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UNITED STATES DISTRICT COURT

FOR THE SOUTHERN DISTRICT OF CALIFORNIA

'06CV 1941 B NLS

JENS ERIK SORENSEN, as Trustee of SORENSEN RESEARCH AND DEVELOPMENT TRUST, Plaintiff v. TECNICA USA CORP., a New Hampshire corporation; and NORDICA USA CORP. a New Hampshire corporation, Defendant.	Case No. **COMPLAINT FOR PATENT INFRINGEMENT** REQUEST FOR JURY TRIAL

Plaintiff JENS E. SORENSEN, as TRUSTEE of the SORENSEN RESEARCH AND DEVELOPMENT TRUST ("SRDT"), for its Complaint for Patent Infringement against Defendants TECNICA USA CORP. ("TECNICA") and NORDICA USA CORP. ("NORDICA") (collectively TECNICA and NORDICA are hereinafter referred to as "DEFENDANTS"), allege as follows:

THE PARTIES

1. SRDT is a California resident, and the trustee of a trust organized according to California law.

2. Defendant TECNICA is a corporation organized under the laws of New Hampshire, having a principal office at 19 Technology Drive, West Lebanon, New Hampshire 03784, engaged in the import, distribution, sale, and or offer for sale within the United States, including this District, of ski equipment, including ski boots.

3. Defendant NORDICA is a corporation organized under the laws of New Hampshire, having a principal office at 19 Technology Drive, West Lebanon, New Hampshire 03784, engaged in the import, distribution, sale, and or offer for sale within the United States, including this District, of ski equipment, including ski boots.

4. On information and believe, Defendant TECNICA is a corporate subsidiary of the Italian corporation, Tecnica, S.p.A.

5. On information and believe, Defendant NORDICA is a corporate subsidiary of the Italian corporation, Nordica, S.p.A.

6. On information and believe, both TECNICA and NORDICA are ultimately subsidiaries of the same corporation, BENETTON S.p.A., through their intermediate parent corporations: Tecnica, S.p.A. and Nordica, S.p.A.

JURISDICTION and VENUE

7. This action arises under the Patent Laws of the United States of

America, Title 35, United States Code. Jurisdiction is founded on Title 28, United States Code §§ 1331, 1332(a), and 1338(a).

8. Venue in this district is proper under 28 U.S.C. § 1391 and § 1400(b) because Defendants have committed acts of infringement and have regular and established places of business through their retail distribution agents.

9. This Court has personal jurisdiction over Defendants under the long-arm statute of California and U.S. constitutional law because Defendants ship products into the Southern District of California, offer those products for sale and sell those products in this district, provides advertising in this district targeted to this district's residents, and maintain networks of authorized distribution arrangements with sports equipment retailers in this district for the purpose of selling Defendants' products.

10. Ole Sorensen, the inventor of the United States Patent No. 4,935,184 ("the '184 patent"), is an inventor who has spent a lifetime making improved plastic products and solving problems in the manufacture of plastic products including product weight reduction and reduced production cycle time and various strength and quality enhancements.

11. Ole Sorensen's experience and efforts over the last four decades in the plastics industry have resulted in scores of United States Patents. His ideas and work have resulted in improved products and manufacturing processes for plastic flower pots, plastic medical devices, tape cassette cases, cable ties, educational toys, food and beverage containers and other plastic products.

12. The '184 patent entitled "Stabilized Injection Molding When Using a Common Mold Part With Separate Complimentary Mold Parts," was issued on June 19, 1990. A true and correct copy of the '184 patent is attached to this complaint as Exhibit A.

13. The '184 patent provides a long-sought elegant solution to a pervasive problem in the injection molding of hollow plastic products: i.e., how to stabilize the

mold parts against relative movement during the highly pressurized injection of melted plastic.

14. This mold part relative movement problem causes misalignment of the mold parts and results in products with walls of uneven thicknesses if not adequately controlled.

15. Ole Sorensen has been awarded several patents for his invention of multiple methods for mold part stabilization that are applicable in different injection molding situations.

16. The '184 patented method is directed toward stabilizing the mold parts against relative movement during the second injection of injection molding of laminated plastic parts produced sequentially in two cavities made up of at least one common mold part and at least two different complementary mold parts.

17. The '184 patent teaches a method to stabilize the mold parts during the second or later plastic injection by molding one or more stabilizing regions into the first plastic material component(s) that rigidly secure the two mold parts against displacement during the second or later injection.

18. By stabilizing the mold parts against mold part relative movement during the injection process, hollow products may be produced having more controlled dimensions.

19. Plaintiff SRDT is the owner of the '184 patent with all rights to license and enforce the '184 patent.

20. Defendants have not obtained a license or any other valid authorization for import, sale, or offer for sale in the United States of products manufactured through use of the '184 patented process.

CLAIM FOR RELIEF

(Patent Infringement)

21. SRDT realleges and incorporates herein by reference paragraphs 1 through 20, inclusive, as though fully set forth herein.

22. NORDICA has in the past and does presently import into, sell or offer for sale within the United States and this District, ski boots manufactured through use of the '184 patented process. Those ski boots are identified as the following and collectively referred to as "Accused Products":

a. Nordica The Beast Ski Boot ("Beast");

b. Nordica The Beast 10 Ski Boot ("Beast 10");

c. Nordica The Beast 12 Ski Boot ("Beast 12");

d. Nordica The Beast 14 Ski Boot ("Beast 14");

e. Nordica The Beast 10 Woman Ski Boot ("Beast 10 Woman");

f. Nordica The Beast 12 Woman Ski Boot ("Beast 12 Woman"); and

g. Any other Nordica products which are manufactured utilizing the technology claimed in the '184 patent.

23. TECNICA has in the past and does presently import into, sell or offer for sale within the United States and this District, ski boots manufactured through use of the '184 patented process. Those ski boots are identified as the following and are included within the list of "Accused Products":

a. Tecnica Rival X8 Ski Boot ("RIVAL X8"); and

b. Any other Tecnica products which are manufactured utilizing the technology claimed in the '184 patent.

24. Defendants sell these Accused Products in the United States and in this District, under Defendants' trademarks. The Accused Products bear the Defendants' names either directly on the ski boot and/or the packaging for the same.

25. Upon information and belief, Defendants Italian parent corporations control the nature and quality of the Accused Products, and manufactures these Accused Products in accordance with its design and product specifications.

26. Defendants possess or can obtain the manufacturing process information for the Accused Products.

27A. Defendants have been on constructive notice of the '184 patent since its issuance on June 19, 1990.

27B. By counsel's letter of October 29, 2004 ("Infringement Letter"), SRDT placed NORDICA on actual notice of the '184 patent.

28. SRDT's Infringement Letter provided NORDICA with Drawing Number D-5452 and its associated claim chart showing the substantial likelihood pursuant to 35 U.S.C. § 295, of the infringement of the '184 patented process by the import, sale and/or offer for sale in this District and the United States of the Accused Products identified in Drawing Number D-5452 and all other NORDICA products manufactured with the same process.

29. The evidence provided to NORDICA in the Infringement Letter, including Drawing Number D-5452 and related claim charts, illustrate how the process utilized to produce the Accused Products incorporated each element of the '184 patent claims. The letter included the results of expert analysis of the apparent injection molding process used to make the Accused Products. The Infringement Letter also provided NORDICA with a copy of the '184 patent.

30. As of the date of filing of this Complaint, SRDT has discovered the seven Accused Products identified in paragraphs 22 and 23 above, for which there is a substantial likelihood pursuant to 35 U.S.C. § 295, of the infringement of the '184 patented process by the import, sale and/or offer for sale in this District and the United States.

31. The Accused BEAST Ski Boots are plastic products.

32. The Accused BEAST Ski Boots are thin-walled products.

33. The Accused BEAST Ski Boots are hollow products.

34. The Accused BEAST Ski Boots are concave.

35. Some portions of the walls of the Accused BEAST Ski Boots are less than 5.0 mm in thickness.

36. The Accused BEAST Ski Boots are produced by cyclic injection

molding.

37. The Accused BEAST Ski Boots have a closed end as indicated on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit B.

38. The Accused BEAST Ski Boots have an open end as indicated on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit C.

39. The Accused BEAST Ski Boots have laminated walls as shown on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit D.

40. The laminated walls of each of the Accused BEAST Ski Boots terminate in a rim at an open end as shown on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit D.

41. The Accused BEAST Ski Boots are molded utilizing a first mold cavity and a second mold cavity.

42. On information and belief, the first mold cavity utilized to mold each of the Accused BEAST Ski Boots is formed of at least one first common mold part and at least one first complementary mold part.

43. On information and belief, the second mold cavity utilized to mold each of the Accused BEAST Ski Boots is formed of at least one first common mold part and at least one second complementary mold part.

44. On information and belief, the steps described in the following paragraphs 45 through 55, inclusive, are followed in production of each of the Accused BEAST Ski Boots:

45. On information and belief, the first common mold part and the first complementary mold part are combined to assemble the first mold cavity in production of the Accused BEAST Ski Boots.

46. On information and belief, a first plastic material is injected into the first mold cavity in production of the Accused BEAST Ski Boots.

47. On information and belief, the injected first plastic material is solidified to form a first plastic material component in production of the Accused BEAST Ski

Boots.

48. On information and belief, the first common mold part and the second complementary mold part are combined to assemble the second mold cavity in production of the Accused BEAST Ski Boots, with the first plastic material component attached to the first common mold part during assembly of the second mold cavity. The first plastic material component is then contained within the second mold cavity.

49. On information and belief, a second plastic material having different characteristics than the first plastic material is injected into the second mold cavity in production of the Accused BEAST Ski Boots.

50. On information and belief, after the second plastic material is injected, it solidifies to form a second plastic material component that fuses with the first plastic material component to produce the Accused BEAST Ski Boots. The First Plastic Material Component and The Second Plastic Material Component are as shown on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit E.

51. On information and belief, the first plastic material component has one or more stabilizing regions as shown on the attached photograph of the Accused BEAST Ski Boots marked as Exhibit F.

52. On information and belief, the stabilizing regions in the first plastic material component depicted in the photograph attached as Exhibit F, rigidly secure the first common mold part, in position in relation to the second complementary mold part in production of the Accused BEAST Ski Boot.

53. On information and belief, the stabilizing regions of the first plastic material component restrict displacement of the first common mold part in relation to the second complementary mold part that would otherwise result from the injection pressure of the second plastic material during injection into the second mold cavity in production of the Accused BEAST Ski Boot.

54. On information and belief, the stabilization during the injection of the

second plastic material allows the Accused BEAST Ski Boot, to be produced with improved control of dimensions.

55. The first plastic material of the Accused Products reaches the rim of the Accused BEAST Ski Boot as shown in the attached photographs of the Accused BEAST Ski Boot marked as Exhibits D and E.

56. The second plastic material of the Accused BEAST Ski Boot reaches the rim of the Accused Products as shown in the attached photograph of the Accused BEAST Ski Boot marked as Exhibits D and E.

57. On information and belief, the Accused BEAST 10 Ski Boot is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

58. On information and belief, the Accused BEAST 12 Ski Boot is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

59. On information and belief, the Accused BEAST 14 Ski Boot is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

60. On information and belief, the Accused BEAST 10 Woman Ski Boot is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

61. On information and belief, the Accused BEAST 12 Woman Ski Boot is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

62. On information and belief, the Accused RIVAL X8 Ski Boot Cuff is manufactured with a process including all elements alleged with regard to the Accused BEAST Ski Boot in paragraphs 31 through 56, inclusive, hereinabove.

63. SRDT provided NORDICA with an opportunity to prove that it was not using the '184 process. Pursuant to 35 U.S.C. § 295, SRDT requested that

NORDICA provide information about the manufacturing process for the Accused Products that could either prove or disprove the use of the '184 patented process.

