

**THE UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA**

STRATASYS INC.,)	
)	
)	
Plaintiff,)	
)	Case No.: 13-CV-03228 (DWF/JJG)
v.)	
)	DEFENDANT MICROBOARDS
MICROBOARDS TECHNOLOGY, LLC)	TECHNOLOGY, LLC d/b/a AFINIA’S
d/b/a AFINIA,)	AMENDED ANSWER TO PLAINTIFF’S
)	COMPLAINT FOR PATENT
Defendant.)	INFRINGEMENT; AFFIRMATIVE
)	DEFENSES; COUNTERCLAIMS; AND
)	DEMAND FOR JURY TRIAL
_____)	

NOW COMES the Defendant and Counterclaimant, Microboards Technology, LLC d/b/a Afinia (“Afinia”), by and through their undersigned counsel, and for its amended answer, affirmative defenses and counterclaims, alleges as follows:

PARTIES

1. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph one of the Plaintiff’s Complaint and calls upon Plaintiff to prove same.
2. Admitted.

JURISDICTION AND VENUE

3. Admitted.
4. Admitted.
5. Afinia admits it transacts business in the jurisdiction. Afinia denies the remaining allegations contained in Paragraph 5 of the Plaintiff’s Complaint.
6. Admitted.

7. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph seven of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

8. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph eight of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

9. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph nine of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

10. Admitted in part. Afinia admits that Stratasys, Inc. ("Stratasys") has merged with an entity known as Objet, and that an entity known as MakerBot Industries is also affiliated with Stratasys. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph ten of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

11. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph eleven of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

12. Admitted in part. Afinia admits that the Afinia H-Series 3D Printer is manufactured by the same manufacturer as the UP! 3D Printer. Afinia admits it sells the Afinia H-Series 3D Printer and distributes, markets, and instructs and supports its customers with respect to the Afinia H-Series 3D Printer. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph twelve of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

13. Afinia admits that U.S. Patent No. 5,653,925 ("the '925 patent") on its face is entitled "METHOD FOR CONTROLLED POROSITY THREE-DIMENSIONAL MODELING," issued on August 5, 1997, and that a copy is attached as Exhibit A to the Complaint. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph thirteen of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

14. Afinia admits that U.S. Patent No. 5,866,058 (“the ‘058 patent”) on its face is entitled “METHOD FOR RAPID PROTOTYPING OF SOLID MODELS,” issued on February 2, 1999, and that a copy is attached as Exhibit B to the Complaint. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph fourteen of the Plaintiff’s Complaint and calls upon Plaintiff to prove same.

15. Afinia admits that U.S. Patent No. 6,004,124 (“the ‘124 patent”) on its face is entitled “THIN-WALL TUBE LIQUIFIER,” issued on December 21, 1999, and that a copy is attached as Exhibit C to the Complaint. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph fifteen of the Plaintiff’s Complaint and calls upon Plaintiff to prove same.

16. Afinia admits that U.S. Patent No. 8,349,239 (“the ‘239 patent”) on its face is entitled “SEAM CONCEALMENT FOR THREE-DIMENSIONAL MODELS,” issued on January 8, 2013, and that a copy is attached as Exhibit D to the Complaint. Afinia is without information sufficient to form a belief as to the truth of the remaining allegations in paragraph sixteen of the Plaintiff’s Complaint and calls upon Plaintiff to prove same.

17. Admitted.

18. Admitted in part. Afinia admits the Afinia H-Series creates 3D objects, uses a thermoplastic filament contained on a spool, and includes an extruder and nozzle. Afinia admits Exhibit E is a copy of a portion of its manual. Afinia denies the remaining allegations in paragraph 18 of the Plaintiff’s Complaint.

19. Admitted.

20. Admitted.

21. Afinia admits that Exhibit G purports to be a copy of an *Executive Interview* given by Mitch Ackmann in 3D Printing Industry published on or about August 28, 2013. Afinia denies the remaining allegations set forth in paragraph twenty-one of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

**COUNT I
INFRINGEMENT OF THE '925 PATENT**

22. Afinia repeats and realleges its responses to the allegations of paragraphs 1 through 21 of the Plaintiff's Complaint as if fully set forth herein.

23. Afinia denies Plaintiff's characterization of the '925 patent. Further answering, Afinia states that the '925 patent is a document that speaks for itself.

24. Denied.

25. Denied.

26. Denied

27. Denied.

28. Denied.

29. Denied.

30. Denied.

31. Denied.

32. Denied.

**COUNT II
INFRINGEMENT OF THE '058 PATENT**

33. Afinia repeats and realleges its responses to the allegations of the paragraphs 1 through 32 of the Plaintiff's Complaint as if fully set forth herein.

34. Afinia denies Plaintiff's characterization of the '058 patent. Further answering, Afinia states that the '058 patent is a document that speaks for itself.

35. Denied.

36. Denied.

37. Denied.

38. Afinia admits that the cited statements are present in the User Manual for the Afinia H-Series 3D Printer. Afinia denies these statements are related to, indicate and/or otherwise bear upon any allegation of infringement.

39. Afinia admits that the cited statements are present in the User Manual for the Afinia H-Series 3D Printer. Afinia denies these statements are related to, indicate and/or otherwise bear upon any allegation of infringement.

40. Afinia admits that the cited statements are present in the User Manual for the Afinia H-Series 3D Printer. Afinia denies these statements are related to, indicate and/or otherwise bear upon any allegation of infringement.

41. Denied.

42. Denied.

43. Denied.

44. Denied.

45. Denied.

46. Denied.

**COUNT III
INFRINGEMENT OF THE '124 PATENT**

47. Afinia repeats and realleges its responses to the allegations of the paragraphs 1 through 46 of the Plaintiff's Complaint as if fully set forth herein.

48. Afinia denies Plaintiff's characterization of the '124 patent. Further answering, Afinia states that the '124 patent is a document that speaks for itself.

49. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph forty-nine of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

50. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph fifty of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

51. Denied.

52. Denied.

53. Denied.

54. Denied.

55. Denied.

**COUNT IV
INFRINGEMENT OF THE '239 PATENT**

56. Afinia repeats and realleges its responses to the allegations of the paragraphs 1 through 55 of the Plaintiff's Complaint as if fully set forth herein.

57. Afinia denies Plaintiff's characterization of the '239 patent. Further answering, Afinia states that the '239 patent is a document that speaks for itself.

58. Afinia is without information sufficient to form a belief as to the truth of the allegations in paragraph fifty-eight of the Plaintiff's Complaint and calls upon Plaintiff to prove same.

59. Denied.

60. Denied.

61. Denied.

62. Afinia admits that the cited statements are present in the User Manual for the Afinia H-Series 3D Printer. Afinia denies these statements are related to, indicate and/or otherwise bear upon any allegation of infringement.

63. Denied.

64. Denied.

65. Denied.

66. Denied.

AFFIRMATIVE DEFENSES

FIRST AFFIRMATIVE DEFENSE

67. Plaintiff's Complaint fails to state a claim upon which relief may be granted.

SECOND AFFIRMATIVE DEFENSE

68. Afinia has not engaged in any acts that would constitute infringement of any valid and enforceable patent-in-suit.

THIRD AFFIRMATIVE DEFENSE

69. The patents-in-suit are invalid for failure to comply with the statutory provisions for patentability and validity set forth in Title 35 of the United States Code, including one or more of 35 U.S.C. §§ 101, 102, 103, 112, 115, 116 and 256, for the following reasons:

a. The alleged inventions were known or used by others in this country, or patented or described in a printed publication in this or a foreign country, more than one year prior to the date of the application for a patent in the United States;

b. The alleged inventions were known or used by others in this country, or patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;

- c. The alleged inventions were described in a patent granted on an application for a patent by another filed in the United States before the invention thereof by the alleged patentees, or on an international application by another which complied with the requisite statutes;
- d. The patentees did not themselves invent the subject matter sought to be patented;
- e. Before the alleged inventions by the patentees the alleged inventions were made in this country by another who had not abandoned, suppressed or concealed it;
- f. The alleged inventions were obvious at the time of the invention to a person having ordinary skill in the art;
- g. The specifications of the patents do not comply with the requirements set forth in 35 U.S.C. §112, including but not limited to the enablement requirement;
- h. The patents do not particularly point out and distinctly claim the invention; and
- i. One or more of the correct inventors were not named on the asserted patents.

