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Inventor(s)

RUSAKOV; Dmitry et al.

LEG GUARDS WITH HINGES

Abstract

Protective equipment for protecting a portion of a user's body (such as an articulating leg guard for protecting part of a user's leg) may include a knee guard assembly for covering at least a portion of a user's anterior knee region, a thigh guard assembly for covering at least a portion of a user's anterior thigh region, and at least two connection elements positioned to connect the knee guard assembly to the thigh guard assembly. The connection elements may be rotatably attached to the knee guard assembly at a first rotation axis and rotatably attached to the thigh guard assembly at a second rotation axis that is spaced apart from the first rotation axis. The leg guard may further include a floating knee guard assembly for covering at least a portion of a user's leg when a gap forms between the knee guard assembly and the thigh guard assembly.

Inventors: RUSAKOV; Dmitry (Carignan, CA), CHEN; Kevin (Los Angeles, CA), OSAWA; Tazo (Los Angeles, CA)

Applicant: EASTON DIAMOND SPORTS, LLC (Thousand Oaks, CA)

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Background/Summary

BACKGROUND

[0001] A baseball or softball catcher transitions between a throwing position and a crouching position many times during a game or practice session. Conventional leg guards for baseball or softball typically have limited range of motion. Conventional leg guards tend to shift on the player's leg when the player moves, which requires the player to readjust the equipment during play.

SUMMARY

[0002] Representative embodiments of the present technology include a leg guard, such as an articulating leg guard for a baseball or softball catcher. A representative leg guard may include a knee guard assembly for covering at least a portion of a user's anterior knee region, a thigh guard assembly for covering at least a portion of a user's anterior thigh region, and at least two connection elements positioned to connect the knee guard assembly to the thigh guard assembly. The connection elements may be rotatably attached to the knee guard assembly at a first rotation axis and rotatably attached to the thigh guard assembly at a second rotation axis that is spaced apart from the first rotation axis. The leg guard may further include a floating knee guard assembly for covering at least a portion of a user's anterior knee region when a gap forms between the knee guard assembly and the thigh guard assembly.

[0003] Embodiments of the present technology provide a hinge design that allows cooperating leg-guard components to cover the corresponding portions of the user's leg throughout the user's range of motion.

[0004] Other features and advantages will appear hereinafter. The features described herein can be used separately or together, or in various combinations of one or more of them.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] In the drawings, wherein the same reference number indicates the same element throughout the views:

[0006] FIG. 1A illustrates a front view of an articulating protective gear assembly configured in accordance with embodiments of the present technology;

[0007] FIGS. 1B, 1C, and 1D illustrate partially schematic side perspective views of an articulating protective gear assembly in various states or configurations of motion, in accordance with embodiments of the present technology;

[0008] FIG. 2 illustrates a plan view of a connection element configured in accordance with embodiments of the present technology;

[0009] FIG. 3 illustrates a side, partially exploded view of a portion of the leg guard shown in FIGS. 1A-1D, in accordance with embodiments of the present technology;

[0010] FIG. 3A illustrates a detailed view, from a side perspective, of a portion of the leg guard shown in FIGS. 1A-1D;

[0011] FIG. 4A illustrates a partially schematic, partially exploded side-perspective view of the leg guard shown in FIGS. 1A-1D;

[0012] FIG. 4B illustrates a partially schematic front (anterior) view of portions of the leg guard shown in FIGS. 1A-1D; and

[0013] FIG. 4C illustrates a partially schematic, partially exploded side-perspective view of the leg guard shown in FIGS. 1A-1D, in which the leg guard **100** is bent in a manner that corresponds to a player in a crouched position.

DETAILED DESCRIPTION

[0014] The present technology is directed to protective gear with hinges, such as leg guards with

hinges, and associated systems and methods. Various embodiments of the technology will now be described. The following description provides specific details for a thorough understanding and enabling description of these embodiments. One skilled in the art will understand, however, that the invention may be practiced without many of these details. Additionally, some well-known structures or functions, such as those common to protective equipment such as leg guards, may not be shown or described in detail to avoid unnecessarily obscuring the relevant description of the various embodiments. Accordingly, embodiments of the present technology may include additional elements or exclude some of the elements described below with reference to FIGS. 1A through 4C, which illustrate examples of the technology.