64. SRDT also offered to negotiate a license with NORDICA for its use of the '184 patent in the event that NORDICA could not demonstrate that it was not using the '184 patented process in making the Accused Products.

65. Despite the evidence of patent infringement, Defendants have not procured licenses for their use of the '184 patent.

66. Defendants have an affirmative duty to investigate allegations of infringement, and to not to infringe the '184 patent now that they have been placed on notice of the '184 patent and its infringement.

67. As of the filing date of this Complaint, Defendants has not provided specific manufacturing process information for the Accused Products though requested to do so by SRDT in accordance with 35 U.S.C. § 295.

68. As of the filing of this Complaint, Defendants have not provided any information with regard to the manufacturing process for the Accused Products that would indicate that Defendants uses a non-infringing process to manufacture any of the Accused Products.

69. On information and belief the manufacturing process information illustrated in Drawing No. D-5452 (attached hereto as Exhibit G) which has been provided in large version to NORDICA, and described in the related claim chart (attached hereto as Exhibit H) are substantially correct.

70. The Defendants Accused Products which infringe the '184 patent include the Accused Products identified hereinabove, and may include others, of which SRDT is not presently aware, which will be identified when SRDT becomes aware of them.

71. On information and belief, Defendants will continue to make, use, sell and/or offer for sale within the United States and this District, and import into the United States Accused Products using the '184 patent process, without authority to

do so, in violation of 35 U.S.C. § 271, knowing such to be an infringement of the '184 patent, and in willful disregard of SRDT's '184 patent rights, unless enjoined from doing so by this Court.

72. Defendants contribute to infringement the '184 patent and induce others to infringe the '184 patent by virtue of making, selling, using and/or offering for sale within the United States and this District, and importing into the United States, Accused Products manufactured using the '184 patent process in willful disregard of SRDT's '184 patent rights.

73. Defendants will continue to contribute to and to induce infringement of the '184 patent by making, selling, using and/or offering for sale within the United States and this District, and importing into the United States, Accused Products manufactured using the '184 patent process in willful disregard of SRDT's '184 patent rights, unless enjoined by this Court.

74. The conduct of Defendants in willfully continuing to infringe the '184 patent, and inducing others to infringe the '184 patent, by the acts alleged hereinabove despite being on both constructive notice and actual notice, is deliberate, thus making this an exceptional case within the meaning of 35 U.S.C. § 285.

75. SRDT has suffered and is continuing to suffer damages in an amount that is, on information and belief, at least $5,500,000.00 and according to proof at trial, by reason of Defendants infringing conduct alleged hereinabove. SRDT has suffered and will continue to suffer additional irreparable harm and impairment of the value of its patent rights unless Defendants and its subsidiaries and/or parent companies are enjoined by this court from continuing to infringe the '184 patent.

PRAYER FOR RELIEF

WHEREFORE, SRDT prays that judgment be entered as follows:

a. For a determination that the Accused Processes are presumed to infringe the '184 patent pursuant to 35 U.S.C. § 295;

b. Defendants are adjudicated and decreed to have infringed the '184 patent;

c. Defendants are adjudicated and decreed to have contributed to the infringement of the '184 patent and to have induced others to infringe the '184 patent;

d. Defendants, their parents, subsidiaries, divisions, affiliates, officers, agents, and attorneys, and those acting in privity or concert with them, are enjoined from further infringement of the '184 patent, and from further contribution to or inducement of the infringement of the '184 patent;

e. Defendants are ordered to account for damages adequate to compensate SRDT for the infringement of '184 patent, their contributory infringement of the '184 patent, and their inducement of infringement of the '184 patent, in the amount of at least $5,500,000.00 and according to proof at trial;

f. Such damages as are awarded are trebled by the Court pursuant to 35 U.S.C. § 284 by reason of the willful, wanton, and deliberate nature of the infringement to at least $16,500,000.00 and according to proof at trial;

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g. That this is decreed an "exceptional case" and SRDT is awarded reasonable attorneys' fees by the Court pursuant to 35 U.S.C. § 285;

h. For interest thereon at the legal rate;

i. For costs of suit herein incurred;

j. For such other and further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

SRDT respectfully requests that its claims be tried to a jury.

DATED this 14th day of September, 2006.

JENS ERIK SORENSEN, as Trustee of SORENSEN RESEARCH AND DEVELOPMENT TRUST, Plaintiff

J. Michael Kaler, Esq.
Melody A. Kramer, Esq.
Patricia A. Shackelford, Esq.
Attorneys for Plaintiff

Exhibit A

United States Patent [19]

Sorensen

[11] **Patent Number: 4,935,184**

[45] **Date of Patent: Jun. 19, 1990**

[54] **STABILIZED INJECTION MOLDING WHEN USING A COMMON MOLD PART WITH SEPARATE COMPLIMENTARY MOLD PARTS**

[75] Inventor: Jens O. Sorensen, Rancho Santa Fe, Calif.

[73] Assignee: Primtec, Rancho Santa Fe, Calif.

[21] Appl. No.: 386,012

[22] Filed: Jul. 27, 1989

Related U.S. Application Data

[63] Continuation of Ser. No. 152,670, Feb. 5, 1988, abandoned.

[51] Int. Cl.[5] B29C 45/16

[52] U.S. Cl. 264/246; 264/255; 264/328.8; 425/129.1

[58] Field of Search 264/245, 246, 255, 328.1, 264/328.8, 328.11, 328.12; 425/127, 129.1, 130

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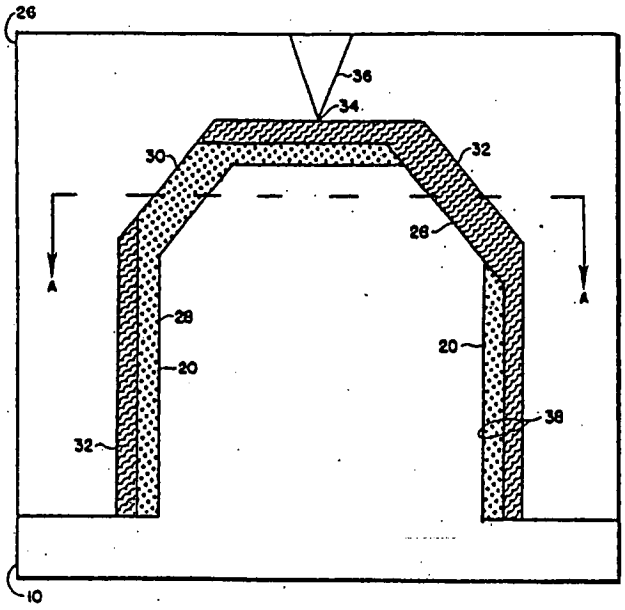
Primary Examiner—Jill L. Heitbrink
Attorney, Agent, or Firm—Edward W. Callan

[57] **ABSTRACT**

A process for injection molding plastic products having a closed end and an open end with laminated walls terminating in a rim at the open end. A first common mold part is combined with a first complementary mold part to assemble a first mold cavity in which the first plastic material is injected until it reaches the portion of the first mold cavity that defines the rim of the product. Portions of the first complementary mold part contact portions of the first common mold part to rigidly secure the mold parts in position in relation to each other in order to impede movement of the mold parts in relation to each other during injection of a first plastic material into the first mold cavity. The first plastic material is shaped such that when it is contained after solidification in a second mold cavity it provides one or more stabilizing regions that rigidly secure the first common mold part in position in relation to the second complementary mold part in order to impede movement of such mold parts in relation to each other during the injection of a second plastic material into the second mold cavity. A second plastic material having different characteristics than the first plastic material is injected until it reaches the portion of the second mold cavity that defines the rim of the product to form a laminated wall.

10 Claims, 5 Drawing Sheets



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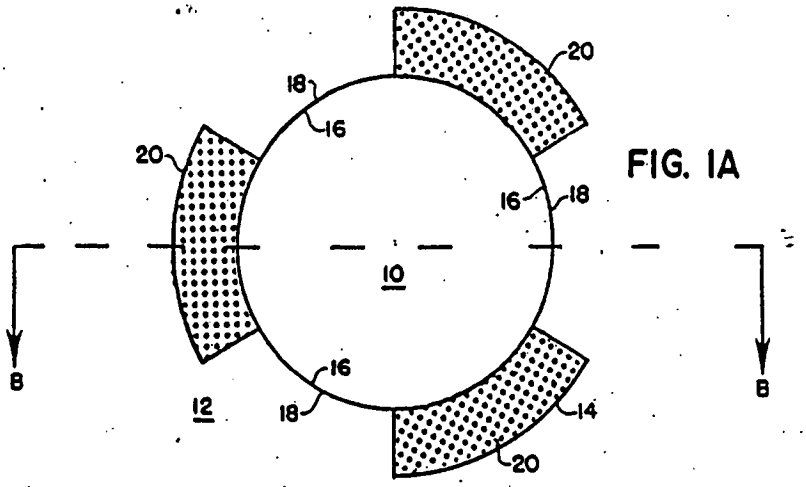
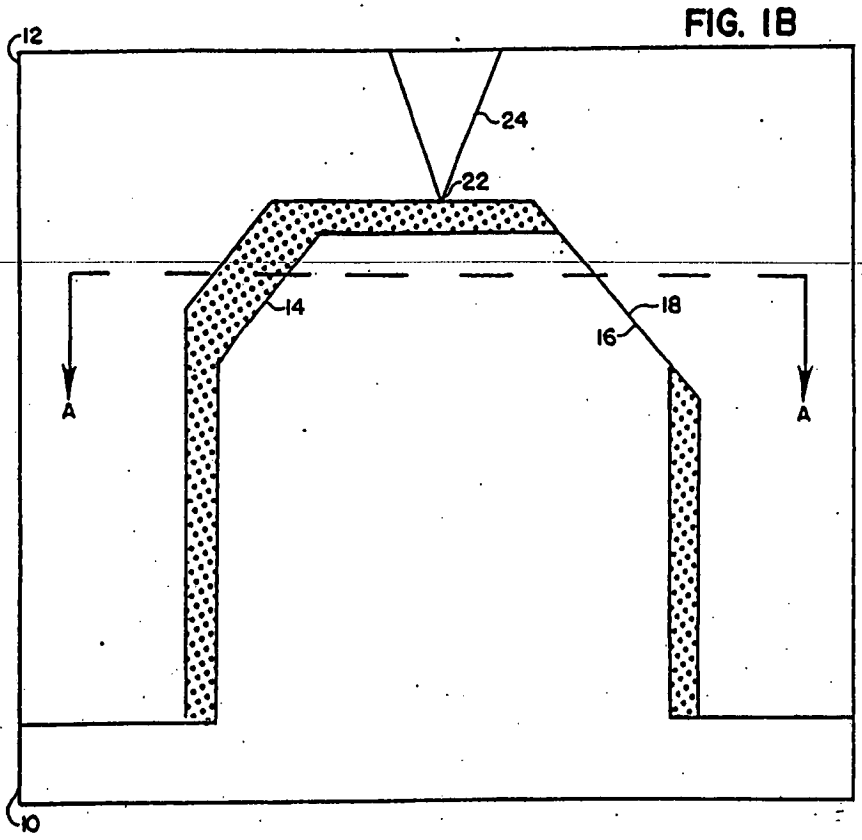


