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(54) Title: PICKLEBALL PADDLE

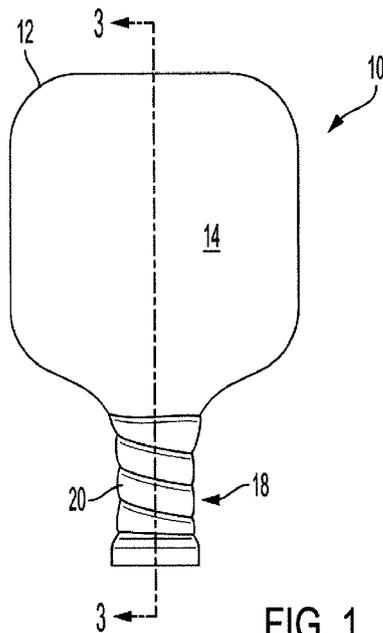


FIG. 1

(57) Abstract: A pickleball paddle having a core which can be made of several materials approved by the USA Pickleball Association (USAPA). The core is laminated on each side with a different material approved by the USAPA. Such materials can include carbon fiber, composite, graphite, fiberglass. The surface of the laminate can be etched, coated or otherwise treated to enhance ball spin during play.



PICKLEBALL PADDLE

CROSS REFERENCE TO RELATED PATENTS AND APPLICATIONS

[0001] This application claims priority to and the benefit of the filing date of U.S. Provisional Patent Application Serial No. 63/154,160, filed February 26, 2021, which application is hereby incorporated by reference.

BACKGROUND

[0002] The present exemplary embodiment relates to racquets. It finds particular application in conjunction with a pickleball paddle, and it will be described with particular reference thereto. However, it is to be appreciated that the present exemplary embodiment is also amenable to other like applications.

[0003] Pickleball is a sport played with paddles and a perforated plastic ball on a court that is somewhat like a tennis court. Like in tennis, during game play the players hit the ball back and forth over a net with the intention of hitting the ball in a manner so that an opposing player cannot return the ball.

BRIEF DESCRIPTION

[0004] Aspects of the present disclosure are directed to a pickleball paddle that includes different surfaces/materials on each side of the paddle. Current paddles having the same surface/materials on both sides of the paddle offer only the same functionality regardless of the side of the paddle that is utilized during a particular stroke.

[0005] It should be appreciated, however, that different playing situations can demand a different application of force and/or control by a player to make the most advantageous shot. For example, extreme touch and control are needed when playing in the front of the court and some paddle surfaces are made specifically for this type of play. On the other hand, power is needed for overhead slams, passing shots or playing outdoors in windy situations. A paddle with different

surfaces on each side of the paddle allows the player to quickly select the best paddle option for a particular situation by simply rotating the paddle to a desired side.

[0006] In one exemplary embodiment, the paddle construction includes a core which can be made of several materials approved by the USA Pickleball Association (USAPA). The core is then laminated on each side with a different material approved by the USAPA. Such materials include carbon fiber, composite, graphite, fiberglass. The surface of the laminate can be etched, coated or otherwise treated as long as it meets the specifications set out by the USAPA.

[0007] In another exemplary embodiment, a dual core paddle includes a core made of two different materials, or a common material having one or more different characteristics (density, structure, stiffness, roughness, texture and/or hardness, etc.). For clarity, a core made from two layers of a common material wherein each layer has a different characteristic is sometimes referred to herein as being made of two different materials. The core can be constructed of any two materials approved by the USAPA, for example. The materials can be bonded together in any suitable manner (e.g., pressed, welded, glued, etc.) to create a dual core of two different materials (or characteristics).

[0008] In accordance with one aspect of the present disclosure, a paddle comprises a handle portion, and a paddle portion extending from the handle portion. The paddle portion includes first and second paddle faces supported on a core, each paddle face comprised of a layer of face material, each layer of face material having a different characteristic.

[0009] The layers of face materials can be comprised of different materials. The layers of face material each can have an outer surface comprising one of the first and second paddle faces, the outer surfaces having a common texture. The layers of face material each can have an outer surface comprising one of the first and second paddle faces, the outer surfaces having a different texture. The layers of face material can be secured to opposite sides of the core. The handle portion can include a grip material. The layers of face materials can be comprised of at least one of a composite, graphite, graphite carbon fiber, aluminum, wood, or aramid

material. The core can be comprised of at least two different layers of core materials. The core materials can include at least two of Aluminum, Aramid, Polymer, Wood, or Polypropylene. The layers of face material of each paddle face can be comprised of a common material with each layer of face material having an outer surface having a different characteristic. The different characteristic can include at least one of density, structure, stiffness, roughness, texture or hardness.