[0015] The terminology used in this description is intended to be interpreted in its broadest reasonable manner, even though it is being used in conjunction with a detailed description of certain specific embodiments of the invention. Certain terms may even be emphasized below; however, any terminology intended to be interpreted in any restricted manner will be overtly and specifically defined as such in this detailed description section.

[0016] Where the context permits, singular or plural terms may also include the plural or singular term, respectively. Moreover, unless the word “or” is expressly limited to mean only a single item exclusive from the other items in a list of two or more items, then the use of “or” in such a list is to be interpreted as including (a) any single item in the list, (b) all of the items in the list, or (c) any combination of items in the list. Further, unless otherwise specified, terms such as “attached” or “connected” are intended to include integral connections, as well as connections between physically separate components. Numerical adjectives including “first” and “second,” as used in the present disclosure, do not convey hierarchy or specific features or functions. Rather, such numerical adjectives are intended to aid the reader in distinguishing between elements having similar nomenclature but that may differ in position, orientation, or structure. Accordingly, such numerical adjectives may be used differently in the claims.

[0017] Specific details of several embodiments of the present technology are described herein with reference to leg guards for baseball or softball. Embodiments of the present technology can be used in other sports or in other industries or activities, or for guards for other anatomy, such as arm guards.

[0018] FIG. 1A illustrates a front view of an articulating protective gear assembly **100** (such as a catcher's leg guard assembly), hereinafter referred to as a “leg guard” **100** for convenience, configured in accordance with embodiments of the present technology. In some embodiments, the leg guard **100** may include a shin guard portion **101** (for protecting a lower portion of a user's leg, which may include a lower portion of a user's knee) that articulates relative to a group **102** of knee guard portions (which includes a plurality of knee guard portions for protecting a user's knee), and a thigh guard portion **103** that articulates relative to the group **102** of knee guard portions (for protecting an upper portion of a user's leg). In some embodiments, the leg guard **100** may also include an ankle guard portion **104** that articulates relative to the shin guard portion **101** (for protecting an area near the user's ankle or the top or front of the user's foot).

[0019] In some embodiments, the leg guard **100** may include one or more retention elements **105** for securing the leg guard **100** to a user. The retention elements **105** may include conventional retention devices used in protective gear, such as one or more straps, buckles, D-rings, sleeves, loops, or other suitable devices, some of which are illustrated in the Figures for example only. In some embodiments, the shin guard portion **101** may include one or more first retention elements **105** (e.g., straps or elements for receiving straps for holding the shin guard portion **101** on a user's lower leg). In some embodiments, the group **102** of knee guard portions may include one or more second retention elements **105** (e.g., straps or elements for receiving straps for holding the group **102** of knee guard portions on a user's knee region). In some embodiments, the thigh guard portion **103** may include one or more third retention elements **105** (e.g., straps or elements for receiving straps for holding the thigh guard portion **103** on a user's thigh or upper leg).

[0020] The group **102** of knee guard portions may include one or more knee guard portions (which may overlap with one or more of each other) that articulate or move relative to each other, such as at least a first knee guard portion **107** and a second knee guard portion **110**. The second knee guard portion **110** moves and articulates relative to the other parts of the group **102** of knee guard portions and relative to the thigh guard portion **103**, such that the leg guard **100** can maintain protective coverage of the user's knee, shin, and thigh throughout the user's range of motion. The second knee guard portion **110** is referred to herein as a floating knee guard portion **110** because of its configuration to move relative to other parts of the leg guard **100** to maintain coverage of at least part of the user's anterior knee and thigh regions, as described in additional detail below. In some embodiments, the floating knee guard portion **110** may be omitted, such that only the first knee guard portion **107** is used.

