising gas inlet conduit, the fluidising gas inlet conduit being connected to a source of pressurised fluidising gas and the

treatment chamber being moveable with respect to the source of the pressurised fluidising gas.

9. A process according to claim 8 wherein fluidising gas is recycled, the fluidising gas outlet being in communication with a fluidising gas outlet conduit.

10. A process according to claim 9 wherein the fluidising gas outlet conduit is in communication with a fluidising gas reservoir, the fluidising gas in the reservoir being subjected to a heat exchange process in order to recover thermal energy from the fluidising gas.