

METHOD FOR MANUFACTURING A PART BY MELTING POWDER, THE
POWDER PARTICLES REACHING THE BATH IN A COLD STATE

A B S T R A C T

5 The invention relates to a method of fabricating a
part, the method comprising the following steps:

 a) supplying a material in the form of powder
particles (60);

 b) heating a first quantity of said powder to a
10 temperature higher than the melting temperature T_F of the
powder with the help of a high energy beam (95), and
forming, at the surface of a support (80), a first pool
comprising the melted powder and a portion of the support
(80);

15 c) likewise heating a second quantity of said
powder, and forming, at the surface of the support (80),
a second pool comprising the melted powder downstream
from the first pool;

 d) repeating step c) until a first layer (10) of
20 said part is formed on said support (80);

 e) likewise heating an $[n]^{th}$ quantity of said powder,
and forming an $[n]^{th}$ pool comprising in part the melted
powder above a portion of said first layer (10);

 f) likewise heating an $[n+1]^{th}$ quantity of said
25 powder, and forming an $[n+1]^{th}$ pool comprising in part the
melted powder downstream from said $[n]^{th}$ pool above a
portion of the first layer (10);

 g) repeating step f) so as to form a second layer
(20) of said part above said first layer (10); and

30 h) repeating steps e) to g) for each layer situated
above an already-formed layer until the part is
substantially in its final shape.

 The powder particles (60) reaching each of the pools
at a temperature well below the pool temperature.

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Figure 1