FOURTH AFFIRMATIVE DEFENSE

70. Plaintiff is estopped from asserting a scope for the claims of the asserted patents-in-suit that would cover any product made, used, sold and/or offered for sale by Afinia by representations, arguments, and/or amendments made during prosecution of the asserted patent before the PTO.

FIFTH AFFIRMATIVE DEFENSE

71. Plaintiff is not entitled to any relief or recovery by reason of its coming into this Court with unclean hands in seeking to enforce a patent that Plaintiff knew on information and belief to be invalid, unenforceable, and/or not infringed.

SIXTH AFFIRMATIVE DEFENSE

72. Plaintiff is not entitled to any equitable relief or recovery because it has a full, complete and adequate remedy at law.

SEVENTH AFFIRMATIVE DEFENSE

73. Plaintiff is not entitled to any equitable relief or recovery because it has unclean hands.

EIGHTH AFFIRMATIVE DEFENSE
(Patent Misuse '925 Patent)

74. At all times relevant hereto, Afinia offers additive manufacturing solutions that are well-suited to educational institutions, price conscientious consumers, small industry, and individuals interested in scientific research and development associated with additive manufacturing technology.

75. At all times relevant hereto, Afinia has received numerous awards for its innovative styled Afinia H-Series 3D Printer.

76. At all times relevant hereto, Plaintiff maintains and holds market power in the market for additive manufacturing systems, including equipment, materials, services, software and consumables.

77. At all times relevant hereto, Plaintiff held the largest number of unit sales among manufacturers of industrial additive manufacturing systems in 2012.

78. At all times relevant hereto, by 2012, Stratasys had sold approximately 21,000 units in the market for industrial additive manufacturing systems, in comparison to Z-Corporation, which sold approximately 7000 units in 2012, and 3D Systems, which sold 6880 units in 2012.

79. At all times relevant hereto, Plaintiff held in excess of thirty five percent (35%) of the entire market share for the sale of industrial additive manufacturing systems in 2012.

80. At all times relevant hereto, for the year 2012, the next largest competitors in the industrial additive manufacturing systems were 3D Systems (17.5%) and Objet (14.5%).

81. According to its Annual Report for the year ending 2012, Plaintiff is “the leading global provider of additive manufacturing, or AM solutions.”

82. With respect to its merger with an entity known as Objet, Plaintiff has stated in its 2012 Annual report:

Our combined marketing and sales capabilities, featuring more than 260 resellers and independent sales agent entities around the world, also provide us with extensive geographic reach. That, together with the broader range of products offering complementary functionality the combined company can offer, should, we believe, create opportunities to cross-sell new product lines into our combined installed base and to expand our access to new customers across multiple industries.

83. As a result of the merger between Stratasys and Objet, Stratasys now holds approximately 50% of the market for industrial additive manufacturing systems.

84. At all times relevant hereto, the industrial additive manufacturing systems is an important market for the U.S. economy. The U.S. government has sponsored the National Additive Manufacturing Innovation Institute (NAMII) as a public-private partnership with member organizations from industry, academia, government, and workforce development resources all collaborating with a singular, shared vision to transition additive manufacturing technology to the mainstream U.S. manufacturing sector.

85. At all times relevant hereto, on information and belief, Stratasys is able to set price for the market of consumables used in the industrial additive manufacturing systems, such as ABS plastics, due to its market share.

86. At all times relevant hereto, on information and belief, as part of the purchase and sale of any product from Stratasys, the purchaser is required to accept a License of terms and conditions. Attached hereto as Exhibit A is a copy of the License (terms and conditions) (hereinafter “License”).

87. According to the terms, the purchaser is required to grant certain rights to Stratasys:

8.2. Customer hereby grants to Stratasys a fully paid-up, royalty-free, worldwide, non-exclusive, irrevocable, transferable right and license in, under, and to any patents and copyrights enforceable in any country, issued to, obtained by, developed by or acquired by Customer that are directed to 3D printing equipment, the use or functionality of 3D printing equipment, and/or compositions used or created during the functioning of 3D printing equipment (including any combination of resins, such as combinations relating to multi-resin mixing, color dithering or geometrical resin-mixture structure of the resin) that is developed using the Products and that incorporates, is derived from and/or improves upon the Intellectual Property and/or trade secrets of Stratasys. Such license shall also extend to Stratasys' customers, licensors and other authorized users of Stratasys products in connection with their use of Stratasys products. - See more at:

<http://www.stratasys.com/legal/terms-and-conditions-of-sale#sthash.BT3eV6jh.dpuf>

88. At all times relevant hereto, the required License is a contract of adhesion.

89. At all times relevant hereto, the required License violates the rule of reason of such grant back provisions, as the license back is not limited in scope of time, and purports to cover, for example, innovation of expired patents.

90. At all times relevant hereto, the required License violates the rule of reason of such grant back provisions, as the license back is not limited in geographic scope, and purports to cover patent rights for a third party's invention, such as in another country where Stratasys has no patents, where it is lawfully developed, and later acquired by a Stratasys licensee.

91. At all times relevant hereto, the required License forces a Stratasys customer that develops or acquires a new invention to share it with Stratasys and approximately fifty percent (50%) of the additive manufacturing market, regardless of whether the innovation was based on an expired patent.

92. At all times relevant hereto, the required License forces a Stratasys customer that innovates a new invention to share it with Stratasys and approximately fifty percent (50%) of the additive manufacturing market, regardless of whether the innovation was acquired from a foreign country where Stratasys does not maintain patent protection.

93. At all times relevant hereto, the required License adversely impacts the incentives of Stratasys' customers to develop or acquire innovations in the additive industrial market.

94. At all times relevant hereto, during the prosecution of the '925 patent, the claims were initially rejected over prior art patents to Cima, *et al.*, including but not limited to, U.S. Patent Nos. 5,490,962, and 5,518,680.

95. During the prosecution of the '925 patent, in an Office Action dated August 16, 1996, all claims were rejected by the Examiner:

Cima I and Cima II teach a process of making a three dimensional article having a predetermined porosity substantially as set forth in the instant claims, **except for explicitly teaching the aspect of adjusting the rate of dispensing-of the material to provide a predetermined porosity in the article.** This aspect would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of either Cima I or Cima II principally because Cima I (col. 11, lines 17-21) and Cima II (col. 11, lines 1-7) teach that porosity is controlled by where the features are placed, which is a function of how the material is deposited. [Emphasis added.]

96. During the prosecution of the '925 patent, in a Response dated November 25, 1996, the applicants for the '925 patent argued:

In general, the Cima I and Cima II references do not enable the making of predetermined specific porosity articles. No ranges of porosity are disclosed in the Cima references. No teaching in either Cima reference discloses specifics of porosity control. The Cima references simply state that porosity can be controlled. **The present claims recite specific processes for the construction of articles of predetermined and specific porosities depending upon patterned deposition and deposition rates.** . . . [Emphasis added.]

97. During the prosecution of the '925 patent, in a Response dated November 25, 1996, the applicants for the '925 patent argued:

The placement of features and the rate of dispensing of material to build features and articles are entirely different. Adjustment of the placement of features may be made without changing the placement of the features, and changing of the placement of features may be made without adjusting the rate of dispensation of material. The two steps are separate and distinct. ***Neither Cima I nor Cima II suggests that adjustment of the rate of dispensation of material may be made to***

control the porosity of the article being formed. Since Cima I and II discuss that porosity can be introduced by the placement of features, **it** would not be obvious to use a different step entirely to introduce porosity. . . [Emphasis added.]

98. At all times relevant hereto, the applicants for the '925 patent distinguished the prior art during the prosecution of the '925 patent by claiming that the adjustment of the rate of dispensation may be made to control the porosity of the article being formed and that such adjustment was entirely different from the placement of features.

99. At all times relevant hereto, U.S. Patent No. 5,518,680 to Cima, *et al.* is prior art to the '925 patent. A copy of U.S. Patent No. 5,518,680 to Cima, *et al.* is attached hereto as Exhibit B.

100. At all times relevant hereto, U.S. Patent 5,518,680 to Cima, *et al.* discloses the following example:

This embodiment is further illustrated by the following non-limiting example of a process for construction of a bone regeneration matrix using 3DP.