[0010] In accordance with another aspect of the present disclosure, paddle comprises a handle portion, and a paddle portion extending from the handle portion. The paddle portion includes a core and first and second paddle faces, and the core is comprised of at least two layers of core material, each layer of core material having a different characteristic.

[0011] The different characteristic includes at least one of density, structure, stiffness, roughness, texture or hardness. Each layer of core material can be a different type of material. The different core materials can include two or more of Glass Fiber, Aramid, Aluminum, Polymer, Wood, or Polypropylene. Each paddle face can be comprised of a layer of face material supported by the core, each layer of face material having a different characteristic. The layers of face materials can be comprised of different materials. The layers of face materials can include two or more of a composite, graphite, graphite carbon fiber, aluminum, or wood. Each paddle face can be comprised of a layer of face material supported by the core, each layer of face material can be comprised of a common material, an outer surface of each layer of face material having a different characteristic. The different characteristic can include at least one of density, structure, stiffness, roughness, texture or hardness.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIGURE 1 is a front elevation view of an exemplary paddle in accordance with the present disclosure;

[0013] FIGURE 2 is a side elevation view of the paddle of FIGURE 1;

[0014] FIGURE 3 is a cross-sectional view of an upper portion of the paddle taken along the line 3-3 in FIGURE 1; and

[0015] FIGURE 4 is a partial cutaway view of another exemplary paddle in accordance with the present disclosure.

DETAILED DESCRIPTION

[0016] With reference to FIGURES 1 and 2, a paddle in accordance with the present disclosure is illustrated and identified generally by reference numeral 10. The paddle 10 generally includes a paddle portion 12 having first and second paddle faces 14 and 16, and a handle portion 18. As will be appreciated, the paddle portion 12 can have a size and shape in accordance with USAPA rules. Likewise, the handle portion 18 can have a size and shape in accordance with USAPA rules. The handle portion 18 can be wrapped or otherwise provided with a grip material 20 for enhancing user comfort and performance.

[0017] Turning to FIGURE 3, which is a cross-sectional view of the paddle portion 12 taken through the line 3-3 in FIGURE 1 (showing the upper part of the paddle portion as shown in FIGURE 2), the paddle portion 12 generally includes a core 24 bonded to respective layers of face material M1 and M2 including the first and second paddle faces 14 and 16. In this embodiment, the layers of face material M1 and M2 are different materials such that each face 14 and 16 of the paddle 10 presents an outer surface with different characteristics. As an example, materials M1/M2 can be chosen from one or more types of composite, graphite, graphite carbon fiber, aluminum, wood or other materials. It should be appreciated, however, that the materials M1 and M2 can be comprised of a common material (e.g., PVC) having any number of different characteristics (e.g., density, structure, stiffness, roughness texture and/or hardness, etc.). In some embodiments, surface etching or patterning is provided to enhance ball spin.

[0018] Turning to FIGURE 4, another exemplary paddle in accordance with the present disclosure is illustrated and identified generally by reference numeral 30. Like paddle 10 described above, paddle 30 general includes a paddle portion 32 having first and second paddle faces 34 and 36, and a handle portion 38. As will be appreciated, the paddle portion 32 can have a size and shape in accordance with USAPA rules. Likewise, the handle portion 38 can have a size and shape in

accordance with USAPA rules. The handle portion 38 can be wrapped or otherwise provided with a grip material 40 for enhancing user comfort and performance.

[0019] In this embodiment, the paddle 30 includes a core 44 comprised of at least two layers of core material having differing characteristics. For example, the core 44 as illustrated is comprised of a solid polymer core layer 46 bonded to a honeycomb polymer layer 48. As such, the core material layer 46 is a solid layer and core material layer 48 includes voids. As will be appreciated, a wide range of structures/voids can be employed in layer 48 to achieve a desired performance characteristic of the core 44. Suitable polymers include polypropylene, polyethylene, etc. As will be appreciated, layer 46 and layer 48 can be made of a common material or of different materials. In other embodiments, the core can be comprised of two or more layers of various materials such as aramid, aluminum, polymer, wood, polypropylene, fiberglass, for example.

[0020] Like paddle 10, the core 44 of paddle 30 is bonded to respective layers of face material M1' and M2' including the first and second paddle faces 34 and 36. In this embodiment, the layers of face material M1' and M2' can be the same materials, or they can be different materials such that each face of the paddle 10 presents a surface with different characteristics, like the paddle 10 of FIGURES 1-3.