FIG. 1A

FIG. 1B



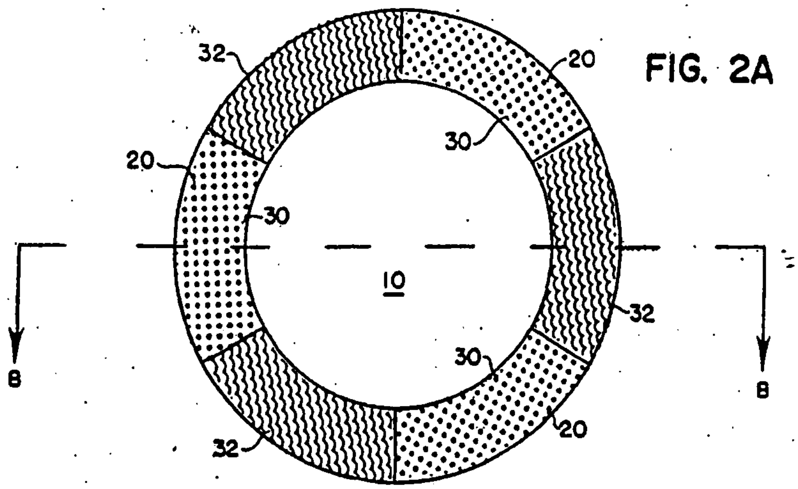


FIG. 2A

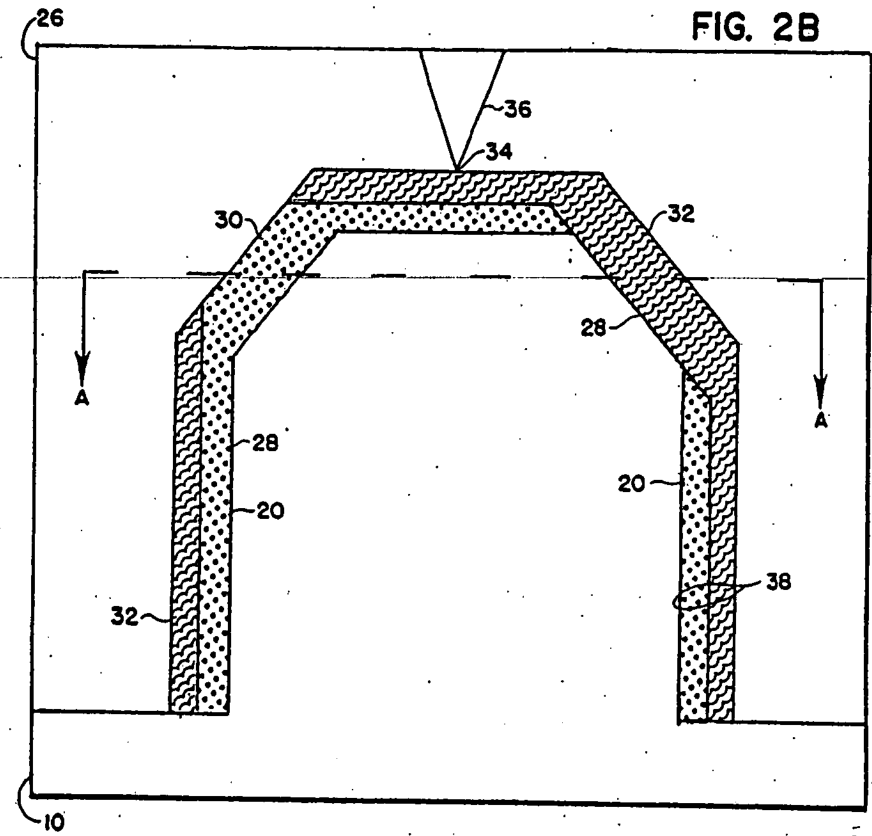


FIG. 2B

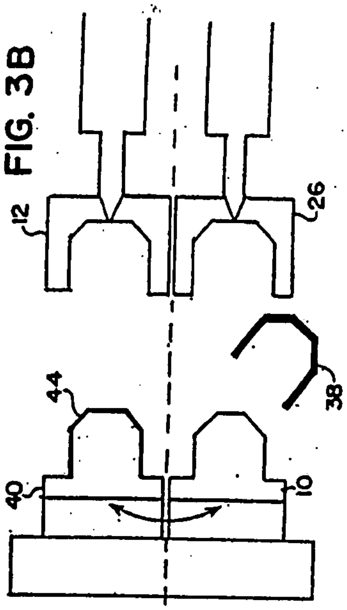


FIG. 3B

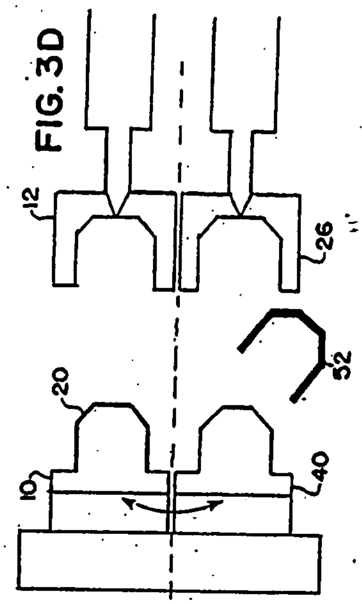


FIG. 3D

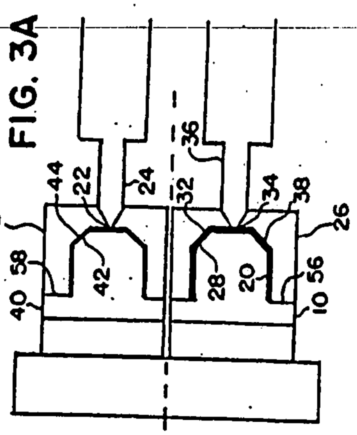


FIG. 3A

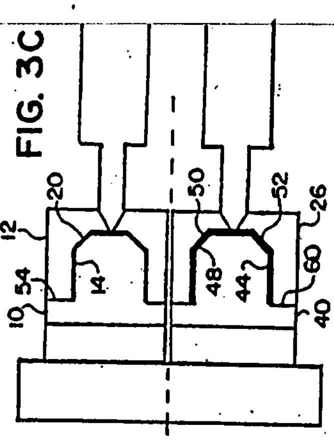


FIG. 3C

FIG. 4

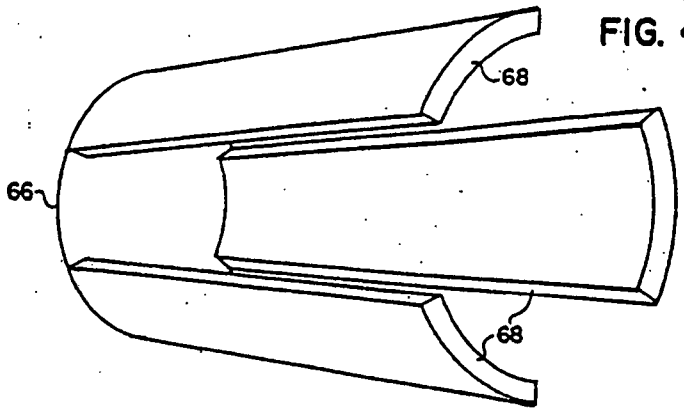


FIG. 5

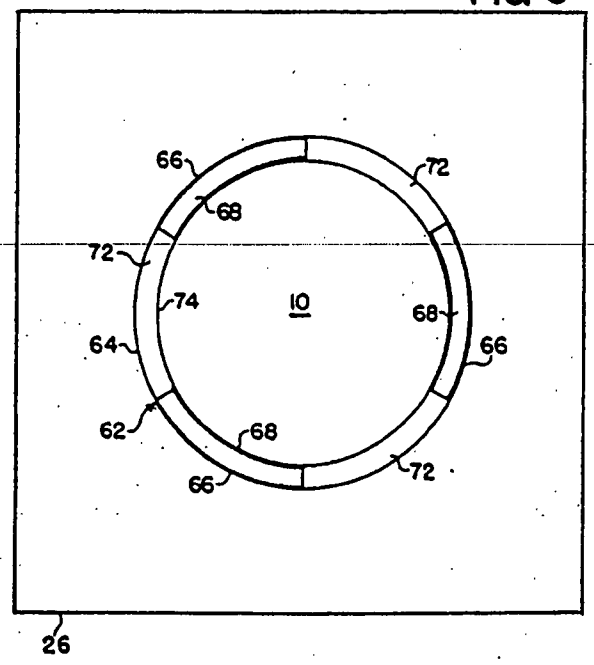


FIG. 6

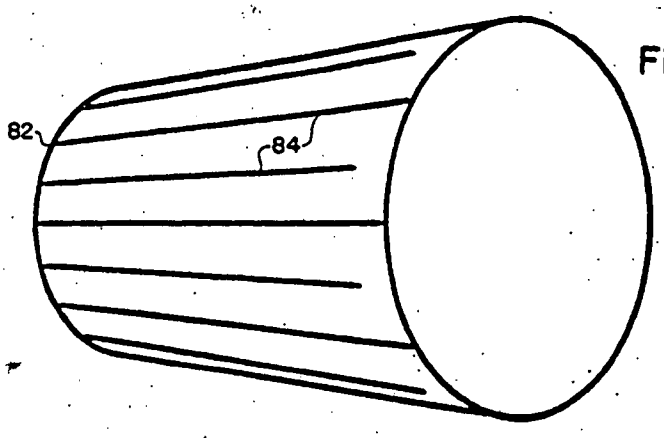
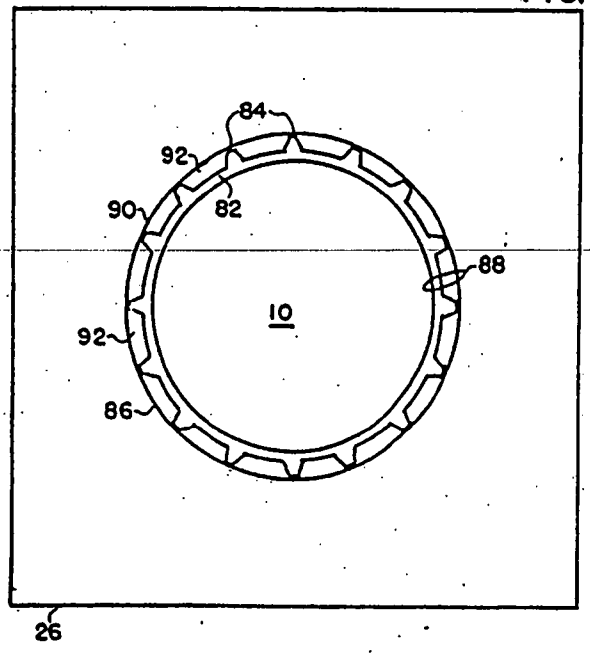


FIG. 7



STABILIZED INJECTION MOLDING WHEN USING A COMMON MOLD PART WITH SEPARATE COMPLIMENTARY MOLD PARTS

This is a continuation of co-pending application Ser. No. 07/152,670 filed on Feb. 5, 1988 now abandoned.

BACKGROUND OF THE INVENTION

The present invention generally pertains to injection molding of plastic products and is particularly directed to stabilizing the dimensions of mold cavities during the injection steps when using a common mold part and at least two complementary mold parts to assemble separate mold cavities for receiving separate injections of plastic materials to produce a thin-walled, hollow plastic product.

The use of a common mold part with at least two complementary mold parts to provide separate mold cavities for receiving separate injections of plastic materials for producing a hollow plastic product is known. In one known prior art method of cyclic injection molding a hollow plastic product, a first mold cavity is defined by a first common mold part and a first complementary mold part; and a second mold cavity is defined by the first common mold part and a second complementary mold part. The method includes the steps of:

(a) combining the first common mold part with the first complementary mold part to assemble the first mold cavity;

(b) injecting a first plastic material into the first mold cavity;

(c) solidifying the injected first plastic material to form a first plastic material component;

(d) combining the first common mold part with the second complementary mold part to assemble the second mold cavity with the first plastic material component attached to the first common mold part so that when the second mold cavity is assembled the first plastic material component is contained within the second mold cavity;

(e) injecting a second plastic material into the second mold cavity while the first plastic material component is contained therein; and

(f) solidifying the injected second plastic material so as to form a second plastic material component that fuses with the first plastic material component to produce a hollow plastic product.

