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BIKE MOUNT MECHANISMS

Abstract

An apparatus can include an adjustment assembly. The adjustment assembly can move an arm of the apparatus. The adjustment assembly can include a first member and a second member. The first member can disengage from the second member. The second member can rotate relative to the first member to move the arm with the first member disengaged from the second member.

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Background/Summary

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS [0001] This application claims the benefit of and priority to U.S. Provisional Patent Application No. 63/553,421, filed on Feb. 14, 2024, the entirety of which is incorporated by reference herein.

INTRODUCTION
[0002] Vehicles can carry or transport equipment.
SUMMARY
[0003] This disclosure is generally related to one or more components of a vehicle. The components can include at least one apparatus. The apparatus can include at least one of adjustment assembly. The adjustment assembly can include at least one member. For example, the adjustment assembly can include a first member and a second member. The members can be engaged with another. For example, a first portion of the first member can be in contact with a first portion of the second member. The members can disengage from one another. For example, the first member can disengage from the second member. The second member can move relative to the first member with the first member disengaged from the second member.
[0004] At least one aspect is directed to an apparatus. The apparatus can include an adjustment assembly. The adjustment assembly can move an arm of the apparatus. The adjustment assembly can include a first member and a second member. The first member can disengage from the second member. The second member can rotate relative to the first member to move the arm with the first member disengaged from the second member.
[0005] At least one aspect is directed to a vehicle. The vehicle can include an apparatus. The apparatus can include an adjustment assembly. The adjustment assembly can move an arm of the apparatus. The adjustment assembly can include a first member and a second member. The first member can disengage from the second member. The second member can rotate relative to the first member to move the arm with the first member disengaged from the second member.
[0006] At least one aspect is directed to a method. The method can include disposing, within a body of an apparatus, an adjustment assembly. The adjustment assembly can include a first member and a second member. The adjustment assembly can move an arm of the apparatus. The method can also include disengaging, via an interface assembly of the apparatus, the first member from the second member. The method can also include rotating, responsive to disengaging the first member from the second member, the second member to move the arm of the apparatus.
[0007] These and other aspects and implementations are discussed in detail below. The foregoing information and the following detailed description include illustrative examples of various aspects and implementations, and provide an overview or framework for understanding the nature and character of the claimed aspects and implementations. The drawings provide illustration and a further understanding of the various aspects and implementations, and are incorporated in and constitute a part of this specification. The foregoing information and the following detailed description and drawings include illustrative examples and should not be considered as limiting.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0008] The accompanying drawings are not intended to be drawn to scale. Like reference numbers and designations in the various drawings indicate like elements. For purposes of clarity, not every component may be labeled in every drawing. In the drawings:
[0009] FIG. **1** depicts an electric vehicle, in accordance with an implementation.
[0010] FIG. **2** depicts a perspective view of an apparatus, in accordance with an implementation.

[0011] FIG. **3** depicts a perspective view of a vehicle including the apparatus illustrated in FIG. **2**, in accordance with an implementation.
[0012] FIG. **4** is a perspective view of an apparatus, in accordance with an implementation.
[0013] FIG. **5** is a cross-sectional view of the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0014] FIG. **6** is a perspective view of the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0015] FIG. **7** is a cross-sectional view of the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0016] FIG. **8** is a perspective view of the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0017] FIG. **9** is a perspective view of a mounting assembly included in the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0018] FIG. **10** is a perspective view of the mounting assembly illustrated in FIG. **9**, in accordance with an implementation.
[0019] FIG. **11** is perspective view of an attachment assembly, in accordance with an implementation.
[0020] FIG. **12** is a cross sectional view of the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0021] FIG. **13** is a perspective view of an arm included in the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0022] FIG. **14** is a cross-sectional view of a coupling assembly included in the apparatus illustrated in FIG. **4**, in accordance with an implementation.
[0023] FIG. **15** is cross-sectional view of the coupling assembly illustrated in FIG. **14**, in accordance with an implementation.
[0024] FIG. **16** is a perspective view of the coupling assembly illustrated in FIG. **14**, in accordance with an implementation.
[0025] FIG. **17** is a perspective view of the coupling assembly illustrated in FIG. **14**, in accordance with an implementation.
[0026] FIG. **18** is a perspective view of a linkage included in the coupling assembly illustrated in FIG. **14**, in accordance with an implementation.
[0027] FIG. **19** is a perspective view of a linkage included in the coupling assembly illustrated in FIG. **14**, in accordance with an implementation.
[0028] FIG. **20** is a perspective view of a crossbar included in the vehicle illustrated in FIG. **1**, in accordance with an implementation.
[0029] FIG. **21** depicts a flow diagram of a process of manufacturing an apparatus, in accordance with an implementation.
[0030] FIG. **22** is a block diagram illustrating an architecture for a computer system that can be employed to implement elements of the systems and methods described and illustrated herein.

