longevity of paddles while maintaining their performance characteristics is an ongoing challenge.

[0005] As the popularity of paddle sports such as pickleball continues to grow, there remains a need for improvements that can enhance player performance, comfort, and enjoyment.

SUMMARY

[0006] The present teachings generally include game paddles such as pickleball paddles. For example, a pickleball paddle disclosed herein may include a first surface, a second surface, and a core disposed therebetween, where the core defines a plurality of gaps that can accommodate one or more fillers, e.g., to provide vibration dampening and/or to otherwise affect performance, comfort, and enjoyment. In an example embodiment, a gap is disposed on each side of the paddle near a throat portion thereof, where a first filler is inserted therein. The first filler may be viewable within such gaps—e.g., where an edge guard includes a window for viewing the first filler. A paddle according to the present teachings may have a frame (e.g., a frame that accommodates one or more gaps) or it may be frameless. In some embodiments, a frame may also or instead include a filler disposed therein and/or adjacent thereto.

[0007] In one aspect, a pickleball paddle may include: a front surface; a back surface opposing the front surface; a core disposed between the front surface and the back surface; a gap formed in at least a portion of the core; a first filler disposed within at least a portion of the gap; a frame disposed about at least a head portion of the pickleball paddle along an edge portion thereof, the frame at least partially disposed between the front surface and the back surface along the edge portion, the frame defining a hollow interior portion; and a second filler disposed within at least a portion of the hollow interior portion of the frame.

[0008] Implementations may include one or more of the following features. One or more of the first filler and the second filler may include a foam material. One or more of the first filler and the second filler may include at least one of: a polymer, a thermoplastic, a thermoset material, a thermoplastic elastomer, an elastomer, a rubber, and an expandable material. One or more of the first filler and the second filler may include pressurized air. The second filler and the first filler may be the same material. The second filler and the first filler may be different materials. The gap may be disposed, at least in part, between the frame and the core. The gap may border the frame. The frame may surround the entire pickleball paddle. The frame may include carbon fiber. The frame may be a hollow cuboid structure. The hollow cuboid structure may be formed from a single piece of material. The core may at least partially include a honeycomb structure. The pickleball paddle may include an edge guard covering at least a portion of the frame along at least part of the head portion of the pickleball paddle.

[0009] A pickleball paddle disclosed herein may include: a front surface; a back surface opposing the front surface; a core disposed between the front surface and the back surface; a gap formed in at least a portion of the core along a throat portion of the pickleball paddle; and a first filler disposed within at least a portion of the gap.

[0010] Implementations may include one or more of the following features. The first filler may include a material structurally configured to absorb vibrations caused by striking a ball with one or more of the front surface and the back surface of the pickleball paddle. The pickleball paddle may include a frame disposed about at least a head portion of the pickleball paddle along an edge portion thereof, the frame at least partially disposed between the front surface and the back surface along the edge portion, the frame defining a hollow interior portion fillable with a second filler.

[0011] In another aspect, a method of manufacturing a pickleball paddle may include: forming a core of a pickleball paddle having a head portion and a handle portion; forming one or more gaps in the core of the pickleball paddle; inserting a first filler within at least a portion of the one or more gaps; wrapping a frame about a perimeter of the core; and affixing both a front surface and a back surface to the core wrapped by the frame. The frame may define a hollow interior portion. The method may further include inserting a second filler within at least a portion of the hollow interior portion of the frame.

[0012] A pickleball paddle disclosed herein may include: a first surface; a second surface; a core disposed between the first surface and the second surface, the core including a first material; at least two gaps in the core defined by absence of the first material of the core, a first gap of the at least two gaps disposed on a first side of the paddle substantially adjacent to a throat portion thereof, and a second gap of the at least two gaps disposed on a second side of the paddle substantially adjacent to the throat portion thereof; and a first filler disposed within one or more of the first gap and the second gap.

[0013] Implementations may include one or more of the following features. The pickleball paddle may include an edge guard disposed along a perimeter of a head portion of the paddle. The edge guard may define a void adjacent to each of the first gap and the second gap. The first filler may be viewable through the void. The void may include an at least semi-transparent material through which the first filler is viewable. The first filler may include one or more markings. The one or more markings may indicate a property of one or more of the paddle, the first filler, and the core. The one or more markings may include a color of the first filler. The one or more markings may include one or more of a texture and a pattern of the first filler. The void may be formed via a cutout in material of the edge guard. The first filler may be exposed to an external environment through the cutout. The pickleball paddle may include a frame disposed between the first surface and the second surface. The frame may be substantially disposed along,

or adjacent to, a perimeter of a head portion of the paddle. The frame may accommodate the first gap and the second gap. The frame may include one or more indented portions that accommodate the first gap and the second gap. The frame may be absent along the first gap and the second gap. The frame may be shaped to form a boundary of each of the first gap and the second gap along an interior portion of the paddle. The pickleball paddle may include a gap formed in the core adjacent to the frame along an interior portion of the paddle. The pickleball paddle may include a second filler disposed within the gap. The second filler and the first filler may be the same. The second filler and the first filler may be different. One or more of the first filler and the second filler may include at least one of: a foam, ethyl vinyl acetate (EVA) foam, a polymer, a thermoplastic, a thermoset, a thermoplastic elastomer, an elastomer, a rubber, an expandable material, and a fluid. The frame may define an interior that may include a third filler. The third filler and the first filler may be the same. The third filler and the second filler may be different. The third filler may include compressed air. The first filler may be disposed within each of the first gap and the second gap. The first filler may be substantially the same within each of the first gap and the second gap. The first filler may infiltrate one or more of the first gap and the second gap by at least 5 millimeters. The first filler may include one or more of a foam, ethyl vinyl acetate (EVA) foam, a polymer, a thermoplastic, a thermoset, a thermoplastic elastomer, an elastomer, a rubber, an expandable material, and compressed air.

[0014] These and other features, aspects, embodiments and advantages of the present teachings will become better understood with reference to the following description, examples, and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The foregoing and other objects, features and advantages of the devices, systems, and methods described herein will be apparent from the following description of particular embodiments thereof, as illustrated in the accompanying drawings. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the devices, systems, and methods described herein. In the drawings, like reference numerals generally identify corresponding elements.

[0016] Fig. 1A shows a front view of a paddle, according to a representative example.

[0017] Fig. 1B shows a top perspective view of a paddle, according to a representative example.

[0015] Fig. 1C shows a back perspective view of a paddle, according to a representative example.