

ABSTRACT
SELECTIVE LASER SINTERING
APPARATUS WITH RADIANT HEATING

A radiant heater (30), and an apparatus for performing selective laser sintering using the same, are disclosed. The radiant heater (30) is ring-shaped with its dimensions and distance from the target surface preferably defined to provide radiant energy to a target surface (4), with the rate of energy received per unit area of the target surface (4) being substantially uniform. A frusto-conical ring-shaped radiant heater (40) is also disclosed, which may be disposed closer to the surface (4) to provide improved efficiency of heat transfer in a uniform fashion. A cooling element similarly shaped is also disclosed, which operates in the same manner to uniformly transfer radiant heat from the target surface (4). Zoning of the ring-shaped radiant heaters (30), to allow for non-uniform radiant energy emission to the target surface, is also disclosed. Monitoring of the temperature of the target surface (4) is done by way of infrared sensors (30). For monitoring of cool temperatures, a second infrared sensor (36) is directed at the radiant heater, so that compensation for reflection of the radiant heat from the surface (4) may be accomplished.

FIGURE 9.