[0021] It should now be appreciated that the present disclosure sets forth a wide range of paddle constructions including, but not limited to:

- a paddle having two different face materials on each side with outer surfaces of each having the same texture;

- a paddle having two different face materials on each side with outer surfaces of each having different textures;

- a paddle having the same face materials on each side with outer surfaces of each having different textures.

[0022] In addition, any of the above paddle constructions can have cores comprised of a single layer of core material, or multiple layers of core material wherein one or more layers has a different characteristic, such as material type,

structure, etc. The numerous combinations of face materials and core materials allows a wide range of paddle performance customization that heretofore has not been available with conventional paddle constructions.

[0023] Paddles in accordance with present disclosure provide numerous advantages. For example, a player can have both a power paddle and a control paddle in their hands at all times. A player would not need to carry different paddles in their bags to deal with different on court conditions.

[0024] The exemplary embodiment has been described with reference to the preferred embodiments. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. It is intended that the exemplary embodiment be construed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

CLAIMS:

1. A paddle comprising:
a handle portion; and
a paddle portion extending from the handle portion;
wherein the paddle portion includes first and second paddle faces supported on a core, each paddle face comprised of a layer of face material, each layer of face material having a different characteristic.
2. The paddle of claim 1, wherein the layers of face materials are comprised of different materials.
3. The paddle of claim 2, wherein the layers of face material each have an outer surface comprising one of the first and second paddle faces, the outer surfaces having a common texture.
4. The paddle of claim 2, wherein the layers of face material each have an outer surface comprising one of the first and second paddle faces, the outer surfaces having a different texture.
5. The paddle of claim 2, wherein the layers of face material are secured to opposite sides of the core.

6. The paddle of claim 5, wherein the handle portion includes a grip material.

7. The paddle of claim 6, wherein the layers of face materials are comprised of at least one of a composite, graphite, graphite carbon fiber, aluminum, or wood.

8. The paddle of claim 7, wherein the core is comprised of at least two different layers of core materials.

9. The paddle of claim 8, wherein the core materials include at least two of Glass Fiber, Aramid, Aluminum, Polymer, Wood, or Polypropylene.

10. The paddle of claim 1, wherein the layers of face material of each paddle face are comprised of a common material with each layer of face material having an outer surface having a different characteristic.

11. The paddle of claim 10, wherein the different characteristic includes at least one of density, structure, stiffness, roughness, texture or hardness.

12. A paddle comprising:
a handle portion; and
a paddle portion extending from the handle portion;

wherein the paddle portion includes a core and first and second paddle faces; and

wherein the core is comprised of at least two layers of core material, each layer of core material having a different characteristic.

13. The paddle of claim 12, wherein the different characteristic includes at least one of density, structure, stiffness, roughness, texture or hardness.

14. The paddle of claim 12, wherein each layer of core material is a different type of material.

15. The paddle of claim 14, wherein the different core materials includes two or more of Glass Fiber, Aramid, Aluminum, Polymer, Wood, or Polypropylene.

16. The paddle of claim 15, wherein each paddle face is comprised of a layer of face material supported by the core, each layer of face material having a different characteristic.

17. The paddle of claim 16, wherein the layers of face materials are comprised of different materials.

18. The paddle of claim 17, wherein the layers of face materials include two or more of a composite, graphite, graphite carbon fiber, aluminum, or wood material.

19. The paddle of claim 12, wherein each paddle face is comprised of a layer of face material supported by the core, each layer of face material comprised of a common material, an outer surface of each layer of face material having a different characteristic.

20. The paddle of claim 19, wherein the different characteristic includes at least one of density, structure, stiffness, roughness, texture or hardness.