EXAMPLE 1

Production of a bone regeneration matrix.

This example describes the production of a rectangular device 2 cm×1 cm×1 cm, where it is desired to have the bone grow in the direction which is 2 cm long, and all other outer surfaces will be in contact with soft tissue. This can be built by printing

1st layer:

Lines 100 microns wide spaced 300 microns center-to-center along the length of the 2 cm axis (each line is 200 microns in depth), for a total of 30 lines.

Triplets of 100 micron wide lines (i.e., three lines printed side by side) with 100 micron spacing in between printed along the 1-cm axis, for a total of 25 triplets, to decrease the number of channels accessible from the outside.

2nd layer:

Lines 100 microns wide spaced 300 microns center-to-center along the length of the 2-cm axis; these lines are 200 microns in depth and placed directly above the lines in the previous layer. The spaces between the lines will form the longitudinal channels.

3rd layer:

Lines 100 microns wide with 100 micron spacing printed along the 1 cm axis with 100 micron spacing in between; a 200 micron depth in all layers is assumed from here on; lines are printed on top of each of the outside lines in each triplet in the layer below^o In this layer, the only binder printed along the 2-cm axis is printed on the 2 outermost lines; in these lines, binder is printed on top of regions where the transverse triplets intersect the outermost line; this is to prevent excessive tissue ingrowth from the side directions.

4th-(n-2)th layer:

Same as layer 2.

5th-(n-1)th layer:

Same as layer 3.

nth layer:

Same as layer 1.

A device 1 cm thick would have approximately 50 layers.

101. At all times relevant hereto, in U.S. Patent No. 5,518,680, Example 1 discloses a variation in the porosity of the object described therein.

102. At all times relevant hereto, the prior art discloses adjusting the rate of dispensation in relationship to the relative motion between the dispensing head and support table.

103. Expired U.S. Patent No. 5,121,329, known to Plaintiff, discloses a preferred embodiment, wherein the support table moves in relative motion to the dispensing head. The flow of the dispensing material is controlled in proportion to the relative movement in the x-y direction of the build platform to insure the layer of each build is constant:

In order to mechanically form each successive layer, drive motors are provided to selectively move the base member and dispensing head relative to each other in a predetermined pattern along "X" and "Y" axes as material is being dispensed. Relative vertical movement along a "Z" axis may also be carried out during the formation of each layer, as well as at the completion of each layer to achieve desired layer shape and thickness. Such mechanical movements are preferably achieved through drive signals inputted to the drive motors for the base member and dispensing head from a computer/controller CAD/CAM system. . .

Dispensing head 2 and base plate 10 are supported for mechanical movement relative to each other. In the preferred embodiment shown, this is accomplished by providing mechanical means for translational movement of base plate 10 laterally along "X" and "Y" axes of a base plane and for vertical movement of dispensing head 2 along a "Z" axis. Accordingly, as is shown in

FIGS. 1 and 2, base plate 10 is supported on an X-Y axis table 12 having a slide rod 14 in threaded engagement within its drive block 16 with a drive screw 18. A drive motor 20 provides rotary power to drive screw 18. Slide rod 14 also carries an elongated drive screw 22 driven by a second motor 24 and coupled to mating threads (not shown) secured to the underside of base plate 10 for driving engagement therewith. It will thus be seen that article-receiving base plate 10 may be moved along the X and Y axes indicated in FIG. 1 by the selected actuation of motors 24 and 20, respectively. . .

Feeding of the supply material is controlled relative to the "X, " "Y, " and "Z" movement of the base plate 10 and dispensing head in such a way that the flow of material onto the substrate 108 is not starved or unduly excessive. The main concern is the control of layer thickness, and thus of smoothness of finish. If material spills over on one layer and/or is starved on other layers, the layers will be of irregular thickness with a resulting rough wall surface on the article produced. Supply material control may be accomplished in various ways. One approach utilizes the discharge of fluid material from the nozzle orifice by the advance of a solid rod 46 under a constant, predetermined air pressure as described and illustrated with respect to FIGS. 1 and 3. This provides constant fluid pressure of the supply material at the dispensing outlet orifice 98. The advancing movement of the solid rod 46 would be at a speed initially determined by the relative movement speed of the dispensing head and base plate in the "X" "Y" plane. In the embodiment of FIG. 5, very accurate control of the volume rate of feeding of the flexible strand 110 can be achieved. This can be done by proportionally regulating the linear speed of the drive motor 142 in relation to the resultant "X" "Y" speed in the horizontal plane of the dispensing head and base plate relative to each other, as achieved by sensing the driving speed of control motors 20 and 24. Alternatively, the speed of motor 142 can be proportionally regulated in relation to the resultant "X," "Y," "Z" speed by sensing motors 20, 24, and 32. Thus, the volumetric flow rate of the supply material in a fluid state as discharged from dispensing head 112 would be controlled in a proportional relation to the "X"- "Y" speed of the dispensing head and base plate 10 relative to each other. This can be done by sensing the pulse signals driving motors 20 and 24, and sending proportional pulse drive signals to drive motor 142 on dispensing head 112. . .

U.S. Patent No. 5,121,329, col. 3, lns. 30-41; col. 4, ln. 67 – col. 5, ln. 16. A copy of U.S. Patent No. 5,121,329 is attached hereto as Exhibit C.

104. At all times relevant hereto, the assertion of the '925 patent against a manufacturer that adjusts the deposition rate in accordance with relative motion as taught in expired U.S. Patent No. 5,121,329 is objectively baseless.

105. At all times relevant hereto, U.S. Patent No. 5,121, 329, was not submitted to the Patent Office during the prosecution of the '925 Patent.

106. At all times relevant hereto, U.S. Patent No. 5,121,329, discloses varying the rate of dispensation:

The [size](#) of dispensing outlet 98 may be varied for the particular application, as by using interchangeable [orifice](#) inserts in the tip of nozzle 4. Also a variable [size orifice](#) of the type employed in cameras for varying the aperture could be utilized. . .

It is also contemplated that the dispensing heads may be connected to outlet manifolds incorporating a plurality of dispensing outlets or orifices. Such a dispensing arrangement would be useful for forming a wide swath in multiple layers in a paint brush type of layering effect. FIGS. 7 and 8 show a multiple [orifice](#) discharge manifold 162 which would be suitable for such purposes. Positioned along the length of the manifold 162 are a plurality of solenoid actuators, each having a connected plunger 166 with a bottom tip valve element 168 positioned in close, operating relation to a dispensing outlet or [orifice](#) 170. The controllers 164 could be electrically actuated solenoids, or they could be air actuators connected to a supply source of pressurized air, in a manner as is commonly utilized with air actuated valves. Material supply rods or strands 172 and 174 may be introduced lengthwise inside of manifold 164 as illustrated in FIGS. 7 and 8.

107. At all times relevant hereto, U.S. Patent No. 5,121, 329, was material to patentability, and "but for" Stratasys' failure to submit it to the patent office, the '925 patent would not have been granted. At all times relevant hereto, persons associated with the prosecution of the '925 patent committed inequitable conduct by failing to disclose U.S. Patent No. 5,121, 329 to the Patent Office, as set forth below.

108. At all times relevant hereto, the '925 patent is one of the patents that Stratasys has attempted to include in the required License described above.

109. At all times relevant hereto, the assertion of the '925 patent against any Afinia constitutes patent misuse.

110. On information and belief, at all times relevant hereto, the assertion of the '925 patent against Afinia is an attempt by Plaintiff to achieve a monopoly in the markets of additive manufacturing and/or important submarkets thereto.

**NINTH AFFIRMATIVE DEFENSE
(Patent Misuse '058 Patent)**

111. Afinia repeats and realleges paragraphs 1 through 110 of this Amended Answer, Affirmative Defenses and Counterclaims as if fully set forth herein.