DETAILED DESCRIPTION

[0031] Following below are more detailed descriptions of various concepts related to, and implementations of, methods, apparatuses, and systems of an apparatus including one or more components. The various concepts introduced above and discussed in greater detail below may be implemented in any of numerous ways.
[0032] The present disclosure is directed to systems and methods of one or more components for a vehicle. The components can include an apparatus. The apparatus can include an adjustment assembly. The adjustment assembly can include at least one member. The members can engage with one another. For example, a first member can engage with a second member. The engagement of the members can lock or hold one or more components of the apparatus. For example, the engagement of the member can hold an arm of the apparatus. The apparatus can include a body. For

example, the apparatus can include a frame, a structure, or a housing. The adjustment assembly can be disposed within the body. For example, the adjustment assembly can be located within the body.
[0033] The apparatus can be provided with the vehicle. For example, the apparatus can be included with the vehicle. The apparatus can also be provided separate from the vehicle. For example, the apparatus can be provided as one or more components separate from the vehicle. The apparatus can also include a surface or platform to hold an object. For example, the apparatus can support bicycle. As another example, the apparatus can support a wheel of a vehicle.
[0034] The adjustment assembly can control motion or movement of one or more components of the apparatus. For example, the adjustment assembly can move an arm having a hoop that receives a tire of a bicycle. As another example, the adjustment assembly can lock the arm in one or more locations or position. The adjustment assembly can control movement of the arm without the use of tools or fasteners. For example, the adjustment assembly can release the arm without having to first loosen of remove a fastener. As another example, the adjustment assembly can pivot the arm from a first position to a second position and then lock the arm in the second position without the use of tool.
[0035] The apparatus or one or more components thereon can be included with a bike rack system or a bike rack mechanism. For example, the apparatus can be included with a bike rack that couples with a vehicle. The apparatus can be removably coupled with the bike rack. For example, the apparatus can be decoupled from the bike rack and then subsequently recoupled.
[0036] Other bike racks or mounting mechanisms can include adjustable components. However, the adjustable components require tools and equipment when adjusting. For example, a tool to loosen a fastener must be used in order to move a component of these bike racks from a first position to a second position. This process can prove difficult and time consuming as the fasteners can be difficult to remove or loosen, which ultimately impacts the usability of these bike racks. Additionally, without the tools or equipment, these components cannot be adjusted or moved.
[0037] The disclosed solutions have a technical advantage of providing the adjustment assembly that includes components that can be adjusted or moved without the use of tools or equipment. The adjustment assembly can include members that engaged with another to hold or lock given components of the apparatus in place. The members can engage with one another without the use of tools or equipment.
[0038] Some of the present technical solutions also include the arrangement or placement of the components of the apparatus. For example, the adjustment assembly can be housed within a body of the apparatus such that the adjustment assembly is isolated or separately from an external environment. The location or placement of the adjustment assembly can protect or shield the components of the adjustment assembly from things such as debris, water, dirt, or dust.
[0039] FIG. **1** depicts an example cross-sectional view **100** of an electric vehicle **105** installed with at least one battery pack **110**. Electric vehicles **105** can include electric trucks, electric sport utility vehicles (SUVs), electric delivery vans, electric automobiles, electric cars, electric motorcycles, electric scooters, electric passenger vehicles, electric passenger or commercial trucks, hybrid vehicles, or other vehicles such as sea or air transport vehicles, planes, helicopters, submarines, boats, or drones, among other possibilities. The battery pack **110** can also be used as an energy storage system to power a building, such as a residential home or commercial building. Electric vehicles **105** can be fully electric or partially electric (e.g., plug-in hybrid) and further, electric vehicles **105** can be fully autonomous, partially autonomous, or unmanned. Electric vehicles **105** can also be human operated or non-autonomous. Electric vehicles **105** such as electric trucks or automobiles can include on-board battery packs **110**, batteries **115** or battery modules **115**, or battery cells **120** to power the electric vehicles. The electric vehicle **105** can include a chassis **125** (e.g., a frame, internal frame, or support structure). The chassis **125** can support various components of the electric vehicle **105**. The chassis **125** can span a front portion **130** (e.g., a hood or bonnet portion), a body portion **135**, and a rear portion **140** (e.g., a trunk, payload, or boot

portion) of the electric vehicle **105**. The battery pack **110** can be installed or placed within the electric vehicle **105**. For example, the battery pack **110** can be installed on the chassis **125** of the electric vehicle **105** within one or more of the front portion **130**, the body portion **135**, or the rear portion **140**. The battery pack **110** can include or connect with at least one busbar, e.g., a current collector element. For example, the first busbar **145** and the second busbar **150** can include electrically conductive material to connect or otherwise electrically couple the battery **115**, the battery modules **115**, or the battery cells **120** with other electrical components of the electric vehicle **105** to provide electrical power to various systems or components of the electric vehicle **105**.

[0040] FIG. **2** depicts a perspective view of an apparatus **200**. The apparatus **200** can include the apparatus described herein. For example, the apparatus **200** can provide at least one of the technical solutions described herein. The apparatus **200** can be coupled with a vehicle. For example, the apparatus **200** can be coupled with the vehicle **105**. The apparatus **200** can be coupled with the vehicle **105** by at least one of attaching, mounting, securing, or connecting the apparatus **200** with the vehicle **105**. For example, the apparatus **200** can be coupled with the chassis **125** of the vehicle **105**. As another example, the apparatus **200** can couple with a crossbar of the vehicle **105**.