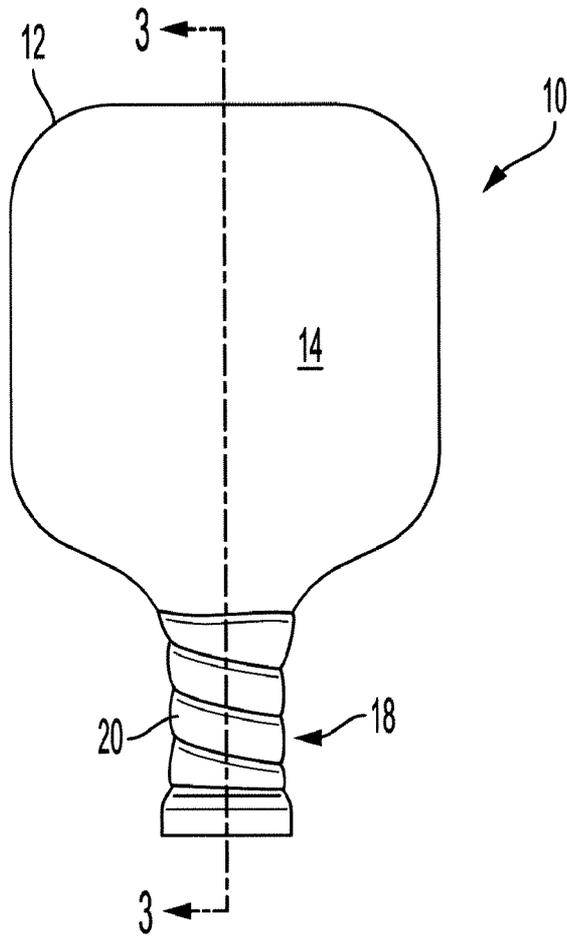


FIG. 1

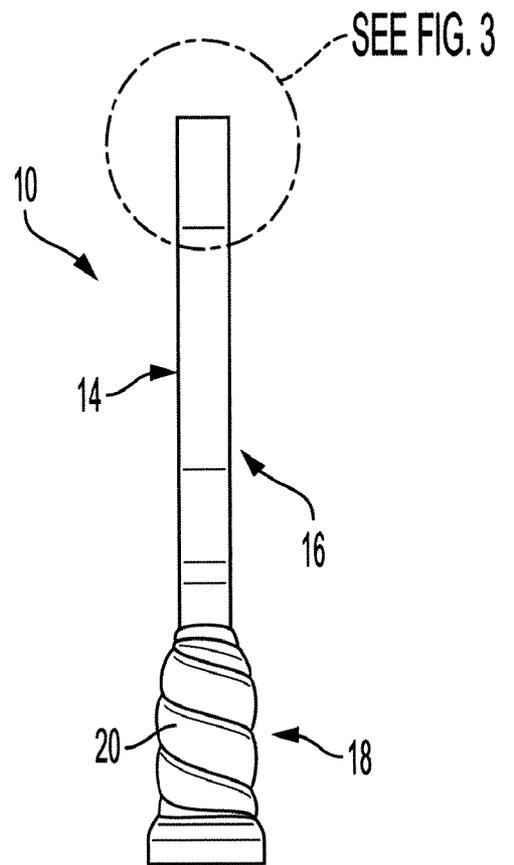


FIG. 2

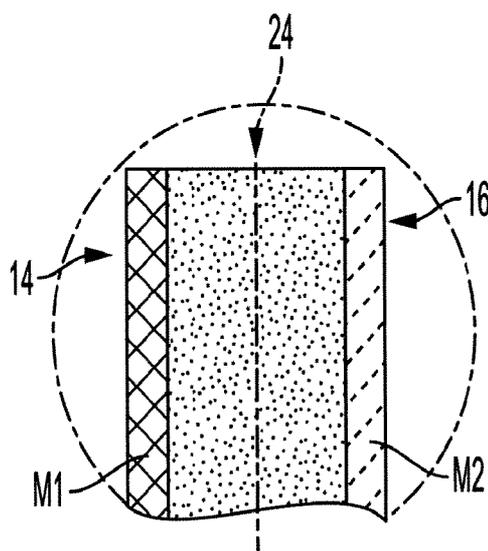


FIG. 3

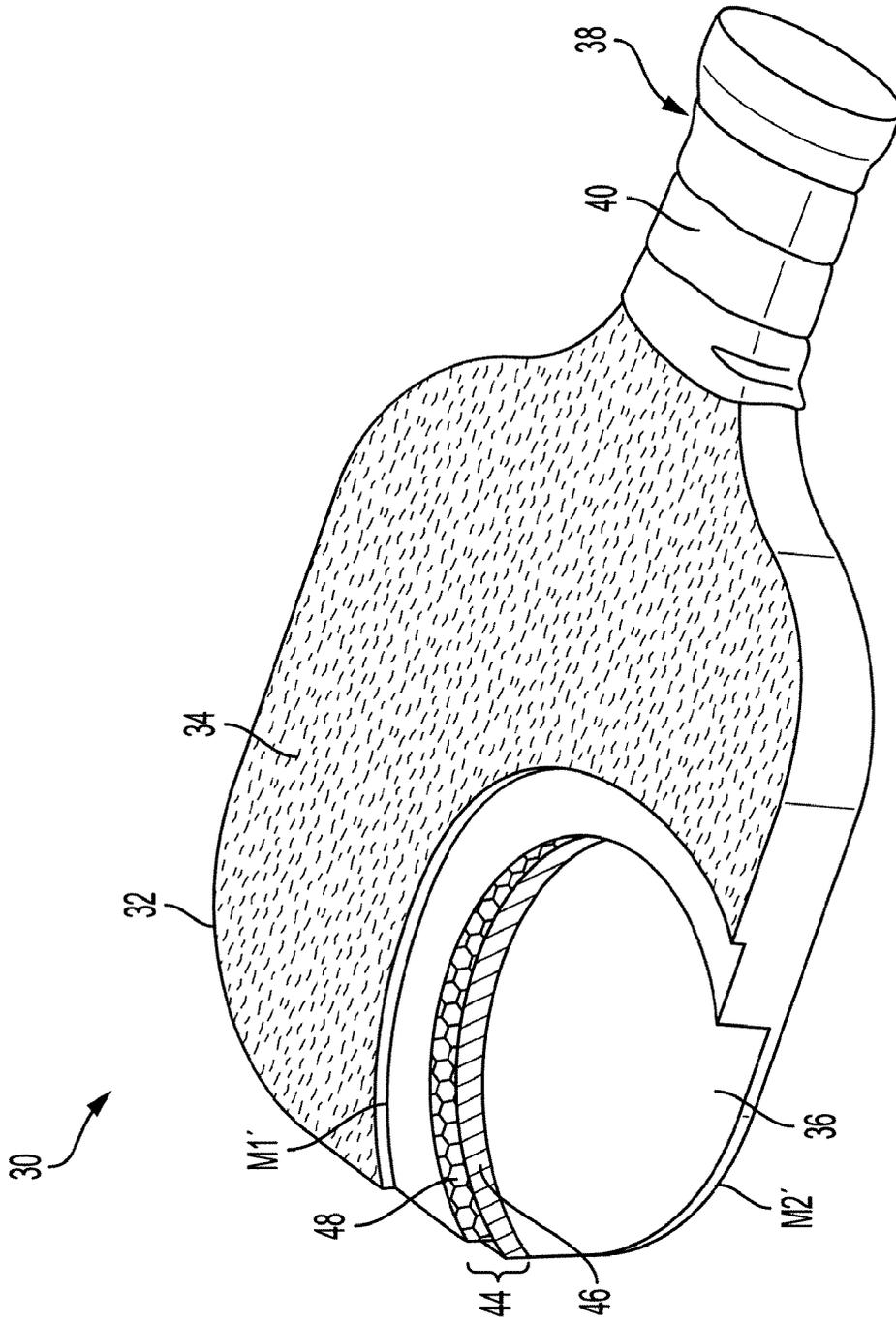


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 22/17910

A. CLASSIFICATION OF SUBJECT MATTER

IPC - A63B 59/40, A63B 59/42, A63B 59/80, A63B 67/04, A63B 67/20 (2022.01)

CPC - A63B 2102/08, A63B 2102/16, A63B 2102/06, A63B 2102/065, A63B 59/40, A63B 59/42, A63B 59/80, A63B 67/04, A63B 67/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2014/0302953 A1 (Kettler International, Inc.) 9 October 2014 (09.10.2014) Entire document especially para [0020]-[0022] and figs. 1-2	1-5, 10-11 ----- 2, 5-9, 17-20
X --- Y	US 2016/0184678 A1 (Aztek Racquet Sports LLC) 30 June 2016 (30.06.2016) Entire document especially para [0029], [0089]-[0064], [0075]-[0077] and figs. 1A-2	1, 12-16 ----- 2, 5-9, 17-20
A	US 2015/0024879 A1 (Wilson Sporting Goods Co.) 22 January 2015 (22.01.2015) Entire document	1-20
A	US 2003/0054907 A1 (Soo) 20 March 2003 (20.03.2003) Entire document	1-20
A	US 5,265,883 A (Choo) 30 November 1993 (30.11.1993) Entire document	1-20
A	US 2012/0010031 A1 (Reisman et al.) 12 January 2012 (12.01.2012) Entire document	1-20
A	US 2017/0136325 A1 (Down Under Tennis, Inc.) 18 May 2017 (18.05.2017) Entire document	1-20

Further documents are listed in the continuation of Box C.

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Date of the actual completion of the international search

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