112. At all times relevant hereto, the specification of the '058 patent, attached to Plaintiff's Complaint, states:

It has been determined that by maintaining a previously deposited material (in a rapid prototyping system utilizing thermal solidification) within a specific temperature window, that stresses present in the deposited material are relieved and geometric distortions reduced. At least in the vicinity of where newly deposited material will be applied, the previously deposited material must be maintained at a temperature that is preferably in a range between the material's solidification temperature and its creep relaxation temperature. More preferably, the temperature should be maintained closer to the creep relaxation temperature. In the case of ABS, the temperature window falls between approximately 70° C. and approximately 90° C. In general, an entire build layer (outside of the immediate region of the extrusion nozzle) should be maintained above the material's solidification temperature and below the material's creep relaxation temperature.

113. At all times relevant hereto, the specification of the '058 patent states:

Once the entire prototype model has been completed, it needs to be cooled so that it is everywhere below the materials solidification temperature, before it is handed or stressed. The cooling rate should be slow enough that the thermal gradient limit set by equation 2 is not violated.

114. At all times relevant hereto, claim 1 and claim 9 of the '058 patent state:

1. A method for making a three-dimensional physical object of a predetermined shape under control of a control system, said method employing a thermally solidifiable material having a solidification

temperature and a creep relaxation temperature, said method comprising the steps of:

- a) dispensing said thermally solidifiable material in a fluid state from an extruder into a build region having at least a local region temperature that exceeds the solidification temperature of the thermally solidifiable material;
- b) simultaneously with the dispensing of the said thermally solidifiable material, and in response to said control system, generating relative movement between the extruder and a support in the build region, so that the said thermally solidifiable material accumulates on said support to form a three-dimensional physical object; and
- c) solidifying said thermally solidifiable material by cooling said local region temperature and said material below the solidification temperature of the material.

9. A method for making a three-dimensional physical object of a predetermined shape comprising the steps of:

- a) computing a sequence of commands required to produce said predetermined shape of the three-dimensional physical object;
- b) dispensing a thermally solidifiable material in a fluid state from an extruder into a build environment as prescribed by the sequence of commands;
- c) maintaining during step b) the build environment, at least in a vicinity of the extruder, within a predetermined temperature range, said temperature range being above a solidification temperature of the thermally solidifiable material;
- d) simultaneously with the dispensing step b) and in response to the sequence of commands, mechanically generating relative movement between the extruder and the build environment, so that the said material accumulates to form the three-dimensional physical object;
- e) concurrently with step d), adjusting temperatures within the build environment differentially so that the solidifiable material, upon which additional solidifiable material has accumulated, is cooled below a solidification temperature thereof; and
- f) further solidifying the said object by cooling said object below said solidification temperature.

115. At all times relevant hereto, the claims of the '058 patent recite a positive step of cooling.

116. At all times relevant hereto, claim 1, and dependent claims thereto, require a control system.

117. At all times relevant hereto claim 9, and dependent claims thereto, require “adjusting temperatures within the build environment differentially so that the solidifiable material, upon which additional solidifiable material has accumulated, is cooled below a solidification temperature thereof.”

118. At all times relevant hereto, the accused Afinia H-Series 3D Printer operates within an ambient environment and is designed to work properly at an ambient temperature of between 60°F and 85°F and humidity of between 20% and 50%.

119. At all times relevant hereto, among other missing elements, the Afinia H-Series 3D Printer does not have a control system controlling the cooling of the part and/or adjusting temperatures as recited in the claims of the ‘058 patent.

120. At all times relevant hereto, the use of a heated build platform was well known in the prior art. For example, expired U.S. Patent No. 5,141,680, discloses a heated platform in a stereolithography system.

121. At all times relevant hereto, the prior art discloses heating the prototype above its solidification temperature to melt it for removal.

122. At all times relevant hereto, the use of a heated build platform was well known in the deposition of thermoplastics, such as by extrusion. For example, expired U.S. Patent No. 5,501,824, discloses a heated platform in a system incorporating the extrusion of thermoplastics.

123. At all times relevant hereto, on information and belief, the Plaintiff and/or its counsel were aware of U.S. Patent No. 5,501,824, during the prosecution of the ‘058 patent and did not disclose it to the Patent Office. A copy of U.S. Patent No. 5,501,824 is attached hereto as Exhibit D.

124. At all times relevant hereto, more than a year prior to the application which matured into the '058 patent, acrylonitrile butadiene styrene (ABS) was a well-known thermoplastic, available for decades.

125. At all times relevant hereto, more than a year prior to the application which matured into the '058 patent, it was known to maintain ABS within $\pm 30^{\circ}\text{C}$ of its softening point to improve the surface interaction of objects made with ABS to prevent warping.

126. At all times relevant hereto, as an example of such prior art, European Application EP 0,180,383 A2, published May 7, 1986, attached hereto as Exhibit E, discloses maintaining the first layer [of a part to be joined] made from ABS to within the range of the softening point of $\pm 30^{\circ}\text{C}$:

During said second injection-molding, it may be necessary to keep the temperature of the first layer molded in the range of the softening point of $\pm 30^{\circ}\text{C}$. In this temperature range, the resulting housings may not warp and the two layers of the housings are strongly bonded to each other.

127. At all times relevant hereto, the statements in the '058 patent specification concerning the temperature at which to maintain ABS merely recited well-known techniques associated with the material ABS.

128. At all times relevant hereto, on information and belief, more than a year prior to the application for the '058 patent, Stratasys began shipping a product known as the Stratasys FDM 1650.

129. At all times relevant hereto, on information and belief, Stratasys offered for sale and sold the Stratasys FDM 1650 in or about March of 1996.

130. At all times relevant hereto, on information and belief, the Stratasys FDM 1650 had an operating envelope that encompassed 70°C .

131. At all times relevant hereto, on information and belief, the Stratasys FDM 1650 was designed to operate and did operate with ABS plastics more than a year prior to the application for the '058 patent.

132. At all times relevant hereto, Plaintiff and/or its counsel were aware of the Stratasys FDM 1650.

133. At all times relevant hereto, the Stratasys FDM 1650 (which encompassed an operating temperature of 70° C) was material to patentability of the '058 patent, which states “[m]ore preferably, the temperature should be maintained closer to the creep relaxation temperature. In the case of ABS, the temperature window falls between approximately 70° C. and approximately 90° C.”

134. At all times relevant hereto, the Stratasys FDM 1650 was material to patentability, and “but for” Stratasys’ failure to submit it to the patent office, the '058 patent would not have been granted. At all times relevant hereto, persons associated with the prosecution of the '058 patent committed inequitable conduct by failing to disclose the Stratasys FDM 1650 to the Patent Office, as set forth below.

135. At all times relevant hereto, the '058 patent is one of the patents that Stratasys has attempted to include in the required License described above.

136. At all times relevant hereto, the assertion and continued assertion of the '058 patent against any Afinia product constitutes patent misuse.

137. On information and belief, at all times relevant hereto, the assertion of the '058 patent against Afinia is an attempt by Plaintiff to achieve a monopoly in the markets of additive manufacturing and/or important submarkets thereto.

**TENTH AFFIRMATIVE DEFENSE
(Patent Misuse '124 Patent)**

138. Afinia repeats and realleges paragraphs 1 through 137 of this Amended Answer, Affirmative Defenses and Counterclaims as if fully set forth herein.

139. At all times relevant hereto, the '124 patent is one of the patents that Stratasy's has attempted to include in the required License described above.

140. At all times relevant hereto, all of the asserted claims of the '124 patent require "a first thin wall tube" which "passes through the heating block."

141. At all times relevant hereto, in any assertion of the '124 patent, the term "thin" is a term that must be construed in accordance with the specification of the '124 patent.

142. At all times relevant hereto, existing federal precedent requires that the construction of a term, such as the term "thin," be in accordance with the dimensions disclosed in the patent specification.

143. At all times relevant hereto, the only disclosure in the specification as to the dimension of the thickness of the tube is "0.005-0.015 inches." In this regard, the patent states "[t]he wall thickness of tube 212 is preferably between 0.005-0.015 inches."

144. At all times relevant hereto, the Afinia H-Series 3D Printer inlet tubular portion is approximately four times the thickness of the largest dimension disclosed in the '124 patent specification.

145. At all times relevant hereto, no reasonable interpretation of the term "thin" as it is used in the '124 patent could be construed to assert the '124 patent against Afinia.

146. At all times relevant hereto, the assertion and continued assertion of the '124 patent against any Afinia product constitutes patent misuse.