It also is known to expand upon this method by further using a third mold cavity defined by a second common mold part and the first complementary mold part, and a fourth mold cavity defined by the second common mold part and the second complementary mold part. The method further includes the steps of:

(h) during step (d), combining the second common mold part with the first complementary mold part to assemble the third mold cavity;

(i) during step (e), injecting a third plastic material into the third mold cavity;

(j) during step (f), solidifying the injected third plastic material to form a third plastic material component;

(k) during step (a), combining the second common mold part with the second complementary mold part to assemble the fourth mold cavity with the third plastic material attached to the second common mold part so that when the fourth mold cavity is assembled the third plastic material is contained within the fourth mold cavity;

(l) during step (b), injecting the fourth plastic material into the fourth mold cavity while the solidified third plastic material is contained therein; and

(m) during step (c), solidifying the injected fourth plastic material so as to form a fourth plastic material component that fuses with the third plastic material to produce a second said hollow plastic product.

This method has been used for producing hollow plastic products having composite walls of separately injected plastic materials. In performing such method, the first plastic material is injected until it reaches the parting line between the first common mold part and the first complementary mold part; the second plastic material is injected until it reaches the parting line between the first common mold part and the second complementary mold part; the third plastic material is injected until it reaches the parting line between the second common mold part and the first complementary mold part; and the fourth plastic material is injected until it reaches the parting line between the second common mold part and the second complementary mold part.

Typically, all four plastic materials are the same.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus for injecting molding hollow, thin-walled plastic products, having a closed end and an open end with laminated walls terminating in a rim at the open end, where relative movement between the common mold part and the complementary mold parts is impeded during injection of the plastic materials.

According to the present invention, the first and second plastic materials have different characteristics, and in the injection molding method described above, the step of solidifying the injected first plastic material to form the first plastic material component (step (c)) includes the step of

(g) shaping the first plastic material component such that when the first plastic material component is so contained in the second mold cavity the first plastic material component provides one or more stabilizing regions that rigidly secure the first common mold part in position in relation to the second complementary mold part in order to impede movement of the first common mold part in relation to the second complementary mold part during the injection of the second plastic material into the second mold cavity, to thereby produce a thin-walled plastic product having controlled dimension in that the wall-thickness dimensions of the second mold cavity are stabilized by the stabilizing regions.

The step of injecting the first plastic material into the first mold cavity (step (b)) includes the step of

(h) injecting the first plastic material until it reaches the portion of the first mold cavity that defines the rim of the product; and

the step of injecting the second plastic material into the second mold cavity (step (e)) includes the step of

(i) injecting the second plastic material until it reaches the portion of the second mold cavity that defines the rim of the product.

When the method of the present invention utilizes two common mold cavities, such as described above, the step of solidifying the injected third plastic material to form the third plastic material component (step (j)) includes the step of shaping the third plastic material component such that when the third plastic material

component is so contained in the fourth mold cavity the solidified third plastic material provides one or more stabilizing regions that rigidly secure the second common mold part in position in relation to the second complementary mold part in order to impede movement of the second common mold part in relation to the second complementary mold part during the injection of the fourth plastic material into the fourth mold cavity, to thereby produce a second thin-walled plastic product having controlled dimensions.

The method of the present invention may also be used for molding a product having a side wall including an approximately longitudinal strip that may be transparent to provide a transparent window in the side wall. This feature is particularly advantageous when it is desired to provide a longitudinal window in the side wall in order to monitor the level of a substance, such as a fluid, contained in the plastic product. In one embodiment, the first plastic material component is shaped to provide at least one stabilizing region that is transverse to a parting line between the first common mold part and the first complementary mold part, whereby the longitudinal strip is defined by the transverse stabilizing region. A transparent window is provided in the side wall by injecting a transparent first plastic material into the first mold cavity. A nontransparent second plastic material is injected into the second mold cavity to provide a nontransparent background for printing in the remainder of the side wall. In an alternative embodiment, the first plastic material component is shaped such that when the first plastic material component is contained in the second mold cavity, the second mold cavity defines at least one unfilled cavity region that is transverse to a parting line between the first common mold part and the second complementary mold part, whereby the longitudinal strip is defined by the unfilled transverse cavity region. In this embodiment, a transparent window is provided in the side wall by injecting a transparent second plastic material into the second mold cavity; and a nontransparent first plastic material is injected into the first mold cavity to provide a nontransparent background for printing in the remainder of the side wall.

In another aspect of the method of the present invention, the step of shaping the first plastic material component (step (g)) may further include the step of providing a first complementary mold part that is dimensioned in relation to the first common mold part such that when combined with the first common mold part to assemble the first mold cavity, portions of the first complementary mold part contact portions of the first common mold part to rigidly secure the first common mold part in position in relation to the first complementary mold part in order to impede movement of the first common mold part in relation to the first complementary mold part during the injection of the first plastic material into the first mold cavity.

The present invention further provides apparatus for performing the method of the present invention and hollow, thin-walled plastic products molded according to the method of the present invention.

Additional features of the present invention are described in relation to the description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWING

FIGS. 1A and 1B are sectional views illustrating a first mold cavity assembled by combining a first common mold part with a first complementary mold part. FIG. 1A is a top sectional view taken along lines A—A in FIG. 1B; and FIG. 1B is a side sectional view taken along lines B—B in FIG. 1A. FIGS. 1A and 1B further show the first plastic material injected into the first mold cavity.

FIGS. 2A and 2B are sectional views illustrating a second mold cavity assembled by combining the first common mold part of FIGS. 1A and 1B with a second complementary mold part. FIG. 2A is a top sectional view taken along lines A—A in FIG. 2B; and FIG. 2B is a side sectional view taken along lines B—B in FIG. 2A. FIGS. 2A and 2B further show the first plastic material component contained in the second mold cavity and the second plastic material injected into the second mold cavity.

FIGS. 3A through 3D illustrate a series of steps in the performance of a preferred embodiment of the method of the present invention.

FIG. 4 illustrates a first plastic material component formed in an alternative embodiment of the method of the present invention.

FIG. 5 is a sectional view illustrating a second mold cavity containing the first plastic material component of FIG. 4. FIG. 5 also is a sectional view illustrating a product molded according to such alternative embodiment of the method of the present invention.

FIG. 6 illustrates a first plastic material component formed in a further alternative embodiment of the method of the present invention.

FIG. 7 is a sectional view illustrating a second mold cavity containing the first plastic material component of FIG. 6. FIG. 7 also provides a sectional view of a product molded according to such further alternative embodiment of the method of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1A and 1B the apparatus of a preferred embodiment of the present invention includes a first common mold part 10 and first complementary mold part 12. The first common mold part 10 is combined with the first complementary mold part 12 to assemble a first mold cavity 14. The first complementary mold part 12 is dimensioned in relation to the first common mold part 10 such that when so combined with the first common mold part 10 to assemble the first mold cavity 14, portions 16 of the first complementary mold part 12 contact portions 18 of the first common mold part 10 to rigidly secure the first common mold part 10 in position in relation to the first complementary mold part 12 in order to impede movement of the first common mold part 10 in relation to the first complementary mold part 12 during injection of the first plastic material 20 into the first mold cavity 14. The first plastic material 20 is injected into the mold cavity 14 through a gate 22 and a runner 24 in the first complementary mold part 12.

The injected first plastic material 20 is solidified to form a first plastic material component 20 by cooling the injected first plastic material in the first mold cavity 14, whereby the first plastic material component 20 is shaped in accordance with the dimensions of the first mold cavity 14. In an alternative embodiment, the first plastic material component may be further shaped following removal of the first complementary mold part 12.

Referring to FIGS. 2A and 2B the apparatus of a preferred embodiment of the present invention includes a second complementary mold part 26. The first common mold part 10 is combined with the second complementary mold part 26 to assemble a second mold cavity 28 with the first plastic material component 20 attached to the first common mold part 10, so that when the second mold cavity 28 is assembled, the first plastic material component 20 is contained within the second mold cavity 28.

The first plastic material component 20 is shaped such that when the first plastic material component 20 is so contained in the second mold cavity 28 the first plastic material component 20 provides one or more stabilizing regions 30 that rigidly secure the first common mold part 10 in position in relation to the second complementary mold part 26 in order to impede movement of the first common mold part 10 in relation to the second complementary mold part 26 during the insertion of a second plastic material 32 into the second mold cavity 28.

The second plastic material 32 is injected into the second mold cavity 28 through a gate 34 and a runner 36 in the second complementary mold part 26 while the first plastic material component 20 is contained in the second mold cavity 28.

The injected second plastic material 32 is solidified by cooling in the second mold cavity 28 so as to form a second plastic material component 32 that fuses with the first plastic material component 20 to produce thin-walled hollow plastic product 38 having controlled dimensions.

A preferred embodiment of a method of cyclic injection molding of hollow, thin-walled plastic products according to the present invention, utilizing two common mold parts and two complementary mold parts to provide four mold cavities is described with reference to FIGS. 3A through 3D.

Referring to FIG. 3A, a second common mold part 40 is combined with the first complementary mold part 12 to assemble a third mold cavity 42; while at the same time the first common mold part 10 is combined with the second complementary mold part 26 to assemble a second mold cavity 28, with the first plastic material component 18 attached to the first common mold part 10, so that when the second mold cavity 28 is assembled, the first plastic material component 20 is contained within the second mold cavity 28. The formation of the first plastic material component 20 is discussed above in relation to FIGS. 1A and 1B.

A third plastic material 44, which may be the same as the first plastic material 20, is injected into the third mold cavity 42 through the gate 22 and the runner system 24 contained in the first complementary mold part 12; while at the same time, the second plastic material 32 is injected into the second mold cavity 28 through the gate 34 and a runner system 36 contained in the second complementary mold part 26.

The injected third plastic material 44 is solidified by cooling in the third mold cavity 42 to form a third plastic material component 44; while at the same time the injected second plastic material 32 is solidified by cooling in the second mold cavity 28 so as to form the second plastic material component 28 that fuses with the first plastic material component 20 to produce the hollow, thin-walled plastic product 38.

Referring to FIG. 3B, the first common mold part 10 and the second common mold part 40 are separated from the second complementary mold part 26 and the first complementary mold part 12 respectively; and the molded hollow, thin-walled plastic product 38 is ejected from first common mold part 10, while the third plastic material component 44 is retained on the third common mold part 40. The positions of the first common mold part 10 and the second common mold part 40 are then interchanged from those shown in FIG. 3B to those shown in FIG. 3C.

Referring to FIG. 3C, the first common mold part 10 is combined with the first complementary mold part 12 to assemble the first mold cavity 14; while at the same time the second common mold part 40 is combined with the second complementary mold part 26 to assemble a fourth mold cavity 48, with the first plastic material component 44 attached to the third common mold part 40, so that when the fourth mold cavity 48 is assembled, the third plastic material component 44 is contained within the fourth mold cavity 48. The formation of the third plastic material component 44 is discussed above in relation to FIG. 3A.

The first plastic material 20, which may be the same as the third plastic material 44, is injected into the first mold cavity 14 through the gate 22 and the runner system 24 contained in the first complementary mold part 12; while at the same time, a fourth plastic material 50, which may be identical to the second plastic material 32, is injected into the fourth mold cavity 48 through the gate 34 and a runner system 36 contained in the second complementary mold part 26.

The injected first plastic material 20 is solidified by cooling in the first mold cavity 14 to form another first plastic material component 20; while at the same time the injected fourth plastic material 50 is solidified by cooling in the fourth mold cavity 48 so as to form the second plastic material component 48 that fuses with the third plastic material component 44 to produce a second hollow, thin-walled plastic product 52.

