CLAIMS

What is claimed is:

1. A method of making a three-dimensional object, the method comprising:
    a) positioning a nozzle within a carbomer gel inside a container of carbomer gel;
    b) changing the position of the nozzle within the carbomer gel while depositing solidifying material through the nozzle, whereby the carbomer gel supports the solidifying material at the position at which the solidifying material is deposited; and
    c) solidifying the solidifying material to form a solid material, the solid material being a three-dimensional object.

2. The method of Claim 1, wherein the nozzle is affixed to a multi-axis machine, and wherein changing the position of the nozzle through the carbomer gel comprises moving one or more axes of the multi-axis machine to which the nozzle is affixed.

3. The method of Claim 1 or 2, wherein depositing the solidifying material through the nozzle further comprises varying a rate at which the solidifying material is deposited.

4. The method of Claim 1 or 2, wherein changing the position of the nozzle within the carbomer gel further comprises changing the position of the nozzle at varying speeds.

5. The method of Claim 1 or 2, wherein changing the position of the nozzle within the carbomer gel comprises changing a position of the container of carbomer gel.

6. The method of Claim 1 or 2, wherein solidifying the solidifying material comprises exposing the solidifying material to light or heat.

7. The method of Claim 1 or 2, wherein solidifying the solidifying material comprises allowing the solidifying material to cool.

8. The method of Claim 1 or 2, wherein solidifying the solidifying material comprises exposing the solidifying material to light while depositing the solidifying material through the nozzle.

9. The method of Claim 1 or 2, wherein the solidifying material is a polymer, a rubber, a pulp, a foam, a metal, a concrete, or an epoxy resin.

10. The method of Claim 9, wherein the rubber is a silicone rubber.

11. The method of Claim 1 or 2, wherein the solidifying material has a hardness between about Shore 00-10 and about Shore 90D when solidified.

12. The method of Claim 1 or 2, wherein the solidifying material is a foam.

13. The method of Claim 12, wherein the solidified foam has a density of about 3 lb/ft^3 to about 30 lb/ft^3.

14. The method of Claim 1 or 2, wherein the carbomer gel is a suspension.

15. The method of Claim 1 or 2, wherein the carbomer gel has a viscosity between about 20000 centipoise and about 50000 centipoise.

16. The method of Claim 1 or 2, wherein the nozzle has a circular-shaped, rectangular-shaped, square-shaped, diamond-shaped, V-shaped, U-shaped, or C-shaped tip through which the solidifying material is deposited.

17. The method of Claim 1 or 2, wherein the solidifying material comprises two compounds that co-polymerize, and wherein solidifying the solidifying-material comprises allowing the two compounds to co-polymerize.

18. The method of Claim 1 or 2, wherein the nozzle further comprises a mixing portion that mixes the two compounds as they are deposited through the nozzle.

19. The method of Claim 1 or 2, wherein changing the position of the nozzle comprises changing the position of the nozzle within the carbomer gel in three through eight axes simultaneously, for at least a portion of time.

20. The method of Claim 1 or 2, wherein changing the position of the nozzle comprises changing the position of the nozzle within the carbomer gel in five through eight axes simultaneously, for at least a portion of time.

21. The method of Claim 1 or 2, wherein changing the position of the nozzle comprises changing the position of the nozzle within the carbomer gel in three through six axes simultaneously, for at least a portion of time.

22. The method of Claim 1 or 2, wherein changing the position of the nozzle comprises changing the position of the nozzle within the carbomer gel in six axes simultaneously, for at least a portion of time.

23. The method of Claim 1 or 2, wherein changing the position of the nozzle comprises changing the position of the nozzle to deposit solidifying material onto, around, or within another object within the carbomer gel.

24. The method of Claim 1 or 2, wherein the nozzle is a first nozzle, the solidifying material is a first solidifying material, and the solid material is a first solid material, the method further comprising:
    a) positioning a second nozzle within the carbomer gel inside the container of carbomer gel;
    b) changing the position of the second nozzle within the carbomer gel while depositing a second solidifying material through the second nozzle, whereby the carbomer gel supports the second solidifying material at the position at which the second solidifying material is

deposited, and whereby depositing the first and second solidifying materials is performed so that the first and second materials contact each other in deposited state; and

c) solidifying the second solidifying material to form a second solid material, whereby the first and second solid materials are joined together as the three-dimensional object.

25. The method of Claim 24, wherein the first and second nozzles have tips with different shapes.

26. The method of Claim 24, wherein the first and second solidifying materials are different.

27. An apparatus for making a three-dimensional object, the apparatus comprising:

a) a nozzle affixed to a multi-axis machine;

b) a means for extruding a solidifying material through the nozzle; and

c) a container of carbomer gel.