

CLAIMS:

1. A method for fabricating an object with a computer-controlled apparatus, the method comprising the steps of:

moving the apparatus and fabricating a first bead on a first notional plane; and

moving the apparatus and fabricating a second bead on a second notional plane intersecting the first notional plane, at least a portion of the second bead abutting and arranged at an angle between 1-179° to at least a portion of the first bead.
2. The method for fabricating an object according to claim 1, wherein the step of fabricating the second bead further comprises fabricating the second bead on the second notional plane orientated substantially perpendicularly to the first notional plane.
3. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the first bead and the second bead further comprises the respective notional plane being curved, and the respective bead being fabricated on the respective curved notional plane.
4. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the first bead and the second bead further comprises the respective notional plane being a three-dimensional surface, and the respective bead being fabricated on the respective three-dimensional surface.
5. The method for fabricating an object according to claim 1, wherein the step of fabricating the first bead and the step of fabricating the second beads further comprises selectively depositing material, thereby forming the respective bead.

6. The method for fabricating an object according to claim 5, wherein the step of selectively depositing material further comprises selectively adding reinforcement fibres to the material.
7. The method for fabricating an object according to claim 1, wherein the apparatus is arranged relative to a base surface and wherein the step of fabricating at least one of the first bead and the second bead further comprises fabricating the bead along a notional path arranged on the respective notional plane, the notional path having at least a portion extending away from the base surface.
8. A method for fabricating an object with a computer-controlled additive manufacturing apparatus, the method comprising the steps of:

moving the apparatus and fabricating at least one first bead to form a first non-planar layer; and

moving the apparatus and fabricating at least one second bead to form a second non-planar layer at least partially enclosing the first non-planar layer, at least a portion of the at least one second bead abutting and arranged at an angle between $1-179^{\circ}$ to at least a portion of the at least one first bead.
9. The method for fabricating an object according to claim 8, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead to form a core of the object, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead to form a shell of the object at least partially enclosing the core.
10. The method for fabricating an object according to claim 8, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead along a first trajectory, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead along a second trajectory being different to the first trajectory.

11. The method for fabricating an object according to claim 10, wherein the step of fabricating the at least one second bead further comprises the second trajectory being arranged substantially perpendicular to the first trajectory.
12. The method for fabricating an object according to claim 10, wherein the step of fabricating the at least one second bead further comprises the second trajectory being arranged in a different plane to the first trajectory.
13. The method for fabricating an object according to claim 8, wherein the apparatus is arranged relative to a surface, and the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead along a notional path having at least a portion extending away from the surface.
14. The method for fabricating an object according to claim 7, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead having at least a portion which is unsupported.
15. The method for fabricating an object according to claim 8, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having double curvature.
16. The method for fabricating an object according to claim 8, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having faceted surfaces.
17. A method for fabricating an object with a computer-controlled apparatus, the method comprising the steps of:

moving the apparatus and fabricating a first bead having an unsupported portion; and

moving the apparatus and fabricating a second bead having an unsupported portion, at least a portion of the second bead abutting and arranged at an angle between 1-179° to at least a portion of the first bead.

18. The method for fabricating an object according to claim 17, wherein the step of fabricating the first bead further comprises fabricating a plurality of first beads each having an unsupported portion, and wherein the step of fabricating the second bead further comprises fabricating the at least a portion of the second bead abutting and arranged at an angle between 1-179° to at least some of the first beads.
19. The method for fabricating an object according to claim 17, wherein the apparatus is arranged relative to a base surface and wherein the step of fabricating at least one of the plurality of first beads and the second bead further comprises fabricating the respective bead along a notional path having at least a portion extending away from the base surface.
20. A method for fabricating an object with a computer-controlled apparatus, the method comprising the steps of:

moving the apparatus and fabricating at least one first curved bead to form a first planar layer; and

moving the apparatus and fabricating a plurality of second curved beads to form a second planar layer, at least a portion of one of the plurality of second curved beads abutting and arranged at an angle between 1-179° to at least a portion of the at least one first curved bead, and at least one of the plurality of second curved beads fabricated to be non-parallel to an adjacent second curved bead

21. The method for fabricating an object according to claim 20, wherein the step of fabricating the plurality of second curved beads further comprises fabricating the at least one of the plurality of second curved beads to be spaced apart from the adjacent second curved bead.

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CLAIMS:

1. A method for fabricating an object with a computer-controlled additive manufacturing apparatus, the method comprising the steps of:

moving the apparatus and fabricating at least one first bead to form a first non-planar layer; and

moving the apparatus and fabricating at least one second bead to form a second non-planar layer at least partially enclosing the first non-planar layer, at least a portion of the at least one second bead abutting and arranged at an angle between 1-179° to at least a portion of the at least one first bead.
2. The method for fabricating an object according to claim 1, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead to form a core of the object, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead to form a shell of the object at least partially enclosing the core.
3. The method for fabricating an object according to claim 1, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead along a first trajectory, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead along a second trajectory being different to the first trajectory.
4. The method for fabricating an object according to claim 3, wherein the step of fabricating the at least one second bead further comprises the second trajectory being arranged substantially perpendicular to the first trajectory.
5. The method for fabricating an object according to claim 3, wherein the step of fabricating the at least one second bead further comprises the

second trajectory being arranged in a different plane to the first trajectory.

6. The method for fabricating an object according to claim 1, wherein the apparatus is arranged relative to a surface, and the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead along a notional path having at least a portion extending away from the surface.
7. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having double curvature.
8. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having faceted surfaces.

CLAIMS:

1. A method for fabricating an object with a computer-controlled additive manufacturing apparatus, the method comprising the steps of:

moving the apparatus and fabricating at least one first bead to form a first non-planar layer; and

moving the apparatus and fabricating at least one second bead to form a second non-planar layer at least partially enclosing the first non-planar layer, at least a portion of the at least one second bead abutting and arranged at an angle between 1-179° to at least a portion of the at least one first bead.
2. The method for fabricating an object according to claim 1, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead to form a core of the object, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead to form a shell of the object at least partially enclosing the core.
3. The method for fabricating an object according to claim 1, wherein the step of fabricating the at least one first bead further comprises fabricating the at least one first bead along a first trajectory, and the step of fabricating the at least one second bead further comprises fabricating the at least one second bead along a second trajectory being different to the first trajectory.
4. The method for fabricating an object according to claim 3, wherein the step of fabricating the at least one second bead further comprises the second trajectory being arranged substantially perpendicular to the first trajectory.
5. The method for fabricating an object according to claim 3, wherein the step of fabricating the at least one second bead further comprises the

second trajectory being arranged in a different plane to the first trajectory.

6. The method for fabricating an object according to claim 1, wherein the apparatus is arranged relative to a surface, and the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead along a notional path having at least a portion extending away from the surface.
7. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having double curvature.
8. The method for fabricating an object according to claim 1, wherein the step of fabricating at least one of the at least one first bead and the at least one second bead further comprises fabricating the at least one respective bead to form at least a portion of the respective layer having faceted surfaces.