Referring to FIG. 3D, the first common mold part 10 and the second common mold part 40 are separated from the first complementary mold part 12 and the second complementary mold part 26 respectively; and the second molded hollow, thin-walled plastic product 52 is ejected from second common mold part 40, while the first plastic material component 20 is retained on the first common mold part 10. The positions of the first common mold part 10 and the second common mold part 40 are then interchanged from those shown in FIG. 3D to those shown in FIG. 3A, and the cycle is repeated.

As described above, the first plastic material component 20 is shaped such that when the first plastic material component 20 is contained in the second mold cavity 28, the first plastic material component 20 provides one or more stabilizing regions 30 that rigidly secure the first common mold part 20 in position in relation to the second complementary mold part 26 in order to impede movement of the first common mold part 10 in relation to the second complementary mold part 26 during injection of the second plastic material 32 into the second mold cavity 28.

Likewise, the third plastic material component 44 is shaped such that when the third plastic material component 44 is contained in the fourth mold cavity 48, the third plastic material component 44 provides one or more stabilizing regions that rigidly secure the second common mold part 40 in position in relation to the second complementary mold part 26 in order to impede

movement of the second common mold part 40 in relation to the second complementary mold part 26 during injection of the fourth plastic material 50 into the fourth mold cavity 48.

The method described above with reference to FIGS. 3A through 3D may be used for producing hollow, thin-walled plastic products having laminated walls of different plastic materials. In performing such method, the first plastic material 20 is injected until it reaches a parting line 54 between the first common mold part 10 and the first complementary mold part 12 (FIG. 3C); and the second plastic material 32 is injected until it reaches a parting line 56 between the first common mold part 10 and the second complementary mold part 26 (FIG. 3A). Likewise, the third plastic material 44 is injected until it reaches a parting line 58 between the second common mold part 40 and the first complementary mold part (FIG. 3A); and the fourth plastic material 50 is injected until it reaches a parting line 60 between the second common mold part 40 and the second complementary mold part 26.

Referring to FIGS. 4 and 5, the method of the present invention also may be used for molding a product 62 having a side wall 64 including at least one approximately longitudinal strip that may be transparent to thereby provide a transparent window in the side wall 64.

In one embodiment, the first plastic material component 66 is shaped to provide at least one stabilizing region 68 that is transverse to a parting line 54 (FIG. 3C) between the first common mold part 10 and the first complementary mold part 12, whereby each longitudinal strip is defined by a transverse stabilizing region 68. The stabilizing regions 68 need not extend all the way to the parting line 54. A transparent window is provided in the side wall 64 by injecting a transparent first plastic material into the first mold cavity to provide the first plastic material component 66. A nontransparent second plastic material 72 is injected into the second mold cavity 74 to provide a nontransparent background for printing in the remainder of the side wall 64.

In an alternative embodiment, the first plastic material component 66 is shaped such that when the first plastic material component 66 is contained in the second mold cavity 74, the second mold cavity 74 defines at least one unfilled cavity region 72 that is transverse to a parting line 56 (FIG. 3A) between the first common mold part 10 and the second complementary mold part 26, whereby longitudinal strips may be provided in the unfilled transverse cavity regions 72. The unfilled transverse cavity regions 72 need not extend all the way to the parting line 56. In this embodiment, transparent windows are defined in the side wall 64 by injecting a transparent second plastic material into the second mold cavity 74 to fill the transverse cavity regions 72. Prior thereto, a nontransparent first plastic material is injected into the first mold cavity to form the first plastic material component 66 and thereby provide a nontransparent background for printing in the remainder of the side wall 64.

Referring to FIGS. 6 and 7, in a further preferred embodiment, the first plastic material component 82 that is shaped as shown in FIG. 6 to include a plurality of symmetrically disposed stabilizing regions 84, which extend approximately longitudinally over a portion of the side wall 86 of the molded product 88. The first plastic material component 82 is molded in a first mold cavity in accordance with the teaching of applicant's U.S. Pat. application No. 7,463, filed Jan. 26, 1987 and in accordance of the above description to the extent that such description is compatible with the teaching of application Ser. No. 7,463. After the first plastic material component 82 is formed in a first mold cavity, which is assembled by combining a first complementary mold part 12 and a first common mold part 10, the first plastic component 82 is retained on the first common mold part 10 while the first common mold part 10 is combined with a second complementary mold part 26 to assemble a second mold cavity 90, as shown in FIG. 7.

Referring to FIG. 7, the first plastic material component 82 is shaped such that when the first plastic material component 82 is contained in the second mold cavity 90, the first plastic material component 82 provides one or more stabilizing regions 84 that rigidly secure the first common mold part 10 in position in relation to the second complementary mold part 26 in order to impede movement of the first common mold part 10 in relation to the second complementary mold part 26 during injection of the second plastic material 92 into the second mold cavity 90.

The injected second plastic material 92 is solidified by cooling in the second mold cavity 90 to form a second plastic material component 92 that fuses with the first plastic material component 82 to produce the hollow, thin-walled, plastic product 88. The side wall 86 of the molded product 88 thus includes two layers of plastic 82, 92. The molded product 88 has controlled dimensions, is generally shaped as shown in FIG. 6, and has a lateral cross section as shown in FIG. 7. The side wall 86 of the molded product thus includes two layers of plastic 82, 92.

The stabilizing regions 84 have a wall thickness equal to the thickness of the side wall 86 and are transverse to the parting line 56 (FIG. 3A) between the first common mold part 10 and the second complementary mold part 26 to thereby provide longitudinal transparent windows 84 in the side wall 86. The stabilizing regions 84 need not extend all the way to the parting line 56. In a preferred embodiment of this product, the other side-wall layer 90 is nontransparent and extends throughout the majority of the side wall 86.

The present invention may be modified from the embodiments illustrated and described above. The common mold parts may be cavity mold parts instead of core mold parts, as illustrated and described herein. In addition, injections of plastic material into any given mold cavity may be made through more than one gate. Also, injections of plastic materials may be made into more than two mold cavities simultaneously, whereby the number of mold cavities included in the mold may be a multiple of the number of separate mold cavities required to produce a single product. For example, when using the method described and illustrated herein for producing a product composed of two plastic material components formed following injection of plastic material into two separate mold cavities, the number of mold cavities included in the mold may be any multiple of two, i.e. 2, 4, 6, etc.

The present invention also can be used to mold products including more than two plastic material components formed following injection of plastic material into more than two separate mold cavities. In an embodiment requiring three separate mold cavities, a third complementary mold part is used, and the fused first and second plastic material components are retained on

the first common mold part when the first common mold part is combined with the third complementary mold part to assemble the third mold cavity, with the fused first and second mold parts being shaped to stabilize the common mold in relation to the third complementary mold part during injection of a third plastic material into the third mold cavity.

The core-stabilization techniques described in applicant's U.S. Pat. Nos. 4,381,275 and 4,508,676; U.S. Pat. No. 3,737,272 to Stegmuller; and in Australian Patent Specification 17,577/70 filed by Ryles and published Jan. 20, 1972 may be used to stabilize the common mold part in relation to the first complementary mold part during the injection of the first plastic material in lieu of the technique described above with relation to FIGS. 1A and 1B.

The first and second plastic materials may be either the same material or different materials. It is sometimes advantageous to use first and second plastic materials having different physical characteristics. For example, the present invention is ideally suited for molding a hollow, thin-walled plastic product in which the side wall must provide both a moisture barrier and a gas (such as Oxygen) barrier. To mold such a product, a plastic material having a desirable moisture-barrier characteristic is selected as one of the injected plastic materials; and a plastic material having a desirable gas-barrier characteristic is selected as the other injected plastic material.

I claim:

1. A method of cyclic injection molding a thin-walled hollow, plastic product having a closed end and an open end with laminated walls terminating in a rim at the open end, utilizing a first mold cavity and a second mold cavity, the first mold cavity being defined by a first common mold part and a first complementary mold part, and the second mold cavity being defined by the first common mold part and a second complementary mold part, the method comprising the steps of

(a) combining the first common mold part with the first complementary mold part to assemble the first mold cavity;

(b) injecting a first plastic material into the first mold cavity;

(c) solidifying the injected first plastic material to form a first plastic material component;

(d) combining the first common mold part with the second complementary mold part to assemble the second mold cavity with the first plastic material component attached to the first common mold part so that when the second mold cavity is assembled the first plastic material component is contained within the second mold cavity;

(e) injecting a second plastic material having different characteristics than the first plastic material into the second mold cavity while the first plastic material component is contained therein; and

(f) solidifying the injected second plastic material so as to form a second plastic material component that fuses with the first plastic material component to produce a hollow plastic product;

wherein step (c) comprises the step of

(g) shaping the first plastic material component such that when the first plastic material component is so contained in the second mold cavity the first plastic material component provides one or more stabilizing regions that rigidly secure the first common mold part in position in relation to the second complementary mold part in order to impede movement of the first common mold part in relation to the second complementary mold part during step (e), to thereby produce a thin-walled plastic product having controlled dimensions;

wherein step (b) comprises the step of

(h) injecting the first plastic material until it reaches the portion of the first mold cavity that defines the rim of the product; and

wherein step (e) comprises the step of

(i) injecting the second plastic material until it reaches the portion of the second mold cavity that defines the rim of the product.

2. A method according to claim 1 for molding a product having a side wall including an approximately longitudinal strip, wherein step (g) comprises shaping the first plastic material component to provide at least one said stabilizing region that is transverse to a parting line between the first common mold part and the first complementary mold part, whereby said longitudinal strip is defined by said transverse stabilizing region.

3. A method according to claim 2,

wherein step (b) comprises injecting a said first plastic material that is transparent, whereby said strip defines a transparent window in the side wall; and

wherein step (e) comprises injecting a said second plastic material that is nontransparent.

4. A method according to claim 1 for molding a product having a side wall including an approximately longitudinal strip, wherein step (g) comprises shaping the first plastic material component such that when the first plastic material component is contained in the second mold cavity, the second mold cavity defines at least one unfilled cavity region that is transverse to a parting line between the first common mold part and the second complementary mold part, whereby said longitudinal strip is defined by said unfilled transverse cavity region.

5. A method according to claim 4,

wherein step (b) comprises injecting a said first plastic material that is nontransparent; and

wherein step (e) comprises injecting a said second plastic material that is transparent, whereby said strip defines a transparent window in the side wall.

6. A method according to claim 1, for cyclic injection molding a plurality of thin-walled, hollow, plastic products, further utilizing a third mold cavity and a fourth mold cavity, the third mold cavity being defined by a second common mold part and the first complementary mold part, and the fourth mold cavity being defined by the second common mold part and the second complementary mold part, the method further comprising the steps of:

(h) during step (d), combining the second common mold part with the first complementary mold part to assemble the third mold cavity;

(i) during step (e), injecting a third plastic material into the third mold cavity;

(j) during step (f), solidifying the injected third plastic material to form a third plastic material component;

(k) during step (a), combining the second common mold part with the second complementary mold part to assemble the fourth mold cavity with the third plastic material attached to the second common mold part so that when the fourth mold cavity is assembled the third plastic material is contained within the fourth mold cavity;

(l) during step (b), injecting the fourth plastic material into the fourth mold cavity while the solidified third plastic material is contained therein; and

(m) during step (c), solidifying the injected fourth plastic material so as to form a fourth plastic material component that fuses with the third plastic material to produce a second hollow plastic product;

wherein step (j) comprises the step of

(n) shaping the third plastic material component such that when the third plastic material component is so contained in the fourth mold cavity the third plastic material component provides one or more stabilizing regions that rigidly secure the second common mold part in position in relation to the second complementary mold part in order to impede movement of the second common mold part in relation to the second complementary mold part during step (l), to thereby produce a second thin-walled plastic product having controlled dimensions.