[0041] The apparatus **200** can include at least one structural support attachment **205**. The structural support attachment **205** can include the structural support attachment described herein. The structural support attachment **205** can interface with, engage with, or otherwise interact with at least one of the various components described herein. For example, the structural support attachment **205** can engage with the attachment mechanism described herein. The structural support attachment **205** can couple with a vehicle. For example, the structural support attachment **205** can couple with the vehicle **105**.

[0042] The structural support attachment **205** can include a bumper port **205**. The bumper port **205** can be coupled with the vehicle **105**. For example, the bumper port **205** can be attached to the vehicle **105** via one or more fasteners. The bumper port **205** can be disposed within a portion of the vehicle **105**. For example, the bumper port **205** can be placed or located within a rear bumper of the vehicle **105**. Stated otherwise, the bumper port **205** can be disposed within a portion of the vehicle **105** that is located proximate to the rear of the vehicle **105** (e.g., a rear bumper or a rear portion). As another example, the bumper port **205** can be located in one or more positions of the vehicle **105**, such as the roof of the vehicle **105**, the tailgate of the vehicle **105**, the liftgate of the vehicle **105**, a door of the vehicle **105**, or a top portion of the vehicle **105**.

[0043] The bumper port **205** can include at least one opening **210**, at least one aperture **215**, at least one slot **220**, and at least one housing **230**. The opening **210** can define or otherwise establish a body, a housing, or an assembly of the bumper port **205**. For example, the opening **210** can define the housing **230**. The opening **210** can receive the attachment mechanism described herein. For example, the protruded portion of the attachment mechanism can be inserted into the opening **210**. The opening **210** can provide access to the housing **230**. For example, the opening **210** can provide a void or a cavity for the body of the attachment mechanism to be inserted into. The opening **210** can position at least a portion of the body within a portion of the vehicle. For example, the opening **210** can position the body of the attachment mechanism within the bumper of the vehicle **105**.

[0044] The bumper port **205** can engage with the attachment mechanism. For example, the bumper port **205** can engage with the body of the attachment mechanism responsive to a spring-load block wedge applying a load to the bumper port **205**. Stated otherwise, the body of the attachment mechanism can connect or interface with the bumper port **205**. The housing **230** can include at least one face **225**. For example, the housing **230** can include a first face **225** and a second face **225**. The faces **225** can include the apertures **215**. For example, the first face **225** can include a first aperture **215** and the second face **225** can include a second aperture **215**. The apertures **215** can be located or disposed within the faces **225**. For example, the apertures **215** can define a gap or a hole within the faces **225**.

[0045] The apertures **215** can receive at least one of the various components described herein. For example, the apertures **215** can receive the pawls (e.g., a protrusion) described herein. The apertures **215** can provide an opening, a hole, or a gap to allow the pawls to escape or otherwise exist the housing **230** of the bumper port **205**. The slots **220** can receive at least one fastener. For example, the slots **220** can receive a bolt or a screw. The slots **220** can couple the bumper port **205** with the vehicle **105** responsive to the slots receiving at least one fastener.

[0046] FIG. **3** depicts a perspective view of the vehicle **105**. The vehicle **105** can include at least one portion **303**. The portions **303** can include one or more various components, locations, or spots of the vehicle **105**. The portions **303** can be located proximate to the rear of the vehicle **105**. For example, the portions **303** can be located proximate to a rear bumper of the vehicle **105**. As another example, the portions **303** can include the chassis **125**. As even another example, the portions **303** can include various locations or portions of the vehicle **105**. The portions **303** can include at least one opening **310**. The openings **310** can include a void or a gap for which the bumper port **205** can be accessible. For example, the openings **310** can provide access to the opening **210**.

[0047] The apparatus **200** can include a first bumper port **205** and a second bumper port **205**. The first bumper port **205** can be disposed within a first opening **310**. The second bumper port **205** can be disposed within a second opening **310**. FIG. **3** depicts an example of a first bumper port **205** disposed within a first opening **310** and an example of a second bumper port **205** disposed within a second opening **310**. The first bumper port **205** can support a first portion of a tray. For example, the first bumper port **205** can support a first part of a bike rake (e.g., a tray). As another example, the second bumper port **205** can support a second part of the bike rake. The first bumper port **205** and the second bumper port **205** both supporting a part of the tray can refer to a uniform weight distribution.

[0048] The apparatus **200** can include at least one plug **305**. The plug **305** can be inserted into the opening **310**. The plug **305** can enclose or cover the bumper port **205**. For example, the plug **305** can isolate the bumper port **205** from an external environment (e.g., rain, dirt, dust, mud, snow, etc.). The plug **305** can also prevent debris from entering the housing **230**. FIG. **3** depicts an example of the plug **305** external to the opening **310** (e.g., the plug **305** is not covering the bumper port **205**).

[0049] FIG. **4** is a perspective view of an apparatus **400**. The apparatus **400** can include the apparatus described herein. The apparatus **400** can include at least one body **405**. The body **405** can include a frame or structure. The body **405** can define or establish a shape of the apparatus **400**. The apparatus **400** can couple with the vehicle **105**. For example, the apparatus **400** or a portion thereof can couple with the bumper port **205**. As another example, the apparatus **400** can be inserted into the portions **303**. The apparatus **400** can refer to or include a bike rack or one or more components of the bike rack. For example, the apparatus **400** can hold or support a tire of a bike. The apparatus **400** can include at least one arm **420**. The arm **420** can refer to or include the arm described herein. For example, the arm **420** can hold or receive a bike tire.