[0021] In some embodiments, one or more (such as each) of the ankle guard portion **104**, the shin guard portion **101**, the group **102** of knee guard portions, or the thigh guard portion **103** may include one or more rigid protective shells supported on, or attached to, an underlying cushion material (e.g., padding). The rigid shells may deflect and spread impact forces, and the cushion material may absorb shocks and impact to protect the user. For example, the shin guard portion **101** may include a shin guard assembly **112** that includes a shin shell **114** attached to a shin pad **116**. The first knee guard portion **107** may include a first knee guard assembly **118** that includes a first knee shell **120** attached to a first knee pad **122**. The floating knee guard portion **110** may include a floating knee guard assembly **124** that includes a floating knee shell **126** attached to a floating knee pad **128**. The thigh guard portion **103** may include a thigh guard assembly **130** that includes a thigh guard shell **132** attached to a thigh pad **134**. The rigid shells **114**, **120**, **126**, and **132** face away from the user on the anterior side of the leg guard **100**. The pads **116**, **122**, **128**, **134** may be positioned between the corresponding rigid shells and the user.

[0022] The pads **116**, **122**, **128**, **134** may be attached to the corresponding shells with any suitable mode of attachment, such as fasteners, glue, tape, hook-and-loop devices, and the like. The shells **114**, **120**, **126**, and **132** may be formed with any suitable material, including known materials used in protective gear that may allow a minimal amount of flexibility but generally retain their shape under normal use, such as plastic materials. The pads **116**, **122**, **128**, **134** may be formed with any suitable material, including materials known for use in protective gear, such as foam, rubber, mesh, or other impact-absorbent or resilient materials suitable for cushioning between a player and the shell portions. In some embodiments, the pads may simply be a lining material.

[0023] FIGS. **1B**, **1C**, and **1D** illustrate partially schematic side-perspective views of the leg guard **100**, in various states or configurations of motion of the knee. In some embodiments, the leg guard **100** includes connection elements **136** positioned on lateral sides of the leg guard **100** to facilitate movement (e.g., rotation) between the first knee guard assembly **118** and the thigh guard assembly **130**. Because FIGS. **1A**, **1B**, and **1C** are side views, only a first connection element **136** is visible on a first lateral side of the leg guard **100**; however, it is understood that a second connection element **136** is similarly positioned and connected on a second/opposing lateral side of the leg guard **100**.

[0024] In some embodiments, a first end **136a** of the first connection element **136** is rotatably attached to the thigh guard assembly **130** at a first upper pivot point **138** (defining at least a first rotation axis), and a second end **136b** of the first connection element **136** is rotatably attached to the first knee guard assembly **118** at a first lower pivot point **140** (which defines at least a second rotation axis that is spaced apart from the first rotation axis at the first upper pivot point **138**). The second connection element **136** on the opposing lateral side of the leg guard **100**, which is not visible, may be similarly connected to the guard assemblies **130**, **118** at second upper and second lower pivot points.

[0025] In operation, in some embodiments—and as seen in the sequence from FIG. **1B**, to FIG. **1C**, to FIG. **1D**—the first knee guard assembly **118** is movable relative to the thigh guard assembly **130**

between a first configuration in which the thigh guard assembly **130** is oriented generally transversely to the first knee guard assembly **118**, and a second configuration different from the first configuration. For example, FIG. **1B** shows a first configuration corresponding to a user's bent leg, FIG. **1D** shows a second configuration corresponding to a user's straightened leg, and FIG. **1C** shows an intermediate configuration between a bent leg and a straight leg. Arrows **A** in FIGS. **1B** and **1C** indicate rotation of the guard assemblies **118**, **130** relative to the connection element **136** between the bent position and the straight position while the leg guard **100** articulates and moves with the user.

[0026] In some embodiments, when the user bends the leg guard **100**, the knee guard assembly **118** and the thigh guard assembly **130** rotate to form a gap **142** therebetween. The gap **142** would expose a player's knee but for the floating knee guard assembly **124** that covers some or all of the gap **142**. The gap **142** may be located between a lower anterior portion **144** of the thigh guard assembly **130** and an upper anterior portion **146** of the knee guard assembly **118**. The gap **142** may have a maximum size (i.e., a maximum distance between the lower anterior portion **144** and the upper anterior portion **146**) when the leg guard **100** is fully bent, and a minimum or negligible size when the leg guard **100** is fully straightened, or the gap **142** may close when the leg guard **100** is fully straightened.