7. A method according to claim 6, for producing said products having laminated walls,

wherein step (b) comprises the step of

(o) injecting the first plastic material until it reaches the parting line between the first common mold part and the first complementary mold part;

wherein step (e) comprises the step of

(p) injecting the second plastic material until it reaches the parting line between the first common mold part and the second complementary mold part;

wherein step (i) comprises the step of

(q) injecting the third plastic material until it reaches the parting line between the second common mold part and the first complementary mold part; and

wherein step (l) comprises the step of

(r) injecting the fourth plastic material until it reaches the parting line between the second common mold part and the second complementary mold part.

8. A method according to claim 6, wherein the first plastic material is the same as the third plastic material and the second plastic material is the same as the fourth plastic material.

9. A method according to claim 1, wherein step (g) further comprises providing a said first complementary mold part that is dimensioned in relation to the first common mold part such that when so combined with the first common mold part to assemble the first mold cavity, portions of the first complementary mold part contact portions of the first common mold part to rigidly secure the first common mold part in position in relation to the first complementary mold part in order to impede movement of the first common mold part in relation to the first complementary mold part during step (b).

10. A method according to claim 1, further comprising the step of

(j) between steps (c) and (d), separating said first common mold part with the first plastic material component attached thereto from said first complementary mold part without dividing that portion of said first complementary mold part that defines the rim of the product.