[0050] FIG. **5** is a cross-sectional view of the apparatus **400**. The cross-sectional view, as shown in FIG. **5**, can include a view of the apparatus **400** from a bottom view, an under view, or an upside-down view. The cross-sectional view can illustrate an internal view of the body **405**. The apparatus **400** can include at least one adjustment assembly **505**. The adjustment assembly **505** can include the adjustment assembly described herein. The adjustment assembly **505** can refer to or include a dog clutch. The adjustment assembly **505** can move one or more components of the apparatus **400**. For example, the adjustment assembly **505** can move the arm **420**. The adjustment assembly **505** can move the arm **420** from a stowed position (e.g., a position similar to the position of the arm **420** shown in FIG. **4**) to a deployed position (e.g., a position to receive a tire of a bike).

[0051] The adjustment assembly **505** can include at least one member. For example, the adjustment assembly can include at least one member **510** and at least one member **515**. The member **510** can include a first member. The member **510** can also include a sliding collar. The member **510** can

include a gap **512**. The gap **512** can receive an inclined plane to move the member **510**. The member **515** can include a second member. The member **515** can also include a roller clutch. The members (e.g., the member **510** and the member **515**) can refer to or include the members described herein. For example, the member **510** can engage with the member **515**. FIG. **5** depicts an example of the member **510** engaged with the member **515**. The apparatus **400** can include at least one spring **530**, at least one clutch assembly **535**, at least one spring assembly **540**, and at least one damper **545**.

[0052] The member **510** can disengage from the member **515**. For example, the member **510** can compress or move the spring **530** to disengage from the member **515**. The member **510** can disengage from the member **515** by moving along axis **525**. For example, the member **510** can disengage from the member **515** by moving away from the member **515**. The member **515** can move relative to the member **510**. For example, the member **515** can rotate about the axis **525**. The disengagement of the member **510** can cause the member **515** to rotate. For example, the spring assembly **540** can apply a torsional force on the member **515**. To continue this example, the disengagement of the member **510** from the member **515** can cause the member **515** to rotate via the torsional force applied by the spring assembly **540** on the member **515**. The member **515** can rotate relative to the member **510** to move the arm **420**. For example, the member **515** can rotate to move the arm **420** from a stowed position to a deployed positioned.

[0053] The spring assembly **540** can rotate the arm **420**. For example, the member **515** can be coupled with the arm **420**. To continue this example, the spring assembly **540** can rotate the member **515** about the axis **525**, which in turn can rotate the arm **420**. The spring assembly **540** can rotate the arm **420** with the member **510** disengaged from the member **515**. The member **515** can be coupled with the clutch assembly **535**. For example, the member **515** can be secured, attached, affixed, or otherwise mounted to the clutch assembly **535**. The member **515** can rotate or move in one or more directions, relative to clutch assembly **535**. For example, the member **515** can move via at least one of a roller ramp clutch, a one way bearing, a sprag bearing, or a ratchet. The damper **545** can control movement of the clutch assembly **535**. For example, the damper **545** can resist or slow movement of the clutch assembly **535**.

[0054] The clutch assembly **535** can be coupled with the arm **420**. For example, the clutch assembly **535** can be secured to the arm **420**. The clutch assembly **535** can couple the member **515** with the arm **420**. For example, the clutch assembly **535** can indirectly couple the member **515** with the arm **420**. To continue this example, the arm **420** can move, via the clutch assembly **535**, responsive to rotation of the member **515**. The clutch assembly **535** can rotate with the member **515** disengaged from the member **510**. For example, rotation of the member **515** can cause the clutch assembly **535** to also rotate.

[0055] FIG. **6** is a perspective view of the apparatus **400**. The view of the apparatus **400**, as shown in FIG. **6**, can refer to or include a bottom view, an under view, or an upside-down view. The adjustment assembly **505** can be disposed within the body **405**. For example, the adjustment assembly **505** can be located or housed within the body **405**. The body **405** can include an interface assembly **605**. The interface assembly **605** can include at least one of a slide, a glide, a button, or a movable element. The interface assembly **605** can interface with the member **510**. For example, the interface assembly **605** can contact or touch the member **510**. The interface assembly **605** can cause the member **510** to disengage from the member **515**. For example, the interface assembly **605** can cause the member **510** to move along the axis **525**. As another example, the interface assembly **605** can cause the member **510** to compress the spring **530**.

