

## **ABSTRACT**

### **A METHOD OF REPAIRING A METAL COMPONENT**

The present invention discloses a method of repairing a metal component, comprising the steps of identifying a repair surface area on the metal component, preparing the repair surface area for a cold gas dynamic spraying process by one or more of the following treatments: grinding, machining and cleaning. It further includes configuring a cold gas dynamic spraying device to cold spray a powdered material onto the repair surface area of the metal component, wherein the cold gas dynamic spraying device comprises a powder feeder for receiving a powdered repair material, a gas supply for supplying a carrier gas to a gas heater and a nozzle assembly through a gas flow controller, wherein the steps of configuring include: (i) providing the carrier gas to the gas supply, (ii) setting a predetermined pressure on the gas flow controller to be applied to the carrier gas, (iii) setting a predetermined temperature on the gas heater to be applied to the pressurized carrier gas and the powdered repair material; and (iv) adjusting a stand-off distance to a predetermined distance from the nozzle assembly to the repair surface area. The final step involves cold spraying the powdered material onto the repair surface area with the cold gas dynamic spraying device to form a coating defined by a predetermined thickness and a predetermined dimension to cover the repair surface area.

**FIG. 2**