* * * * *

Exhibit B

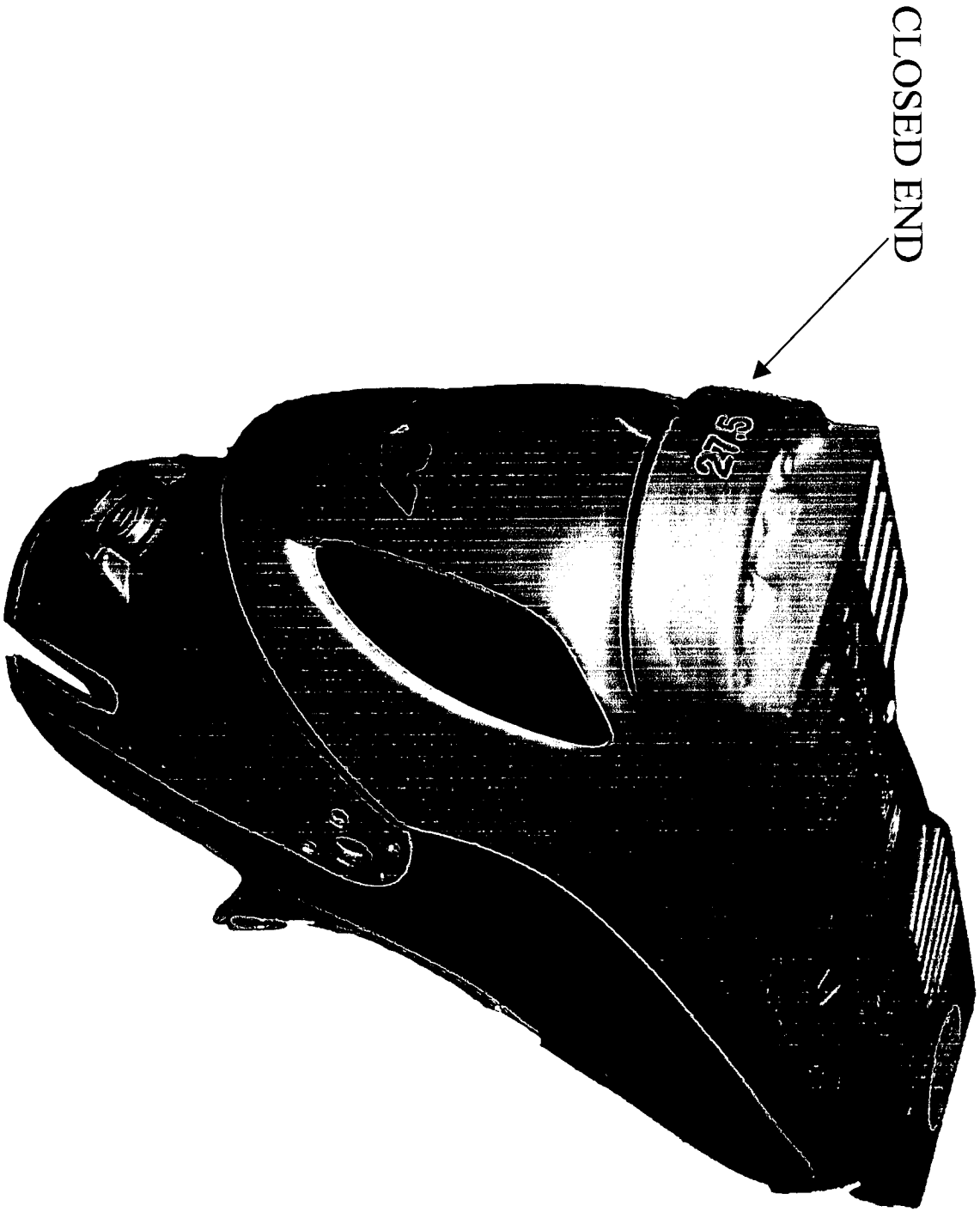


EXHIBIT B

Exhibit C

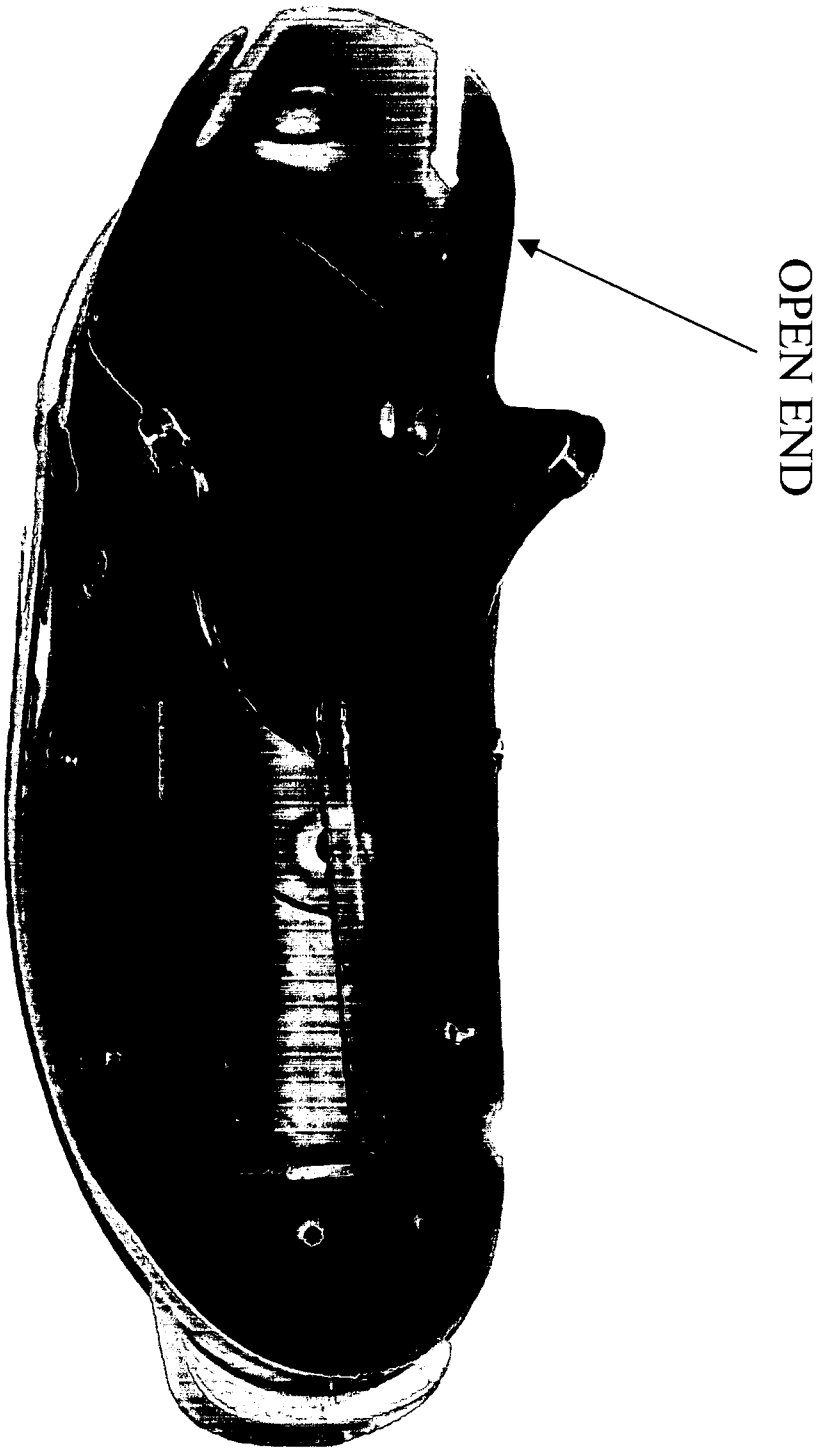


EXHIBIT C

Exhibit D

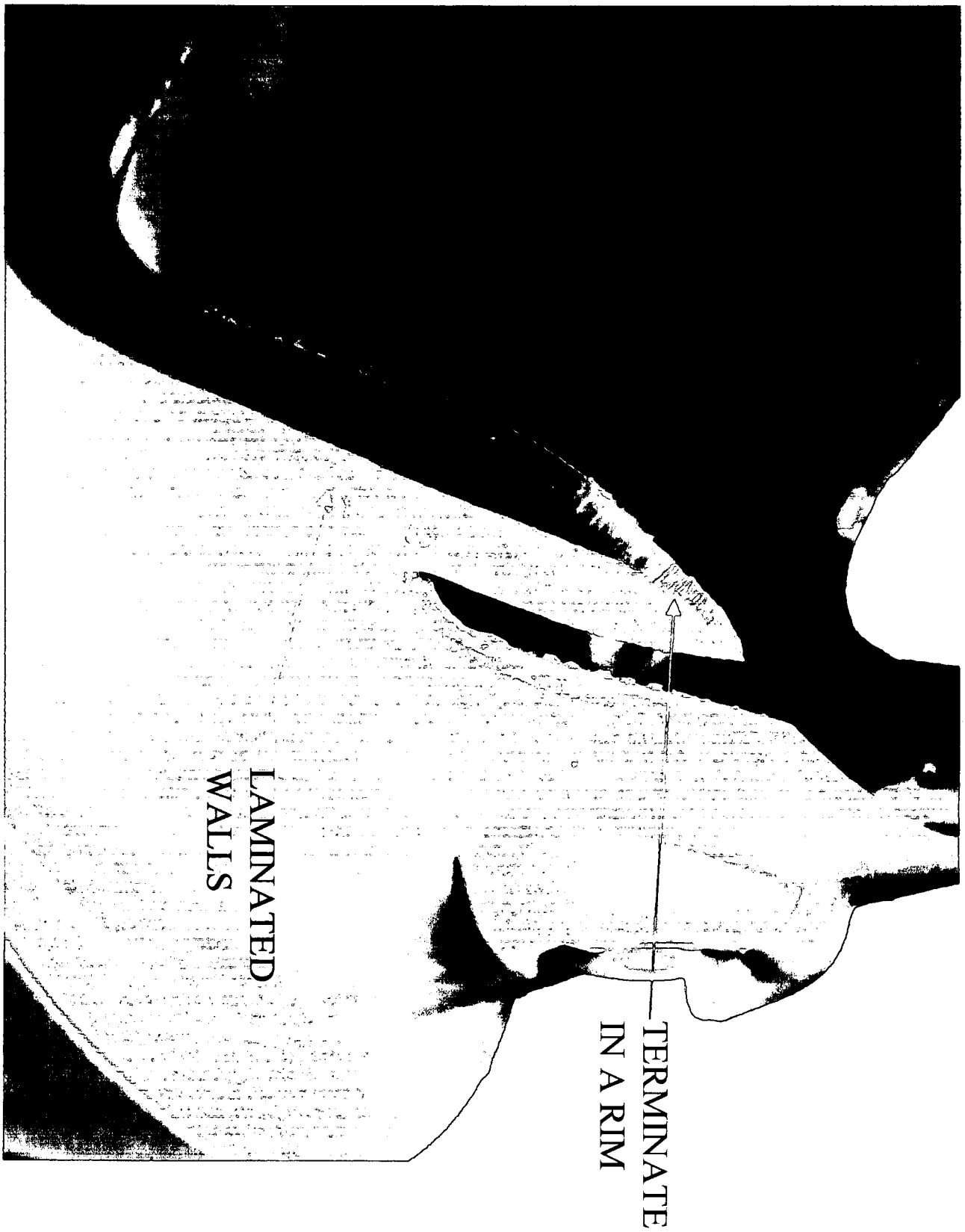


EXHIBIT D

Exhibit E

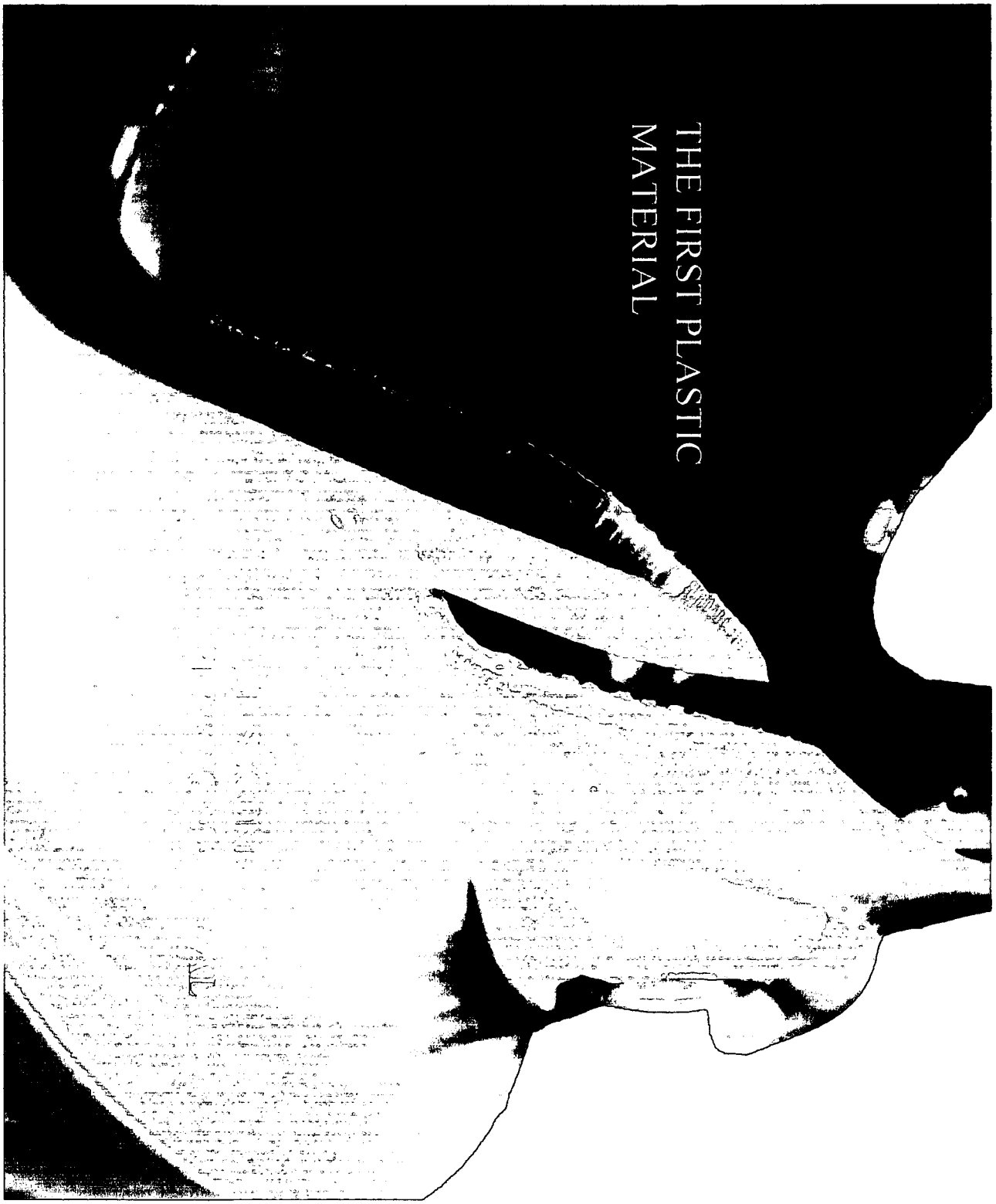
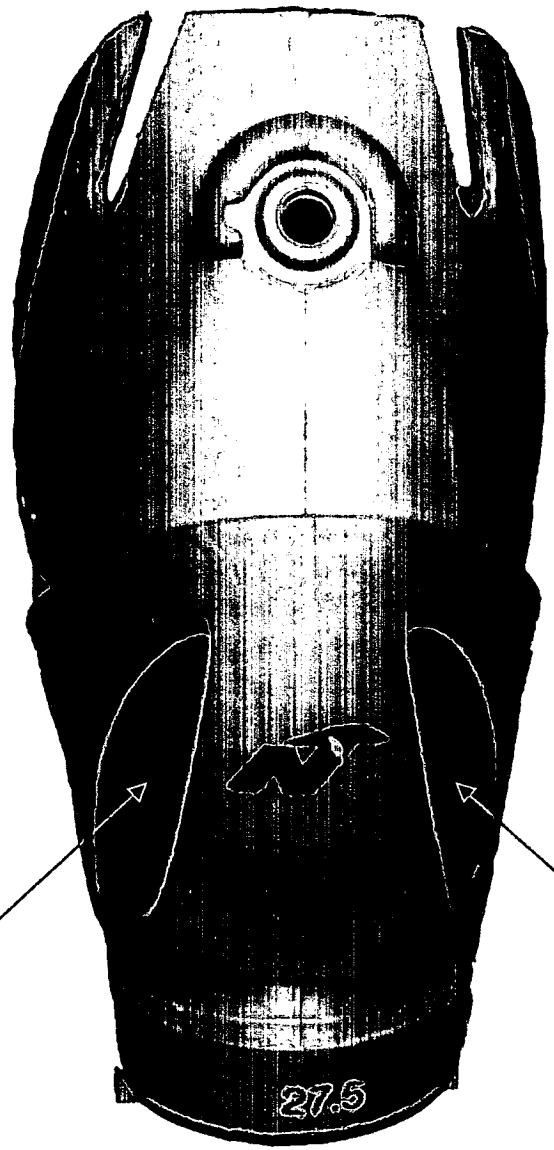


EXHIBIT E

Exhibit F

EXHIBIT F



STABILIZING REGION

STABILIZING REGION

Exhibit G

NORDICA FREE RIDE SKI BOOT

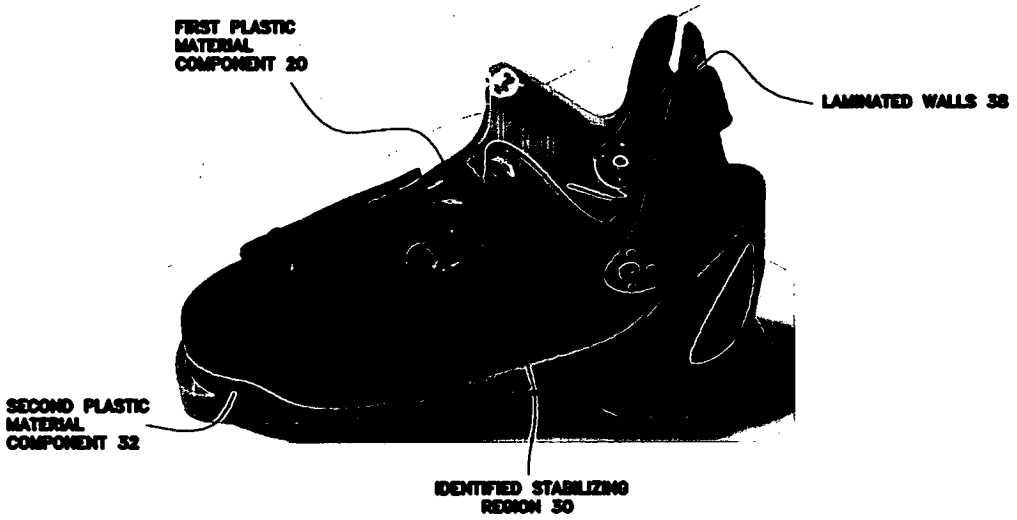


FIG.3

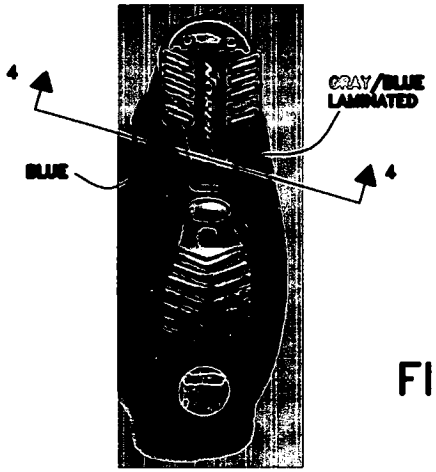


FIG.1

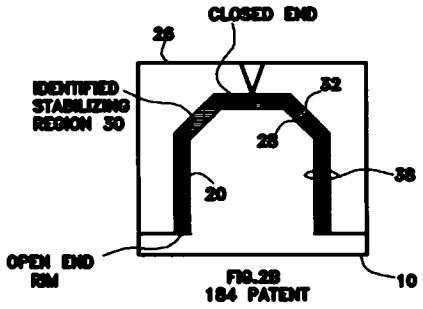


FIG.2B
184 PATENT

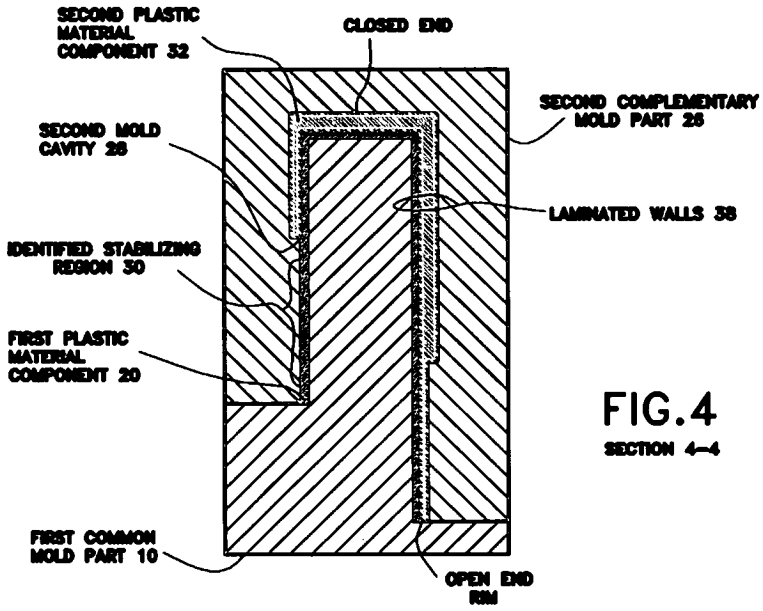


FIG.4
SECTION 4–4

SRD TRUST	UNITED STATES PATENT NO. 4,935,184 NORDICA FREE RIDE SKI BOOT PART NO.	NOT TO SCALE D-5452

Exhibit H

U.S. PATENT NO. 4,935,184
NORDICA USA CORP. ("Nordica")
Nordica Free Ride Ski Boot ("Accused Product")
Claim Chart for SRD Trust Drawing No. D-5452