147. On information and belief, at all times relevant hereto, the assertion of the '124 patent against Afinia is an attempt by Plaintiff to achieve a monopoly in the markets of additive manufacturing and/or important submarkets thereto.

ELEVENTH AFFIRMATIVE DEFENSE
Patent Misuse '239

148. Afinia repeats and realleges paragraphs 1 through 147 of this Amended Answer, Affirmative Defenses and Counterclaims as if fully set forth herein.

149. At all times relevant hereto, the '239 patent is one of the patents that Stratasys has attempted to include in the required License described above.

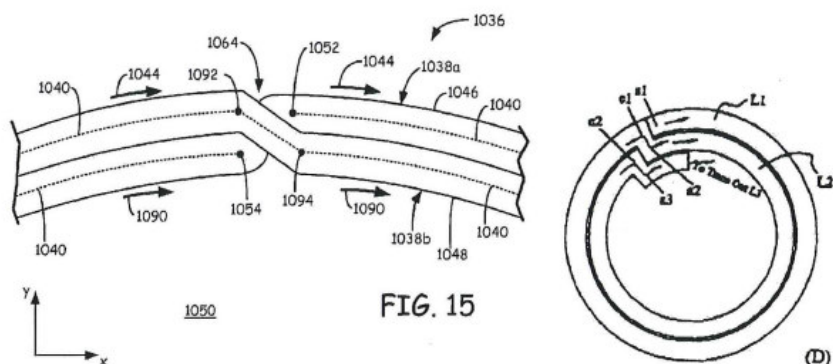
150. During the prosecution of the '239 patent, on or about May 4, 2009, the pending claims were rejected in view of prior art.

151. During the prosecution of the '239 patent, on or about September 4, 2009, the applicants for the '239 patent, made the following remarks in order to distinguish the prior art:

Claims 1-9

With this response, independent claim 1 is amended to recite that the contour tool path comprises a start point and a stop point and a step-over arrangement oriented at a non-right angle between the start point and the stop point, where the step-over arrangement reduces surface porosity for the three-dimensional model. As discussed throughout the present application, the claimed invention improves seam concealment for layers of 3D models, and reduces surface porosity (present application, ¶¶ 24, 45, 48, 53, and 71).

As shown in FIG. 15 of the present application (reproduced below), the contour tool path 1040 of the given layer 1036 may include a start point 1052 and a stop point 1054 (present application, ¶ 70). The contour tool path 1040 also includes at least one step-over arrangement oriented at a non-right angle between the start point 1052 and the stop point 1054 (present application, ¶¶ 70 and 71). The non-right angle step over arrangement allows the deposited material to overlap at the step over, at a location that is offset inward from seam 1064, which eliminates the formation of bulges at seam 1064, and also reduces porosity at seam 1064 (present application, ¶ 71).

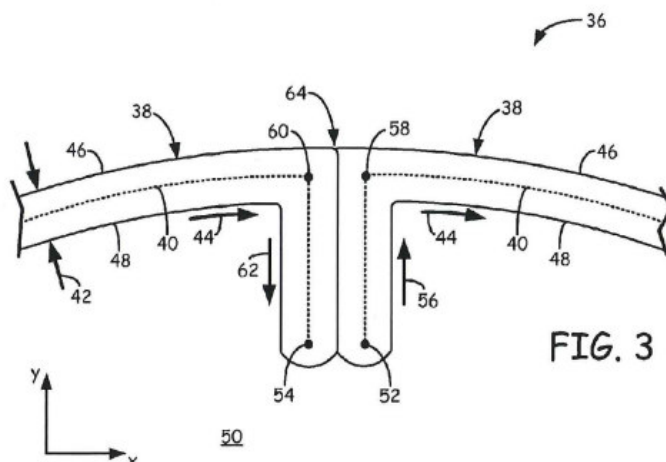


In comparison, the deposition pattern disclosed in Jang has a right-angle step over between layers, as shown in FIG. 7D of Jang (reproduced above). This right-angle step over requires the end point e1 of the outer perimeter L1 to be flush with the start points 1, and then turn inward to point a2 before starting the second perimeter L2. This doesn't allow the deposited material to overlap at the step over, such as is attainable with the non-right angle step over arrangement recited in claim 1. As such, claim 1 is not anticipated by Jang, and is allowable. Correspondingly, claims 2-9, which depend from claim 1, are not anticipated by or obvious over Jang, and are separately allowable.

Claim 9 is amended to recite that the method further includes extruding a material in a pattern based on the generated contour tool path to form a perimeter of the extruded material for one of the layers of the three-dimensional model, where the layer corresponds to the contour tool path (see e.g., present application, ¶¶ 35-39 and 69-74).

Claims 10-14

With this response, independent claim 10 is amended to recite that the start point and the stop point are each adjusted to be located within the interior region of the layer of the three-dimensional model. For example, as shown in FIG. 3 of the present application (reproduced below), start point 52 and stop point 54 may each be located within interior region 50 of layer 36 (present application, ¶ 47).



Due to variations in the extrusion process when starting and stopping the depositions, the modeling material deposited at a stop point corresponding to point 60 may bump into the modeling material previously deposited at a start point corresponding to point 58 (present application, ¶ 45). This bumping can form a significant bulge of the modeling materials at the seam, which can be visually observed with the naked eye, thereby detracting from the aesthetic qualities of the resulting 3D model (present application, ¶ 45).

Alternatively, if not enough modeling material is deposited between points 58 and 60, a gap may be formed at the seam, which can increase the porosity of the 3D model. The increased porosity can allow gases and fluids to pass into or through the 3D model, which may be undesirable for many functional purposes (e.g., for containing liquids) (present application, ¶ 45). Accordingly, under the conventional data generation technique, proper seam sealing may be difficult to achieve, particularly due to the number of geometric complexities that may be required for a given 3D model (present application, ¶ 45).

However, seam 64 may be properly sealed by adjusting the location of the start point from point 58 to point 52, and by adjusting the location of the stop point from point 60 to point 54 (present application, ¶ 46). This allows any variations in the extrusion process when starting and stopping the depositions to occur at a location that is within interior region 50 rather than adjacent to exterior surface 46 (present application, ¶ 46). Any variations (e.g., bulges) that occur within interior region 50 are masked by the successive layers of 3D model 26, thereby concealing these effects within the filled body of 3D model 26 when completed (present application, ¶ 46). This allows the dimensions of perimeter path 38 at seam 64 to be truer to the dimensions of the digital representation of 3D model 26 and increases the consistency of the seams of successive layers of 3D model 26 (present application, ¶ 46). This improved seam control is further

evidenced by Examples 1-4 of the present application, which exhibited good seam concealment (present application, ¶¶ 75-80).

The locations of start point 52 and stop point 54 also allow the deposited modeling material to form a seal at seam 64 that extends inward within interior region 50 (present application, ¶ 48). This reduces the porosity of 3D model 26 at seam 64, thereby reducing or eliminating the transmission of gases and/or liquids through seam 64 (present application, ¶ 48). As a result, in comparison to the conventional techniques, the process of adjusting the start and stop points to locations within interior region 50 effectively eliminates the formation of bulges of modeling material at seam 64, while also reducing the porosity at seam 64 (present application, ¶ 48).

In comparison, Jang does not disclose an arrangement in which *both* the start point and the stop point of a contour tool path (used to form a perimeter of a layer) are located within an interior region of the layer. Jang also does not recognize the benefits attained with this arrangement, such as seam concealment and reduced porosity. As such, claim 10 is not anticipated by Jang, and is allowable. Correspondingly, claims 11-14, which depend from claim 10, are not anticipated by or obvious over Jang, and are separately allowable.

Claim 13 is amended to recite that the modified contour path comprises at least one step-over arrangement oriented at a non-right angle between the start point and the stop point (see e.g., present application, ¶¶ 69-74).

Claims 21-24

With this response, Applicants include new claims 21-24. Independent claim 21 recites a method that includes generating a tool path that comprises a start point for the tool path, a stop point for the tool path, a contour tool path, and an interior raster path. For example, as shown in FIGS. 11 and 12 (FIG. 12 reproduced below), layer 836 includes a tool path 840 having start point 852 at a perimeter path 838, and a stop point (not shown) at an interior raster pattern within interior region 850 (present application, ¶¶ 64 and 67).