[0056] FIG. **7** is a cross-sectional view of the apparatus **400**. The interface assembly **605** can include a plane **705** or wedge **705**. The plane **705** can include an inclined plane. The plane **705** can insert within a portion of the member **510**. For example, the member **510** can include an opening, a void, or a gap (e.g., the gap **512**). To continue this example, the plane **705** can insert into the member **510** via the gap **512**. The plane **705** can move responsive to engagement of the interface

assembly **605**. For example, the plane **705** can move responsive to sliding the interface assembly **605**. The plane **705** can cause the member **510** to disengage from the member **515**. For example, insertion of the plane **705** into the gap **512** can cause the member **510** to compress the spring **530**.
[0057] The member **510** can include at least one protrusion **715** and at least one slot **725**. The protrusions **715** can refer to or include at least one of teeth, extensions, or elongated members. The protrusions **715** can engage with the member **515**. The member **515** can include at least one protrusion **710** and at least one slot **720**. The slots **720** can receive the protrusions **715**. For example, the protrusions **715** can be inserted into the slots **720**. The insertion of protrusions **715**, into the slots **720**, can engage the member **510** with the member **515**.
[0058] The protrusions **715** can engage with the slots **720**. For example, the protrusion **715** can be inserted into a first slot **720**. As another example, the protrusion **715** can be inserted into a second slot **720**. The protrusion **715** can be inserted into a first slot **720** with the arm **420** in the deployed position. The protrusion **715** can engaged with the first slot **720** with the member **510** engaged with the member **515**. For example, engagement of the member **510** with the member **515** can result from engagement of the protrusion **715** with the first slot **720**. The engagement of the protrusion **715** with the first slot **720** can lock or maintain a position of the member **515**. For example, the engagement can lock the member **515** in a first position.
[0059] Disengagement of the protrusions **715** from the first slot **720** can cause the member **510** to disengage from the member **515**. For example, the plane **705** inserting into the gap **512** can cause the protrusions **715** to disengage from the first slot **720**. The disengagement of the first member **510** from the second member **515** can cause the protrusion **715** to no longer align with the first slot **720**. For example, the first slot **720** can rotate responsive to disengagement of the member **510** from the member **515**. The rotation of the first slot **720** can cause a second slot **720** to align with the protrusion **715**. For example, the member **515** can rotate about the axis **525** and the second slot **720** can align with the protrusion **715** responsive to the rotation of the member **515**.
[0060] The slots **720** can be separated by one or more angles. For example, a first slot **720** and a second slot **720** can be separated by 180 degrees (e.g., an angle). As another example, a first slot **720**, a second slot **720**, and third slot **720** can be separated by 120 degrees. The separation (e.g., a degree difference between the slots **720**) can define a rotation amount. For example, a first slot **720** that is separated from a second slot by 120 degrees can define a rotation amount that the arm **420** can rotate (e.g., an angular rotation). Stated otherwise, disengagement of the member **515** from the member **510** can cause the member **515** to rotate by a given amount (e.g., the degree difference between the slots **720**). For example, the first slot **720** and the second slot **720** can be separated by 120 degrees. To continue this example, the arm **420** can rotate, responsive to disengagement of the member **510** from the member **515**, by 120 degrees prior to an engagement between the protrusion **715** and a second slot **720** of the member **510**.
[0061] FIG. **8** is a perspective view of the apparatus **400**. The apparatus **400** can be coupled with an attachment assembly **805**. For example, the apparatus **400** can be secured to the attachment assembly **805**. The attachment assembly **805** can be coupled with the vehicle **105**. For example, the attachment assembly **805** can couple with the bumper port **205**. FIG. **8** depicts an example of the arms **420** in a deployed position (e.g., disengagement of the member **510** from the member **515** cause the arms **420** to rotate). The apparatus **400** is shown supporting a tire of a bike and the arm **420** is shown having received the tire of the bike.
[0062] FIG. **9** is a perspective view of a mounting assembly **905**. The apparatus **400** can include the mounting assembly **905**. For example, the mounting assembly **905** can be located on a bottom side of the apparatus **400**. The mounting assembly **905** can couple the apparatus **400** with the attachment assembly **805**. For example, the mounting assembly **905** can secure the apparatus **400** to the attachment assembly **805**. The mounting assembly **905** can include at least one recess **910**, at least one lever **915**, and at least one engagement element **920**. The lever **915** can be coupled with the engagement element **920**. For example, the lever **915** can be secured to the engagement element

920. The lever **915** can control or move the engagement element **920**. For example, the lever **915** can move the engagement element **920** from a first position to a second position. The engagement element **920** can include a retracted position (e.g., a position or placement similar to that shown in FIG. **9**) and a deployed position. The recess **910** can include at least one portion **912** and at least one portion **914**. The portions (e.g., the portion **912** and the portion **914**) can guide one or more objects. For example, the portion **912** and the portion **914** can guide a protrusion of the attachment assembly **805**.

[0063] FIG. **10** is a perspective view of the mounting assembly **905**. The recess **910** can receive a protrusion **1005**. The attachment assembly **805** can include the protrusion **1005**. The recess **910** can receive the protrusion **1005** to couple the apparatus **400** with the vehicle **105**. For example, the apparatus **400** can couple with the attachment assembly **805** responsive to the recess **910** receiving the protrusion **1005**. The lever **915** can move the engagement element **920** to engage the engagement element **920** with the protrusion **1005**. For example, the lever **915** can move the engagement element **920**, from the position shown in FIG. **9** to the position shown in FIG. **10**, to engage the engagement element **920** with the protrusion **1005**. The engagement of the engagement element **920** with the protrusion **1005**, can couple the apparatus **400** with the attachment assembly **805**.