[0027] The floating knee guard assembly **124** functions as an intermediate portion to cover at least part of the gap **142**. The floating knee guard assembly **124** is positionable and configured to cover at least a portion of a user's anterior thigh or knee region, depending in part on how the user's leg and the leg guard **100** move relative to each other during use. It “floats” with the user's anterior thigh or knee region to maintain protection despite the gap **142** (i.e., it covers at least part of the gap **142**). The floating knee guard assembly **124** may be attached to, but movable relative to, at least one (or both) of the thigh guard assembly **130** and the first knee guard assembly **118**. The floating knee guard assembly **124** may be attachable to the first knee guard assembly **118** or the thigh guard assembly **130** by any suitable attachments, such as stitching, hook-and-loop fasteners, buttons, snaps, stretchable fabrics, resilient materials, and the like. An example attachment is described in additional detail below with regard to FIG. **3**.

[0028] FIG. **2** illustrates a plan view of a connection element **136** configured in accordance with embodiments of the present technology. In some embodiments, a representative connection element **136** may include an elongated shape to accommodate the spaced-apart nature of the rotation axes of the connections with the first knee guard assembly **118** and the thigh guard assembly **130**. In some embodiments, the connection elements **136** may have an obround shape, as illustrated in FIG. **2**. Each connection element **136** may include attachment holes **200** for rotatably connecting the connection element **136** to the guard assemblies **118**, **130** using fasteners, such as rivets, screws, or other suitable connectors, which may or may not pass through the connection elements **136** and the guard assemblies **118**, **130**. In other embodiments, the connection elements **136** may have other suitable shapes or features to form the double-hinge design of the present technology.

[0029] FIG. **3** illustrates a side, partially exploded view of a portion of the leg guard **100**, in accordance with embodiments of the present technology. In some embodiments, to resist or prevent overextension or hyperextension of a player's leg (or arm, if the guard is used for arms), a portion of the thigh guard assembly **130** may include a wall or another blocking element to limit rotation relative to the connection element **136**. For example, in some embodiments, the thigh guard shell **132** may include an obstruction **300** at least partially positioned forward or anterior to the connection element **136** and at least partially below the first upper pivot point **138** (i.e., somewhere between the first upper pivot point **138** and the first lower pivot point **140**). The obstruction **300** (which is described herein as a wall element **300**) obstructs rotation of the thigh guard shell **132** relative to the connection element **136** along the direction indicated by arrow **B**, such that it may block the thigh guard shell **132** from rotating any further than engagement between the wall element **300** and the connection element **136** (e.g., as shown in FIG. **3**).

[0030] The wall element **300** at least resists, or prevents, the user's knee from straightening or over-extending beyond a safe limit (e.g., beyond closing the gap **142**). In some embodiments, the wall element **300** may project from the remainder of the thigh guard shell **132**. In other embodiments, as shown in FIG. **3** and in the detailed view illustrated in FIG. **3A**, the wall element **300** defines at least part of an edge of a recess **310** in the thigh guard shell **132** that receives the connection element **136** such that the connection element **136** is sunk or recessed at least partially into the thigh guard shell **132**. Although only one lateral side of the portion of the leg guard **100** is shown in FIGS. **3** and **3A**, the other lateral side of the leg guard **100** may also include a wall element **300** (e.g., as an edge of a recess **310**) to resist hyperextension.

[0031] FIG. **3** also illustrates a representative connection between the floating knee guard assembly **124** and other components of the leg guard **100**. For example, in some embodiments, an upper portion **315** of the floating knee guard assembly **124** may be connected to the thigh guard assembly **130** via one or more first straps **320** (which may or may not have elastic properties). In some embodiments, the one or more first straps **320** may extend under a bottom edge of the thigh guard shell **132**, or into a slot **325** formed in the thigh guard shell. The one or more first straps **320** may be suitably attached to the thigh guard shell **132** or the thigh pad **134**.