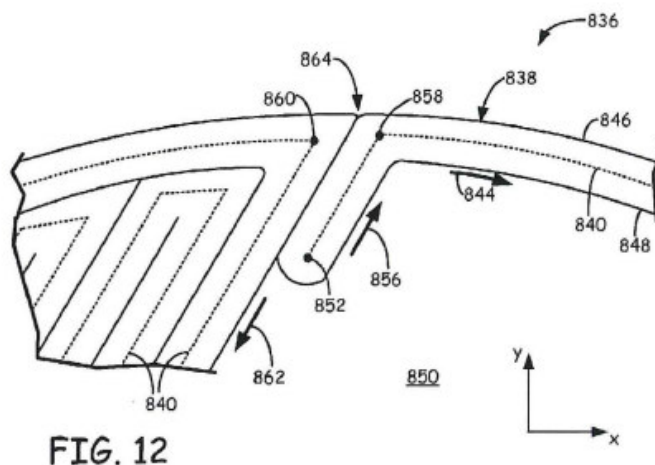


FIG. 12

Claim 21 also recites extruding a material in a pattern based on the generated tool path to form the perimeter and at least a portion of the interior of the layer of the three dimensional model (see e.g., present application, ¶¶ 35-39 and 67). This combines the process time savings attainable with the integrated raster pattern along with the reduced porosity that is achieved by positioning start point 852 within interior region 850 (present application, ¶¶ 65 and 67). These benefits are in addition to the concealment of seam 864, which allows the dimensions of perimeter path 838 at seam 864 to be truer to the dimensions of the digital representation of 3D model 26 and increases the consistency of the seams of successive layers of 3D model 26 (present application, ¶ 67).

In comparison, Jang does not disclose nor suggest the use of a single tool path to generate both the perimeter and an interior raster pattern. For example, the tool paths shown in FIGS. 7C and 8C of Jang (annotated versions reproduced below) do not define an interior region of the layer and would produce poor seal concealment. As shown in the annotated drawings below, these tool paths produce numerous seams for each layer, which is undesirable for seam concealment. (Fig. 7(c), 8(c), 8)

Accordingly, claim 21 is not anticipated by or obvious over Jang, and is allowable. Correspondingly, claims 22-24, which depend from claim 21, are not anticipated by or obvious over Jang, and are separately allowable.

152. At all times relevant hereto, the contour tool path(s) of the Afinia H-Series 3D Printer do not infringe the claims of the '239 patent for at least, *inter alia*, the omission of the start and stop points required by the claims, and in light of the arguments made during prosecution of the '239 patent.

153. At all times relevant hereto, the assertion and continued assertion of the '239 patent against any Afinia product constitutes patent misuse.

154. On information and belief, at all times relevant hereto, the assertion of the '239 patent against Afinia is an attempt by Plaintiff to achieve a monopoly in the markets of additive manufacturing and/or important submarkets thereto.

COUNTERCLAIMS

Pursuant to Federal Rule of Civil Procedure 13, Afinia's Counterclaims against Plaintiff are as follows:

THE PARTIES

1. The Defendant/Plaintiff in Counterclaim, Microboards Technology, LLC d/b/a Afinia, is a limited liability company organized under the laws of Minnesota, with a principal place of business at 8150 Mallory Court, Chanhassen, Minnesota 55317.

2. The Plaintiff/Defendant-in-Counterclaim, Stratasys, Inc., allegedly is a Delaware corporation with a principal place of business at 7665 Commerce Way, Eden Prairie, Minnesota 55344.

JURISDICTION AND VENUE

3. This counterclaim is brought pursuant to the Federal Declaratory Judgment Act, 28 U.S.C. §2201, et seq. The Complaint in this action alleges that Afinia has infringed the patents-in-suit and gives rise to an actual case or controversy under 28 U.S.C. §§ 2201 and 2202.

4. This counterclaim arises under the patent laws of the United States, 35 U.S.C. § 1, *et seq.*

5. This Court has subject matter jurisdiction over this counterclaim pursuant to 28 U.S.C. §§ 1338, 2201, and 2202.

6. Venue for this Counterclaim in this District is proper under 28 U.S.C. §§ 1391 and 1400 as this Counterclaim arises from the Complaint. Afinia reserves the right to contest venue of the underlying action.

7. Afinia is entitled to declaratory relief because, although Afinia has not infringed and is not infringing the patents-in-suit, Afinia will use accused apparatus and methods as claimed in the patents-in-suit after the patents-in-suit are declared not infringed, invalid, and/or unenforceable.

FACTUAL BACKGROUND

Actual and Justiciable Controversy

8. On November 25, 2013, Plaintiff filed a Complaint against Defendant, alleging, *inter alia*, patent infringement within the State of Minnesota of (1) United States Patent No. 5,653,925 (“the ‘925 patent”), entitled “Method for Controlled Porosity Three-Dimensional Modeling,” issued on August 5, 1997; (2) United States Patent No. 5,866,058 (“the ‘058 patent”), entitled “Method for Rapid Prototyping of Solid Models,” issued on February 2, 1999; (3) United States Patent No. 6,004,124 (“the ‘124 patent”), entitled “Thin-Wall Tub Liquifier,” issued on December 21, 1999; and (4) United States Patent No. 8,349,239 (“the ‘239 patent”), entitled “Seam

Concealment for Three-Dimensional Models,” issued on January 8, 2013. The above patents are collectively referred to as the “patents-in-suit.”

9. Afinia does not infringe any valid and enforceable claim of the patents-in-suit, either directly or indirectly.

10. An actual and justiciable controversy exists between Plaintiff and Afinia, relating to, *inter alia*, the patents-in-suit.

COUNT I

DECLARATORY JUDGMENT OF NON-INFRINGEMENT (AS TO U.S. PATENT NO. 5,653,925)

11. Afinia repeats and realleges Paragraphs 1 through 10 above, as though fully set forth herein.

12. Afinia has not directly and does not directly infringe any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(a).

13. Afinia has not actively induced and does not actively induce infringement of any or all of claims of the patent-in-suit under 35 U.S.C. § 271(b).

14. Afinia has not contributed to and does not contribute to infringement of any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(c).

15. Afinia is therefore entitled to a declaratory judgment that Afinia does not directly or indirectly infringe any or all of the claims of the patent-in-suit and to such further injunctive relief as may be just and proper.

COUNT II

DECLARATORY JUDGMENT OF NON-INFRINGEMENT (AS TO U.S. PATENT NO. 5,866,058)

16. Afinia repeats and realleges Paragraphs 1 through 15 above, as though fully set forth herein.

17. Afinia has not directly and does not directly infringe any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(a).

18. Afinia has not actively induced and does not actively induce infringement of any or all of claims of the patent-in-suit under 35 U.S.C. § 271(b).

19. Afinia has not contributed to and does not contribute to infringement of any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(c).

20. Afinia is therefore entitled to a declaratory judgment that Afinia does not directly or indirectly infringe any or all of the claims of the patent-in-suit and to such further injunctive relief as may be just and proper.

COUNT III

DECLARATORY JUDGMENT OF NON-INFRINGEMENT (AS TO U.S. PATENT NO. 6,004,124)

21. Afinia repeats and realleges Paragraphs 1 through 20 above, as though fully set forth herein.

22. Afinia has not directly and does not directly infringe any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(a).

23. Afinia has not actively induced and does not actively induce infringement of any or all of claims of the patent-in-suit under 35 U.S.C. § 271(b).

24. Afinia has not contributed to and does not contribute to infringement of any or all of the claims of the patent-in-suit under 35 U.S.C. § 27 (c).

25. Afinia is therefore entitled to a declaratory judgment that Afinia does not directly or indirectly infringe any or all of the claims of the patent-in-suit and to such further injunctive relief as may be just and proper.

COUNT IV

**DECLARATORY JUDGMENT OF NON-INFRINGEMENT
(AS TO U.S. PATENT NO. 8,349,239)**

26. Afinia repeats and realleges Paragraphs 1 through 25 above, as though fully set forth herein.

27. Afinia has not directly and does not directly infringe any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(a).

28. Afinia has not actively induced and does not actively induce infringement of any or all of claims of the patent-in-suit under 35 U.S.C. § 271(b).

29. Afinia has not contributed to and does not contribute to infringement of any or all of the claims of the patent-in-suit under 35 U.S.C. § 271(c).