[0064] The engagement element **920** can move the protrusion **1005**. For example, the engagement element **920** can move the protrusion **1005** from a first position to a second position. As another example, the engagement element **920** can move the protrusion **1005** further into the recess **910**. The portion **912** and the portion **914** can guide the protrusion **1005**. For example, the portion **912** and the portion **914** can guide the protrusion **1005** to the position of the protrusion **1005** as shown in FIG. **10**.

[0065] FIG. **11** is perspective view of the attachment assembly **805**. The attachment assembly **805** can include the protrusion **1005**. The protrusion **1005** can be coupled with a top portion of the attachment assembly **805**. The protrusion **1005** can be removed from the apparatus **400**. For example, the protrusion **1005** can be removed from the recess **910** of the apparatus **400**. The protrusion **1005** can be removed from the apparatus **400** responsive to the engagement element **920** disengaging with the protrusion **1005**.

[0066] FIG. **12** is a cross-sectional view of the apparatus **400**. The apparatus **400** can include a button assembly **1205**. The button assembly **1205** can include at least one pin **1210** and at least one spring **1215**. The pin **1210** or element **1210** can insert into at least one groove **1220** or notch **1220**. The arm **420** can include the grooves **1220**. The pin **1210** can lock or maintain a position or a placement of one or more portions of the arm **420**. For example, the pin **1210** can restrict movement in a first direction or allow movement in a second direction.

[0067] FIG. **13** is a perspective view of the arm **420**. The arm **420** can include at least one segment **1310** and at least one segment **1315**. The segment **1310** can include a first segment. The segment **1315** can include a second segment. At least a portion of the segment **1315** can be disposed within the segment **1310**. For example, the segment **1310** can include a hollow portion that receives at least a portion of the segment **1315**. As another example, the segment **1315** can telescope relative to the segment **1310**. The segment **1315** can move relative to the segment **1310**. For example, the segment **1315** can move from a position within the segment **1310** to a position external to the segment **1310**. The segment **1315** can move to adjust a length of the arm **420**. For example, the arm **420** can be extended or lengthened with the segment **1315** extended from the segment **1310**.

[0068] The apparatus **400** can include an interface **1305**. The interface **1305** can include a button or a press. The button assembly **1205** can include the interface **1305**. The interface **1305** can be disposed on a body of the arm **420**. The interface **1305** can release the segment **1315**. For example, the interface **1305** can compress the spring **1215** to cause the pin **1210** to disengage with a given groove **1220**. To continue this example, the segment **1315** can be released responsive to the disengagement of the pin **1210** from the given groove **1220**. The segment **1315** can move, relative

to the segment **1310**, with the pin **1210** disengaged from the grooves **1220**.
[0069] The pin **1210** can engage with the grooves **1220**. For example, the pin **1210** can engage with a first groove **1220** and a second groove **1220**. The pin **1210** can engage with the second groove **1220** responsive to disengagement from the first groove **1220**. For example, the interface **1305** can release the pin **1210** causing the pin **1210** to disengage from the first groove **1220**. To continue this example, the pin **1210** can subsequently engage with the second groove **1220**.
[0070] FIG. **14** is a cross-sectional view of a coupling assembly **1405**. The apparatus **400** can include the coupling assembly **1405**. The coupling assembly **1405** can couple the apparatus **400** with the vehicle **105**. For example, the coupling assembly **1405** can couple the apparatus **400** with a crossbar of the vehicle **105**. The coupling assembly **1405** can include at least one linkage. For example, in FIG. **14**, the coupling assembly **1405** is shown to include linkage **1410**, linkage **1415**, and linkage **1420**. The linkage **1415** can couple the linkage **1410** with the linkage **1420**. The linkage **1410** can receive a first fastener **1430**. For example, the first fastener **1430** can be inserted into an aperture of the linkage **1410**. The linkage **1420** can receive a second fastener **1430**. For example, the second fastener **1430** can be inserted into an opening of the linkage **1420**.
[0071] The coupling assembly **1405** can include at least one lever **1425**. The lever **1425** can be coupled with the linkage **1410**. For example, the lever **1425** can be secured to the linkage **1410**. The lever **1425** can include at least one position. For example, the lever **1425** can include a first position and a second position. The first position or the second position can include an open position. FIG. **14** depicts an example of the lever **1425** in the open position. The lever **1425** can move the linkage **1410** to adjust a position of the fasteners **1430**. For example, the lever **1425** can move the linkage **1410** to cause subsequent movement of the linkage **1415** and the linkage **1420**. The lever **1425** can move the linkage **1410** to adjust a position of the fasteners **1430**. For example, the lever **1425** can move the linkage **1410** to adjust the fasteners **1430** from a first position to a second position.
[0072] The linkage **1410** and the linkage **1420** can move from one or more position. For example, the linkage **1410** and the linkage **1420** can move from a first position to a second position. The linkage **1410** and the linkage **1420** can move from the first position to the second position prior to an adjustment in a position of the fasteners **1430**. For example, the position of the fasteners **1430** can be maintained as the linkage **1410** and the linkage **1420** begin to move.
[0073] FIG. **15** is cross-sectional view of the coupling assembly **1405**. FIG. **15** depicts an example of the lever **1425** in the closed position and an example of the lever **1425** having moved the linkage **1410**, the linkage **1415**, and the linkage **1420**. The apparatus **400** can be coupled with an object with the lever **1425** in the closed position. For example, the apparatus **400** can be coupled with a crossbar of the vehicle **105** with the lever **1425** in the closed position.
[0074] FIGS. **16-17** are perspective views of the coupling assembly **1405**. The fasteners **1430** can include at least one portion **1605** or segment **1605**. The segments **1605** can be parallel or perpendicular to an axis **1610**. The segments **1605** can be parallel, as shown in FIG. **16**, with the axis **1610** with the lever **1425** in the open position. The segments **1605** can be perpendicular, as shown in FIG. **17**, with the lever **1425** in the closed position. The segments **1605** can move responsive to movement of the linkage **1410** and the linkage **1420**. For example, the segments **1605** can move, from the position shown in FIG. **16** to the position shown in FIG. **17**, responsive to movement of the linkage **1410** and the linkage **1420**, via the lever **1425**.
[0075] FIGS. **18-19** are perspective views of the linkage **1420**. The fastener **1430**, as shown in FIG. **18**, is inserted into the linkage **1420**. The fastener **1430** can refer to or include one or more T-studs. The linkage **1420** can include one or more raised or elevated segments. The raised segments can define movement of the linkage **1420**.
[0076] FIG. **20** is a perspective view of a crossbar **2005**. The vehicle **105** can include the crossbar **2005**. For example, the crossbar **2005** can be located on a roof of the vehicle **105**. The crossbar **2005** can include at least one opening **2010**. The fasteners **1430** can be inserted within the opening