[0032] A lower portion **330** of the floating knee guard assembly **124** may be connected to the first knee guard assembly **118** via one or more second straps **335** (which may or may not have elastic properties). The one or more second straps **335** may extend between the first knee shell **120** and the first knee pad **122**, where it may be suitably attached to the first knee shell **120** or the first knee pad **122**. The first and second straps **320**, **335** enable the floating knee guard assembly **124** to translate relative to the other portions of the leg guard **100** and to otherwise articulate relative to the other portions of the leg guard **100**, such that the floating knee guard assembly **124** “floats” to protect the user's knee (e.g., by covering the gap **142**, see FIGS. **1B**, **1C**).

[0033] FIG. **4A** illustrates a partially schematic, partially exploded side-perspective view of the leg guard **100**. While in some embodiments the first knee guard assembly **118** may be directly connected to the shin guard assembly **112** via an integral pad connection between their respective pads **122**, **116**, or by the knee shell **120** attached to the shin pad **116**, in some embodiments, and as shown in FIG. **4A**, the first knee guard assembly **118** may be connected to the shin guard assembly **112** via one or more straps **400** (which may be elastic or inelastic). The straps **400** further enhance articulation between the first knee guard assembly **118** and the shin guard assembly **112** by separating or decoupling them from each other except for the strap connection. The length of the one or more straps **400** relative to other components are exaggerated in FIG. **4A** for purposes of illustration only. In some embodiments, the only connection(s) between the shin guard assembly **112** and the first knee guard assembly **118** may be the one or more straps **400**.

[0034] FIG. **4B** illustrates a partially schematic front (anterior) view of portions of the leg guard **100**. In particular, FIG. **4B** shows the first knee shell **120**, the first knee pad **122**, and the shin pad **116** (for illustration purposes, other components are omitted in this view, such as the shin shell). With reference to FIGS. **4A** and **4B**, in some embodiments, the one or more straps **400** may be attached to the first knee shell **120** (e.g., via one or more rivets, adhesive, stitching, or another suitable manner of attachment). The one or more straps **400** may be positioned between the first knee shell **120** and the first knee pad **122**.

[0035] In some embodiments, the one or more straps may extend through the shin pad **116** (away from the anterior surface, toward a user), and then back out of the shin pad **116** (toward the anterior surface), where they may be attached to the shin pad **116** (e.g., via one or more rivets, adhesive, stitching, or another suitable manner of attachment). As seen in FIG. **4A**, for example, the one or more straps **400** may be covered by the shin shell **114** in the assembled leg guard **100**. This weaving of the one or more straps **400** in and out of the shin pad **116** facilitates highly articulable connection between the first knee guard assembly **118** and the shin guard assembly **112**. Optionally, in some embodiments, a flexible cover material may be positioned between, and attached to the

front of, each of one or more pairs of adjacent shells to further conceal the one or more straps. [0036] FIG. 4C illustrates a partially schematic, partially exploded side-perspective view of the leg guard **100**, in which the leg guard **100** is bent in a manner that corresponds to a player in a crouched position. As explained above with regard to FIGS. 1A-3, the floating knee guard assembly **124** may at least partially cover the gap **142**, and as explained above with regard to FIGS. 4A and 4B, the one or more straps **400** (not visible in FIG. 4C at least because they may be concealed by other components of the leg guard **100**) facilitate suitable flexure between the first knee guard assembly **118** and the shin guard assembly **112**.

[0037] The shin guard portion **101**, the group **102** of knee guard portions (including the floating knee guard portion **110**), and the thigh guard portion **103** have been described above as including corresponding shells and pads. In some embodiments, however, the shells or the pads may be omitted, or in other embodiments, the shells and the pads may be formed integrally using suitable materials. Accordingly, in general, embodiments of the present technology include, for example, various thigh guard portions, groups of knee guard portions (including various floating knee guard portions) or a single knee guard portion, shin guard portions, and one or more connection elements **136**, in which each connection element **136** has its own pivot point or pivot axis relative to the thigh guard portion and relative to a knee guard portion (e.g., the “first” knee guard portion **107**). The relationship between the connection elements **136** and the portions they connect may be referred to as a “double hinge” because each side of the leg guard **100** has two pivot points in the knee region.

