

## ABSTRACT OF THE DISCLOSURE

A process for heating a braze alloy by microwave radiation (26) so that heating of the alloy is selective and sufficient to cause complete melting of the alloy and permit metallurgical bonding to a substrate (14) on which the alloy is melted, but without excessively heating the substrate (14) so as not to degrade the properties of the substrate (14). The process entails providing metallic powder particles (12) having essentially the same metallic composition, with at least some of the particles (12) being sufficiently small to be highly susceptible to microwave radiation (26). A mass (10) of the particles (12) is then applied to a surface of a substrate (14), after which the mass (10) is subjected to microwave radiation (26) so that the particles (12) within the mass (10) couple with the microwave radiation (26) and sufficiently melt to metallurgically bond to the substrate (14). The microwave radiation (26) is then interrupted and the mass (10) is allowed to cool, solidify, and form a solid brazement.

Figure 1.