2010. For example, the fasteners **1430** can be located within the opening **2010**. As shown in FIG. **20**, the opening **2010** aligns with or is parallel with the axis **1610**. The fasteners **1430** can be inserted into the opening **2010** with the fasteners **1430** positioned in the position shown in FIG. **16**. The fasteners **1430** can couple with the crossbar **2005**. For example, the fasteners **1430** can couple with the crossbar **2005** with the fasteners **1430** positioned in the position shown in FIG. **17**.
[0077] FIG. **21** depicts a block diagram of a process **2100** for manufacturing an apparatus. The apparatus can include the apparatus **400**. The apparatus **400** can include the adjustment assembly **505**. The manufacturing of the apparatus **400** can include providing the apparatus **400**. For example, the apparatus **400** can be provided during assembly of the vehicle **105**. The apparatus **400** can also be provided responsive to the apparatus **400** having been purchased.
[0078] At act **2105**, an adjustment assembly can be disposed. For example, the adjustment assembly **505** can be disposed within the body **405**. The adjustment assembly **505** can be disposed within the body **405** by at least one of placing, positioning, locating, or situating the adjustment assembly **505** in the body **405**. The adjustment assembly **505** can include the member **510** and the member **515**.
[0079] At act **2110**, a first member can be disengaged. For example, the member **510** can be disengaged from the member **515**. The member **510** can be disengaged, from the member **515**, responsive to the plane **705** having been inserted into the member **510**. The member **510** can compress the spring **530** to disengage from the member **515**. The member **515** can be released with the member **510** disengaged from the member **515**. For example, the protrusions **715** can release the slots **720**.
[0080] At act **2115**, a second member can rotate. For example, the member **515** can rotate relative to the member **510** with the member **510** disengaged from the member **515**. The member **515** can rotate about the axis **525**. The spring assembly **540** can apply a torsional force to rotate the member **515**. The member **515** can rotate from a first position to a second position to move the arm **420**. The member **515** can rotate with the protrusions **715** disengaged from the slots **720**.
[0081] FIG. **22** depicts an example block diagram of an example computer system **2200**. The computer system or computing device **2200** can include or be used to implement a data processing system or its components. The computing system **2200** includes at least one bus **2205** or other communication component for communicating information and at least one processor **2210** or processing circuit coupled to the bus **2205** for processing information. The computing system **2200** can also include one or more processors **2210** or processing circuits coupled to the bus for processing information. The computing system **2200** also includes at least one main memory **2215**, such as a random access memory (RAM) or other dynamic storage device, coupled to the bus **2205** for storing information, and instructions to be executed by the processor **2210**. The main memory **2215** can be used for storing information during execution of instructions by the processor **2210**. The computing system **2200** may further include at least one read only memory (ROM) **2220** or other static storage device coupled to the bus **2205** for storing static information and instructions for the processor **2210**. A storage device **2225**, such as a solid state device, magnetic disk or optical disk, can be coupled to the bus **2205** to persistently store information and instructions.
[0082] The computing system **2200** may be coupled via the bus **2205** to a display **2235**, such as a liquid crystal display, or active matrix display, for displaying information to a user such as a driver of the electric vehicle **105** or other end user. An input device **2230**, such as a keyboard or voice interface may be coupled to the bus **2205** for communicating information and commands to the processor **2210**. The input device **2230** can include a touch screen display **2235**. The input device **2230** can also include a cursor control, such as a mouse, a trackball, or cursor direction keys, for communicating direction information and command selections to the processor **2210** and for controlling cursor movement on the display **2235**.
[0083] The processes, systems and methods described herein can be implemented by the computing system **2200** in response to the processor **2210** executing an arrangement of instructions contained

in main memory **2215**. Such instructions can be read into main memory **2215** from another computer-readable medium, such as the storage device **2225**. Execution of the arrangement of instructions contained in main memory **2215** causes the computing system **2200** to perform the illustrative processes described herein. One or more processors in a multi-processing arrangement may also be employed to execute the instructions contained in main memory **2215**. Hard-wired circuitry can be used in place of or in combination with software instructions together with the systems and methods described herein. Systems and methods described herein are not limited to any specific combination of hardware circuitry and software.