[0038] Returning to FIGS. 1B, 1C, and 1D, for example, in some embodiments, each connection element **136** may be positioned medially relative to the first knee shell **120** of the knee guard assembly **118** (i.e., inside the shell **120**, closer to a player's leg than to the outside of the shell **120**). In some embodiments, each connection element **136** may be positioned laterally relative to the thigh guard shell **132** of the thigh guard assembly **130** (i.e., outside the shell **132**). Such an arrangement facilitates nesting of the components for simple operation. In some embodiments, the connection elements may be positioned in other locations, such as both inside the shell portions, both outside the shell portions, or the reverse of the embodiment shown in FIGS. 1B, 1C, and 1D. [0039] Leg guards and other protective equipment configured in accordance with embodiments of the present technology may be formed with any suitable materials, such as generally rigid materials (such as plastic materials or injection-molded materials) for the shells **114**, **120**, **126**, and **132**, foam, rubber, mesh, fabric, or other materials suitable for the pads **116**, **122**, **128**, **134**, or other suitable materials for protecting a user's anatomy, absorbing or wicking sweat, absorbing impact energy, and so forth.

[0040] Guards and other protective equipment configured in accordance with embodiments of the present technology provide several advantages. For example, the connection elements **136**, having two rotation axes relative to the knee and thigh components, provide improved range of mobility as a user's leg bends, relative to conventional protective gear designs. The multiple hinges (i.e., the double hinge) enable enhanced articulation relative to more constrained designs with only one pivot axis.

[0041] From the foregoing, it will be appreciated that specific embodiments of the disclosed technology have been described for purposes of illustration, but that various modifications may be made without deviating from the technology, and elements of certain embodiments may be interchanged with those of other embodiments, and that some embodiments may omit some elements. For example, although leg guards are described, embodiments of the present technology may be implemented in other protective equipment, such as arm guards. For example, instead of shin, thigh, and knee elements, an arm guard may include forearm, upper arm, and elbow elements. Accordingly, protective gear of the present technology may be implemented in other devices and equipment. Although the connection elements **136** are described as being connected to shells, in some embodiments, they may be connected to, and pivotable relative to, the pads.

[0042] Further, while advantages associated with certain embodiments of the disclosed technology have been described in the context of those embodiments, other embodiments may also exhibit such advantages, and not all embodiments need necessarily exhibit such advantages to fall within the scope of the technology. Accordingly, the disclosure and associated technology may encompass other embodiments not expressly shown or described herein, and the invention is not limited except as by the appended claims.

Claims

1. A leg guard comprising: a knee guard assembly positionable to cover at least a portion of a user's anterior knee region; a thigh guard assembly positionable to cover at least a portion of a user's anterior thigh region; a first connection element positioned on a first lateral side of the leg guard, wherein the first connection element is rotatably attached to the thigh guard assembly at a first upper pivot point, and wherein the first connection element is rotatably attached to the knee guard assembly at a first lower pivot point; and a second connection element positioned on a second lateral side of the leg guard, wherein the second connection element is rotatably attached to the thigh guard assembly at a second upper pivot point, and wherein the second connection element is rotatably attached to the knee guard assembly at a second lower pivot point; wherein: the knee guard assembly is movable relative to the thigh guard assembly between a first configuration in which the thigh guard assembly is oriented transversely to the knee guard assembly, and a second configuration that is different than the first configuration.
2. The leg guard of claim 1, wherein the knee guard assembly is a first knee guard assembly, the leg guard further comprising a floating knee guard assembly positionable to cover at least a portion of a user's anterior knee or thigh region, wherein the floating knee guard assembly is attached to, and movable relative to, at least one of the thigh guard assembly or the first knee guard assembly, and wherein the floating knee guard assembly covers at least part of a gap between the thigh guard assembly and the first knee guard assembly when the leg guard is in the first configuration.
3. The leg guard of claim 2, wherein the floating knee guard assembly comprises a rigid shell portion and a pad portion.
4. The leg guard of claim 2, wherein the floating knee guard assembly is attached to the thigh guard assembly via one or more first straps, and wherein the floating knee guard assembly is attached to the first knee guard assembly via at least one second strap.
5. The leg guard of claim 4, wherein the one or more first straps are elastic straps.
6. The leg guard of claim 1, wherein the knee guard assembly comprises a rigid shell portion and a pad portion.
7. The leg guard of claim 1, further comprising a shin guard portion positionable to protect at least part of a user's lower leg.
8. The leg guard of claim 7, wherein the shin guard portion includes: a shin shell; a shin pad attached to the shin shell; and one or more retention elements positionable to secure the shin guard portion on a user.
9. The leg guard of claim 8, wherein the knee guard assembly comprises a knee shell, and wherein the leg guard further comprises one or more straps connecting the knee shell to the shin shell.
10. The leg guard of claim 9, wherein the one or more straps define the only connection between the knee guard portion and the shin guard portion.
11. The leg guard of claim 1, wherein the thigh guard assembly comprises: a thigh shell; a thigh pad attached to the thigh shell; and one or more retention elements positionable to secure the thigh guard portion on a user.
12. The leg guard of claim 1, wherein each of the first connection element and the second connection element comprises an obround shape.
13. The leg guard of claim 1, wherein each of the first connection element and the second