30. Afinia is therefore entitled to a declaratory judgment that Afinia does not directly or indirectly infringe any or all of the claims of the patent-in-suit and to such further injunctive relief as may be just and proper.

COUNT V

**DECLARATORY JUDGMENT OF PATENT INVALIDITY
(AS TO U.S. PATENT NO. 5,653,925)**

31. Afinia incorporates the allegations set forth in paragraphs 1 through 30 above by reference as if fully set forth herein.

32. The patent-in-suit is invalid for failure to comply with the statutory provisions for patentability and validity set forth Title 35 of the United States Code, including one or more of 35 U.S.C. §§ 101, 102, 103, 112, 115, 116 and 256, for the following reasons:

a. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, more than one year prior to the date of the application for a patent in the United States;

b. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;

c. The alleged invention was described in a patent granted on an application for a patent by another filed in the United States before the invention thereof by the alleged patentees, or on an international application by another which complied with the requisite statutes;

d. The patentees did not themselves invent the subject matter sought to be patented;

e. Before the alleged invention by the patentees the alleged invention was made in this country by another who had not abandoned, suppressed or concealed it;

f. The alleged invention was obvious at the time of the invention to a person having ordinary skill in the art;

g. The specifications of the patent does not comply with the requirements set forth in 35 U.S.C. §112, including but not limited to the enablement requirement;

h. The patent does not particularly point out and distinctly claim the invention; and

i. One or more of the correct inventors were not named on the asserted patent.

33. Afinia is therefore entitled to a declaratory judgment that some or all of the claims of the patent-in-suit are invalid and to such further relief as may be just and proper.

COUNT VI

**DECLARATORY JUDGMENT OF PATENT INVALIDITY
(AS TO U.S. PATENT NO. 5,866,058)**

34. Afinia incorporates the allegations set forth in paragraphs 1 through 33 above by reference as if fully set forth herein.

35. The patent-in-suit is invalid for failure to comply with the statutory provisions for patentability and validity set forth Title 35 of the United States Code, including one or more of 35 U.S.C. §§ 101, 102, 103, 112, 115, 116 and 256, for the following reasons:

a. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, more than one year prior to the date of the application for a patent in the United States;

b. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;

c. The alleged invention was described in a patent granted on an application for a patent by another filed in the United States before the invention thereof by the alleged patentees, or on an international application by another which complied with the requisite statutes;

d. The patentees did not themselves invent the subject matter sought to be patented;

e. Before the alleged invention by the patentees the alleged invention was made in this country by another who had not abandoned, suppressed or concealed it;

f. The alleged invention was obvious at the time of the invention to a person having ordinary skill in the art;

g. The specifications of the patent does not comply with the requirements set forth in 35 U.S.C. §112, including but not limited to the enablement requirement;

- h. The patent does not particularly point out and distinctly claim the invention; and
- i. One or more of the correct inventors were not named on the asserted patent.

36. Afinia is therefore entitled to a declaratory judgment that some or all of the claims of the patent-in-suit are invalid and to such further relief as may be just and proper.

COUNT VII

DECLARATORY JUDGMENT OF PATENT INVALIDITY (AS TO U.S. PATENT NO. 6,004,124)

37. Afinia incorporates the allegations set forth in paragraphs 1 through 36 above by reference as if fully set forth herein.

38. The patent-in-suit is invalid for failure to comply with the statutory provisions for patentability and validity set forth Title 35 of the United States Code, including one or more of 35 U.S.C. §§ 101, 102, 103, 112, 115, 116 and 256, for the following reasons:

- a. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, more than one year prior to the date of the application for a patent in the United States;
- b. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;
- c. The alleged invention was described in a patent granted on an application for a patent by another filed in the United States before the invention thereof by the alleged patentees, or on an international application by another which complied with the requisite statutes;
- d. The patentees did not themselves invent the subject matter sought to be patented;
- e. Before the alleged invention by the patentees the alleged invention was made in this country by another who had not abandoned, suppressed or concealed it;

f. The alleged invention was obvious at the time of the invention to a person having ordinary skill in the art;

g. The specifications of the patent does not comply with the requirements set forth in 35 U.S.C. §112, including but not limited to the enablement requirement;

h. The patent does not particularly point out and distinctly claim the invention; and

i. One or more of the correct inventors were not named on the asserted patent.

39. Afinia is therefore entitled to a declaratory judgment that some or all of the claims of the patent-in-suit are invalid and to such further relief as may be just and proper.

COUNT VIII

DECLARATORY JUDGMENT OF PATENT INVALIDITY (AS TO U.S. PATENT NO. 8,349,239)

40. Afinia incorporates the allegations set forth in paragraphs 1 through 39 above by reference as if fully set forth herein.

41. The patent-in-suit is invalid for failure to comply with the statutory provisions for patentability and validity set forth Title 35 of the United States Code, including one or more of 35 U.S.C. §§ 101, 102, 103, 112, 115, 116 and 256, for the following reasons:

a. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, more than one year prior to the date of the application for a patent in the United States;

b. The alleged invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;

c. The alleged invention was described in a patent granted on an application for a patent by another filed in the United States before the invention thereof by the alleged patentees, or on an international application by another which complied with the requisite statutes;

d. The patentees did not themselves invent the subject matter sought to be patented;

e. Before the alleged invention by the patentees the alleged invention was made in this country by another who had not abandoned, suppressed or concealed it;

f. The alleged invention was obvious at the time of the invention to a person having ordinary skill in the art;

g. The specifications of the patent does not comply with the requirements set forth in 35 U.S.C. §112, including but not limited to the enablement requirement;

h. The patent does not particularly point out and distinctly claim the invention; and

i. One or more of the correct inventors were not named on the asserted patent.

42. Afinia is therefore entitled to a declaratory judgment that some or all of the claims of the patent-in-suit are invalid and to such further relief as may be just and proper.

COUNT IX

DECLARATORY JUDGMENT OF PATENT INVALIDITY DUE TO INEQUITABLE CONDUCT (AS TO U.S. PATENT NO. 5,653,925)

43. Afinia incorporates the allegations set forth in paragraphs 1 through 42 above by reference as if fully set forth herein.

44. At all times relevant hereto, during the prosecution of the '925 patent, the claims were initially rejected over prior art patents to Cima, *et al.*, including but not limited to, U.S. Patent Nos. 5,490,962, and 5,518,680.

45. During the prosecution of the '925 patent, in an Office Action dated August 16, 1996, all claims were rejected by the Examiner:

Cima I and Cima II teach a process of making a three dimensional article having a predetermined porosity substantially as set forth in the instant claims, **except for explicitly teaching the aspect of adjusting the rate of dispensing-of the material to provide a predetermined porosity in the article.** This aspect would have been obvious to one of ordinary skill in the art at the time the invention was made in the process of either Cima I or Cima II principally because Cima I (col. 11, lines 17-21) and Cima II (col. 11, lines 1-7) teach that porosity is controlled by where the features are placed, which is a function of how the material is deposited. [Emphasis added.]

46. During the prosecution of the '925 patent, in a Response dated November 25, 1996, the applicants for the '925 patent argued:

In general, the Cima I and Cima II references do not enable the making of predetermined specific porosity articles. No ranges of porosity are disclosed in the Cima references. No teaching in either Cima reference discloses specifics of porosity control. The Cima references simply state that porosity can be controlled. **The present claims recite specific processes for the construction of articles of predetermined and specific porosities depending upon patterned deposition and deposition rates.** . . [Emphasis added.]

47. During the prosecution of the '925 patent, in a Response dated November 25, 1996, the applicants for the '925 patent argued:

The placement of features and the rate of dispensing of material to build features and articles are entirely different. Adjustment of the placement of features may be made without changing the placement of the features, and changing of the placement of features may be made without adjusting the rate of dispensation of material. The two steps are separate and distinct. ***Neither Cima I nor Cima II suggests that adjustment of the rate of dispensation of material may be made to control the porosity of the article being formed.*** Since Cima I and II discuss that porosity can be introduced by the placement of features, **it** would not be obvious to use a different step entirely to introduce porosity. . . [Emphasis added.]

48. At all times relevant hereto, U.S. Patent 5,518,680 to Cima,, *et al.* discloses the following example:

This embodiment is further illustrated by the following non-limiting example of a process for construction of a bone regeneration matrix using 3DP.