CLAIM 1 -- '184 PATENT	REMARK	REM. NO.	REF. FIGURE
A method of cyclic injection molding a thin-walled hollow, plastic product	*The Accused Product is a thin-walled hollow, plastic product and has been molded by cyclic injection molding.*	1	Figs. 1 and 3
having a closed end	*A closed end of the Accused Product is identified.*	2	Fig. 4
and an open end	*An open end of the Accused Product is identified.*	3	Fig. 4
with laminated walls	*Laminated walls (38) of the Accused Product are identified.*	4	Figs. 3 and 4
terminating in a rim at the open end,	*Laminated walls (38) of the Accused Product terminate in an identified rim at the open end.*	5	Fig. 4
utilizing a first mold cavity and	*The Accused Product is molded utilizing a first mold cavity.*	6	
a second mold cavity,	*The Accused Product is molded utilizing a second mold cavity (28).*	7	Fig. 4
the first mold cavity being defined by a first common mold part and a first complementary mold part,	*The first mold cavity utilized in molding the Accused Product is formed of a first common mold part (10) and a first complementary mold part.*	8	
and the second mold cavity being defined by the first common mold part and a second complementary mold part	*The second mold cavity (28) utilized in molding the Accused Product is formed of a first common mold part (10) and a second complementary mold part (26).*	9	Fig. 4
//			
the method comprising the steps of			

CLAIM 1 -- '184 PATENT	REMARK	REM. NO.	REF. FIGURE
//			
(a) combining the first common mold part with the first complementary mold part to assemble the first mold cavity;	*(a) The first common mold part (10) and the first complementary mold part are combined to assemble the first mold cavity.*	11	
(b) injecting a first plastic material into the first mold cavity;	*(b) A first plastic material (blue) is injected into the first mold cavity of the Accused Product.*	12	
(c) solidifying the injected first plastic material;	*(c) The injected first plastic material (blue) is solidified.*	13	
to form a first plastic material component	*The solidified first plastic material (blue) forms a first plastic material component (20) of the Accused Product.*	14	Figs. 3 and 4
(d) combining the first common mold part with the second complementary mold part to assemble the second mold cavity	*(d) The first common mold part (10) and the second complementary mold part (26) are combined to assemble the second mold cavity (28) of the Accused Product.*	15	Fig. 4
with the first plastic material component attached to the first common mold part so that when the second mold cavity is assembled	*The first plastic material component (20) of the Accused Product is attached to the first common mold part (10) during assembly of the second mold cavity (28).*	16	Fig. 4
the first plastic material component is contained within the second mold cavity;	*The first plastic material component (20) of the Accused Product is contained within the second mold cavity (28).*	17	Fig. 4
(e) injecting a second plastic material having different characteristics than the first plastic material into the second mold cavity	*(e) In production of the Accused Product, a second plastic material (gray) having different characteristics than the first plastic material (blue) is injected into the second mold cavity (28).*	18	Figs. 3 and 4
while the first plastic material component is contained therein; and	*During injection of the second plastic material (gray), the first plastic material component (20) of the Accused Product is contained within the second mold cavity (28).*	19	Fig. 4

CLAIM 1 -- '184 PATENT	REMARK	REM. NO.	REF. FIGURE
(f) solidifying the injected second plastic material so as to form a second plastic material component that fuses with the first plastic material component to produce a hollow plastic product;	*(f) After the second plastic material (gray) of the Accused Product is injected, it solidifies to form a second plastic material component (32) of the Accused Product.*	20	Figs. 3 and 4
fuses with the first plastic material component to produce a hollow plastic product;	*The second plastic material component (32) fuses with the first plastic material component (20) to produce the Accused Product.*	21	Figs. 3 and 4
wherein step (c) comprises the step of			
(g) shaping the first plastic material component such that when the first plastic material component is so contained in the second mold cavity the first plastic material component provides one or more stabilizing regions that rigidly secure the first common mold part in position in relation to the second complementary mold part	*(g) The first plastic material component (20) has one or more identified stabilizing region(s) (30), that rigidly secure the first common mold part (10), in position in relation to the second complementary mold part (26).*	22	Figs. 3 4 and 5
in order to impede movement of the first common mold part in relation to the second complementary mold part during step (e),	*The identified stabilizing region(s) (30) of the first plastic material component (20) impede movement of the first common mold part (10) in relation to the second complementary mold part (26) that would otherwise result from the injection pressure of the second plastic material (gray) during injection into the second mold cavity (28).*	23	Figs. 3 4 and 5
to thereby produce a thin-walled plastic product having controlled dimensions;	*The stabilization during the injection of the second plastic material (gray) allows the thin-walled plastic product, the Accused Product, to be produced with controlled dimensions.*	24	Figs. 1 3 and 4

CLAIM 1 -- '184 PATENT	REMARK	REM. NO.	REF. FIGURE
wherein step (b) comprises the step of			
(h) injecting the first plastic material until it reaches the portion of the first mold cavity that defines the rim of the product; and	*The first plastic material (blue) of the Accused Product reaches a rim of the Accused Product.*	25	Fig. 4
wherein step (e) comprises the step of			
(i) injecting the second plastic material until it reaches the portion of the second mold cavity that defines the rim of the product.	*The second plastic material (gray) of the Accused Product reaches a rim of the Accused Product.*	26	Fig. 4

JS44

(Rev. 07/89)

CIVIL COVER SHEET

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE SECOND PAGE OF THIS FORM.)

FILED
2006 SEP 18 PM 3:04
CLERK US DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA
BY _____ DEPUTY

I (a) PLAINTIFFS
JENS ERIK SORENSEN, AS TRUSTEE OF SORENSEN RESEARCH AND DEVELOPMENT TRUST

DEFENDANTS
TECNICA USA CORP.
NORDICA USA CORP.

(b) COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF (EXCEPT IN U.S. PLAINTIFF CASES)
SAN DIEGO

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT (IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED

(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)
J. MICHAEL KALER, 9930 MESA RIM RD #200, SAN DIEGO, CA 92121, 858-362-3158
MELODY A. KRAMER, 9930 MESA RIM RD #1600, SAN DIEGO, CA 92121, 858-362-3150

ATTORNEYS (IF KNOWN)

'06CV 1941 B NLS

II. BASIS OF JURISDICTION (PLACE AN x IN ONE BOX ONLY)

- 1 U.S. Government Plaintiff
- X 3 Federal Question (U.S. Government Not a Party)
- 2 U.S. Government Defendant
- 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (PLACE AN X IN ONE BOX FOR PLAINTIFF AND ONE BOX FOR DEFENDANT (For Diversity Cases Only)

	PT	DEF		PT	DEF
Citizen of This State	1	1	Incorporated or Principal Place of Business in This State	4	4
Citizen of Another State	2	2	Incorporated and Principal Place of Business in Another State	5	5
Citizen or Subject of a Foreign Country	3	3	Foreign Nation	6	6

IV. CAUSE OF ACTION (CITE THE US CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE A BRIEF STATEMENT OF CAUSE. DO NOT CITE JURISDICTIONAL STATUTES UNLESS DIVERSITY).

35 USC 271

ORIGINAL

V. NATURE OF SUIT (PLACE AN X IN ONE BOX ONLY)

CONTRACT	TORTS		FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
110 Insurance	PERSONAL INJURY	PERSONAL INJURY	610 Agriculture	422 Appeal 28 USC 158	400 State Reappointment
120 Marine	310 Airplane	362 Personal Injury-Medical Malpractice	620 Other Food & Drug	423 Withdrawal 28 USC 157	410 Antitrust
130 Miller Act	315 Airplane Product Liability	365 Personal Injury - Product Liability	625 Drug Related Seizure of Property 21 USC881	PROPERTY RIGHTS	430 Banks and Banking
140 Negotiable Instrument	320 Assault, Libel & Slander	368 Asbestos Personal Injury Product Liability	630 Liquor Laws	820 Copyrights	450 Commerce/ICC Rates/etc.
150 Recovery of Overpayment & Enforcement of Judgment	330 Federal Employers' Liability	PERSONAL PROPERTY	640 RR & Truck	X 830 Patent	460 Deportation
151 Medicare Act	340 Marine	370 Other Fraud	650 Airline Regs	840 Trademark	470 Racketeer Influenced and Corrupt Organizations
152 Recovery of Defaulted Student Loans (Excl. Veterans)	345 Marine Product Liability	371 Truth in Lending	660 Occupational Safety/Health	SOCIAL SECURITY	810 Selective Service
153 Recovery of Overpayment of Veterans Benefits	350 Motor Vehicle	380 Other Personal Property Damage	690 Other	861 HIA (13958)	850 Securities/Commodities Exchange
160 Stockholders Suits	355 Motor Vehicle Product Liability	385 Property Damage Product Liability	LABOR	862 Black Lung (923)	875 Customer Challenge 12 USC
190 Other Contract	360 Other Personal Injury		710 Fair Labor Standards Act	863 DIWC/DIWW (405(g))	891 Agricultural Acts
195 Contract Product Liability			720 Labor/Mgmt. Relations	864 SSID Title XVI	892 Economic Stabilization Act
REAL PROPERTY	CIVIL RIGHTS	PRISONER PETITIONS	730 Labor/Mgmt. Reporting & Disclosure Act	865 RSI (405(g))	893 Environmental Matters
210 Land Condemnation	441 Voting	510 Motions to Vacate Sentence Habeas Corpus	740 Railway Labor Act	FEDERAL TAX SUITS	894 Energy Allocation Act
220 Foreclosure	442 Employment	530 General	790 Other Labor Litigation	870 Taxes (U.S. Plaintiff or Defendant)	895 Freedom of Information Act
230 Rent Lease & Ejectment	443 Housing/Accommodations	535 Death Penalty	791 Empl. Ret. Inc. Security Act	871 IRS - Third Party 26 USC 7609	900 Appeal of Fee Determination Under Equal Access to Justice
240 Tort to Land	444 Welfare	540 Mandamus & Other			950 Constitutionality of State
245 Tort Product Liability	440 Other Civil Rights	550 Civil Rights			890 Other Statutory Actions
290 All Other Real Property		555 Prisoner Conditions			

VI. ORIGIN (PLACE AN X IN ONE BOX ONLY)

X 1 Original Proceeding • 2 Removal from State Court • 3 Remanded from Appelate Court • 4 Reinstated or Reopened • 5 Transferred from another district (specify) • 6 Multidistrict Litigation • 7 Appeal to District Judge from Magistrate Judgment

VII. REQUESTED IN COMPLAINT: • CHECK IF THIS IS A CLASS ACTION UNDER f.r.c.p. 23

DEMAND $ ACC TO PROOF + INJ RELIEF

Check YES only if demanded in complaint: **JURY DEMAND:** X YES • NO

VIII. RELATED CASE(S) IF ANY (See Instructions): JUDGE _____ Docket Number _____

DATE 9/18/06

SIGNATURE OF ATTORNEY OF RECORD

06cv 1572 JUDGE MOSKOWITZ/BENCIVENGO
06cv 1434 JUDGE MOSKOWITZ/BENCIVENGO

::ODMA\PCDOCS\WORDPERFECT\22816\1 January 24, 2000 (3:10pm)

CR Sec 129448 $350 9/18/06

UNITED STATES
DISTRICT COURT
Southern District of California
San Diego Division

129448 - AI
September 18, 2006

Code	Case #	Qty	Amount
CV086900	3-06-CV-1941		60.00 CH
Judge	- BREWSTER		
CV086400			100.00 CH
CV510000			190.00 CH

Total-> 350.00

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