connection element is connected to the knee guard assembly via a fastener passing through the first connection element and at least part of the knee guard assembly, and wherein each of the first connection element and the second connection element is connected to the thigh guard assembly via another fastener passing through the connection elements and at least part of the thigh guard assembly.

14. The leg guard of claim 1, wherein: the knee guard assembly comprises a rigid knee shell; the thigh guard assembly comprises a rigid thigh shell; and for each of the first connection element and the second connection element, the connection element is positioned medially relative to the knee shell and laterally relative to the thigh shell.

15. The leg guard of claim 1, wherein: the thigh guard assembly comprises a wall element positioned to engage at least one of the connection elements when the leg guard is in the second configuration, to resist extension of the leg guard beyond the second configuration.

16. The leg guard of claim 15, wherein the thigh guard assembly comprises a rigid thigh shell, the wall element defines at least part of an edge of a recess in the thigh shell, and the recess receives the first connection element, wherein the first connection element is recessed at least partially into the thigh shell.

17. An articulating protective gear assembly comprising: a first guard assembly including at least at least part of a first device for securing the articulating protective gear assembly on a user; a second guard assembly including at least part of a second device for securing the articulating protective gear assembly on a user; two connection elements connecting the first guard assembly to the second guard assembly; and an intermediate portion; wherein: a first end of one of the connection elements is rotatably connected to the first guard assembly; a second end of the one of the connection elements is positioned opposite the first end and rotatably connected to the second guard assembly; and the intermediate portion is positioned to cover at least part of a gap between the first guard assembly and the second guard assembly when the first guard assembly is moved relative to the second guard assembly via the two connection elements.

18. The articulating protective gear assembly of claim 17, wherein at least the one of the connection elements comprises an obround shape.

19. The articulating protective gear assembly of claim 17, wherein the intermediate portion comprises a third rigid shell portion.

20. The articulating protective gear assembly of claim 17, wherein the means for securing the gear assembly on a user comprises one or more straps, one or more sleeves, one or more buckles, or one or more loops.

21. A leg guard for a baseball or softball catcher, the leg guard comprising: a shin guard assembly positionable to protect a lower portion of a user's leg; a thigh guard assembly positionable to protect an upper portion of a user's leg; a knee guard assembly positionable to protect at least part of a user's knee; and two connection elements connecting the knee guard assembly to the thigh guard assembly, wherein at least one of the connection elements is rotatably attached to the knee guard assembly at a first rotation axis and rotatably attached to the thigh guard assembly at a second rotation axis that is spaced apart from the first rotation axis.

22. The leg guard of claim 21, wherein the knee guard assembly is a first knee guard assembly, the leg guard further comprising a floating knee guard assembly positionable to at least partially cover a gap between the first knee guard assembly and the thigh guard assembly when the leg guard is in a bent configuration.

23. The leg guard of claim 21, wherein the thigh guard assembly comprises an obstruction limiting rotation of the knee guard assembly relative to the thigh guard assembly.