EXAMPLE 1

Production of a bone regeneration matrix.

This example describes the production of a rectangular device 2 cm×1 cm×1 cm, where it is desired to have the bone grow in the direction which is 2 cm long, and all other outer surfaces will be in contact with soft tissue. This can be built by printing

1st layer:

Lines 100 microns wide spaced 300 microns center-to-center along the length of the 2 cm axis (each line is 200 microns in depth), for a total of 30 lines.

Triplets of 100 micron wide lines (i.e., three lines printed side by side) with 100 micron spacing in between printed along the 1-cm axis, for a total of 25 triplets, to decrease the number of channels accessible from the outside.

2nd layer:

Lines 100 microns wide spaced 300 microns center-to-center along the length of the 2-cm axis; these lines are 200 microns in depth and placed directly above the lines in the previous layer. The spaces between the lines will form the longitudinal channels.

3rd layer:

Lines 100 microns wide with 100 micron spacing printed along the 1 cm axis with 100 micron spacing in between; a 200 micron depth in all layers is assumed from here on; lines are printed on top of each of the outside lines in each triplet in the layer below^o In this layer, the only binder printed along the 2-cm axis is printed on the 2 outermost lines; in these lines, binder is printed on top of regions where the transverse triplets intersect the outermost line; this is to prevent excessive tissue ingrowth from the side directions.

4th-(n-2)th layer:

Same as layer 2.

5th-(n-1)th layer:

Same as layer 3.

nth layer:

Same as layer 1.

A device 1 cm thick would have approximately 50 layers.

49. At all times relevant hereto, the applicants for the '925 patent distinguished the prior art during the prosecution of the '925 patent by claiming that the adjustment of the rate of dispensation may be made to control the porosity of the article being formed and that such adjustment was entirely different from the placement of features.

50. At all times relevant hereto, U.S. Patent No. 5,121, 329, was not submitted to the Patent Office during the prosecution of the '925 Patent.

51. At all times relevant hereto, U.S. Patent No. 5,121,329, discloses varying the rate of dispensation:

The [size](#) of dispensing outlet 98 may be varied for the particular application, as by using interchangeable [orifice](#) inserts in the tip of nozzle 4. Also a variable [size orifice](#) of the type employed in cameras for varying the aperture could be utilized.

..

It is also contemplated that the dispensing heads may be connected to outlet manifolds incorporating a plurality of dispensing outlets or orifices. Such a dispensing arrangement would be useful for forming a wide swath in multiple layers in a paint brush type of layering effect. FIGS. 7 and 8 show a multiple [orifice](#) discharge manifold 162 which would be suitable for such purposes. Positioned along the length of the manifold 162 are a plurality of solenoid actuators, each having a connected plunger 166 with a bottom tip valve element 168 positioned in close, operating relation to a dispensing outlet or [orifice](#) 170. The controllers 164 could be electrically actuated solenoids, or they could be air actuators connected to a supply source of pressurized air, in a manner as is commonly utilized with air actuated valves. Material supply rods or strands 172 and 174 may be introduced lengthwise inside of manifold 164 as illustrated in FIGS. 7 and 8.

52. At all times relevant hereto, the inventor of the '925 patent was aware of the '329 patent and intentionally withheld it from the patent office.

53. At all times relevant hereto, U.S. Patent No. 5,121, 329, was material to patentability, and "but for" Stratasys' failure to submit it to the patent office, the '925 patent would not have been granted.

54. At all times relevant hereto, the inventor of the '925 patent committed inequitable conduct by failing to disclose U.S. Patent No. 5,121, 329 to the Patent Office.

COUNT X

**DECLARATORY JUDGMENT OF PATENT INVALIDITY
DUE TO INEQUITABLE CONDUCT
(AS TO U.S. PATENT NO. 5,866,058)**

55. Afinia incorporates the allegations set forth in paragraphs 1 through 54 above by reference as if fully set forth herein.

56. In or about March of 1996, Stratasys began shipping a product known as the FDM(R) 1650.

57. The Stratasys FDM(R) 1650 replaced the Stratasys FDM(R) 1600.

58. Like the FDM (R) 1600, the Stratasys FDM(R) 1650 featured ABS and multiple material modeling.

59. At all times relevant hereto, the Stratasys FDM(R) 1650 had an operating envelope that encompassed 70 °C.

60. At all times relevant hereto, the Stratasys FDM(R) 1650 is prior art to the '058 patent.

61. At all times relevant hereto, neither the patent, nor the prior art of record disclosed the prior use of ABS plastics.

62. At all times relevant hereto, neither the patent, nor the prior art of record disclosed the Stratasys FDM(R) 1650.

63. At all times relevant hereto, the specification of the '058 patent, attached to Plaintiff's Complaint, states:

It has been determined that by maintaining a previously deposited material(in a rapid prototyping system utilizing thermal solidification) within a specific temperature window, that stresses present in the deposited material are relieved and geometric distortions reduced. At least in the vicinity of where newly deposited material will be applied, the previously deposited material must be maintained at a temperature that is preferably in a range between the material's solidification temperature and its creep relaxation temperature.

More preferably, the temperature should be maintained closer to the creep relaxation temperature. In the case of ABS, the temperature window falls between approximately 70° C. and approximately 90° C. In general, an entire build layer (outside of the immediate region of the extrusion nozzle) should be maintained above the material's solidification temperature and below the material's creep relaxation temperature.

64. At all times relevant hereto, the inventors of the '058 patent were aware of the Stratasys FDM (R) 1650 and intentionally withheld it from the Patent Office.

65. At all times relevant hereto, the Stratasys FDM (R) 1650 was material to patentability, and "but for" Stratasys' failure to submit it to the patent office, the '058 patent would not have been granted.

66. At all times relevant hereto, the inventors of the '058 patent committed inequitable conduct by failing to disclose the Stratasys FDM (R) 1650 to the Patent Office.

PRAYER FOR RELIEF

WHEREFORE, Afinia prays for the following relief:

A. That Judgment be entered in favor of Afinia and against Plaintiff on each and every count of the Complaint and on each and every count of its Counterclaim;

B. That Judgment be entered declaring that neither Afinia nor Afinia's product has infringed the '925; '058; '124; and '239 patents;

C. That Judgment be entered declaring that Plaintiff is equitably estopped from alleging infringement of the '925; '058; '124; and '239 patents;

D. That Judgment be entered declaring that Plaintiff is precluded from obtaining injunctive relief, money damages, costs, and/or attorneys' fees for any alleged infringement by Afinia and/or Afinia's product;

E. That Judgment be entered declaring the claims of the '925; '058; '124; and '239 patents invalid;

F. That Judgment be entered declaring the '925 patent and '058 patents unenforceable.

G. That Judgment be entered permanently enjoining and restraining Plaintiff, its officers, agents, servants, employees and attorneys, and all others acting for, on behalf of, or in active concert or participation with any of them, from stating, implying, or suggesting that Afinia infringes the patents-in-suit;

H. That Judgment be entered declaring that this case is exceptional in favor of Afinia under 35 U.S.C. § 285 and that Afinia be awarded its reasonable attorneys' fees and expenses;

I. That Afinia be awarded its costs in this action; and

J. That Afinia be awarded such other and further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

Afinia demands a trial by jury of all issues so triable in this action.

Dated: January 31, 2014

Respectfully submitted,

By: /s/ Mark J. Burns
Mark J. Burns, Esq. (MN 0308055)
E-Mail: mburns@haugenlaw.com
Haugen Law Firm, PLLP
130 TCF Tower
121 South Eighth Street
Minneapolis, MN 55402
Telephone: (612) 339-8300
Facsimile (612) 339-8200

ATTORNEYS FOR DEFENDANT

By: /s/ William J. Cass
William J. Cass, Esq. (Admitted *pro hac vice*)
(CT 415081)
E-mail: wcass@cantorcolburn.com
Nicholas Geiger, Esq. (Admitted *pro hac vice*)
(CT 428520)
E-mail: ngeiger@cantorcolburn.com
Cantor Colburn LLP
20 Church Street, 22nd Floor
Hartford, Connecticut 06103
Telephone: (860) 286-2929
Facsimile: (860) 286-0115