[0084] Although an example computing system has been described in FIG. **22**, the subject matter including the operations described in this specification can be implemented in other types of digital electronic circuitry, or in computer software, firmware, or hardware, including the structures disclosed in this specification and their structural equivalents, or in combinations of one or more of them.

[0085] Some of the description herein emphasizes the structural independence of the aspects of the system components or groupings of operations and responsibilities of these system components. Other groupings that execute similar overall operations are within the scope of the present application. Modules can be implemented in hardware or as computer instructions on a non-transient computer readable storage medium, and modules can be distributed across various hardware or computer based components.

[0086] The systems described above can provide multiple ones of any or each of those components and these components can be provided on either a standalone system or on multiple instantiation in a distributed system. In addition, the systems and methods described above can be provided as one or more computer-readable programs or executable instructions embodied on or in one or more articles of manufacture. The article of manufacture can be cloud storage, a hard disk, a CD-ROM, a flash memory card, a PROM, a RAM, a ROM, or a magnetic tape. In general, the computer-readable programs can be implemented in any programming language, such as LISP, PERL, C, C++, C#, PROLOG, or in any byte code language such as JAVA. The software programs or executable instructions can be stored on or in one or more articles of manufacture as object code.

[0087] Example and non-limiting module implementation elements include sensors providing any value determined herein, sensors providing any value that is a precursor to a value determined herein, datalink or network hardware including communication chips, oscillating crystals, communication links, cables, twisted pair wiring, coaxial wiring, shielded wiring, transmitters, receivers, or transceivers, logic circuits, hard-wired logic circuits, reconfigurable logic circuits in a particular non-transient state configured according to the module specification, any actuator including at least an electrical, hydraulic, or pneumatic actuator, a solenoid, an op-amp, analog control elements (springs, filters, integrators, adders, dividers, gain elements), or digital control elements.

[0088] The subject matter and the operations described in this specification can be implemented in digital electronic circuitry, or in computer software, firmware, or hardware, including the structures disclosed in this specification and their structural equivalents, or in combinations of one or more of them. The subject matter described in this specification can be implemented as one or more computer programs, e.g., one or more circuits of computer program instructions, encoded on one or more computer storage media for execution by, or to control the operation of, data processing apparatuses. Alternatively or in addition, the program instructions can be encoded on an artificially generated propagated signal, e.g., a machine-generated electrical, optical, or electromagnetic signal that is generated to encode information for transmission to suitable receiver apparatus for execution by a data processing apparatus. A computer storage medium can be, or be included in, a computer-readable storage device, a computer-readable storage substrate, a random or serial access memory array or device, or a combination of one or more of them. While a computer storage medium is not a propagated signal, a computer storage medium can be a source or destination of computer

program instructions encoded in an artificially generated propagated signal. The computer storage medium can also be, or be included in, one or more separate components or media (e.g., multiple CDs, disks, or other storage devices include cloud storage). The operations described in this specification can be implemented as operations performed by a data processing apparatus on data stored on one or more computer-readable storage devices or received from other sources.

[0089] The terms “computing device”, “component” or “data processing apparatus” or the like encompass various apparatuses, devices, and machines for processing data, including by way of example a programmable processor, a computer, a system on a chip, or multiple ones, or combinations of the foregoing. The apparatus can include special purpose logic circuitry, e.g., an FPGA (field programmable gate array) or an ASIC (application specific integrated circuit). The apparatus can also include, in addition to hardware, code that creates an execution environment for the computer program in question, e.g., code that constitutes processor firmware, a protocol stack, a database management system, an operating system, a cross-platform runtime environment, a virtual machine, or a combination of one or more of them. The apparatus and execution environment can realize various different computing model infrastructures, such as web services, distributed computing and grid computing infrastructures.

[0090] A computer program (also known as a program, software, software application, app, script, or code) can be written in any form of programming language, including compiled or interpreted languages, declarative or procedural languages, and can be deployed in any form, including as a stand-alone program or as a module, component, subroutine, object, or other unit suitable for use in a computing environment. A computer program can correspond to a file in a file system. A computer program can be stored in a portion of a file that holds other programs or data (e.g., one or more scripts stored in a markup language document), in a single file dedicated to the program in question, or in multiple coordinated files (e.g., files that store one or more modules, sub programs, or portions of code). A computer program can be deployed to be executed on one computer or on multiple computers that are located at one site or distributed across multiple sites and interconnected by a communication network.

[0091] The processes and logic flows described in this specification can be performed by one or more programmable processors executing one or more computer programs to perform actions by operating on input data and generating output. The processes and logic flows can also be performed by, and apparatuses can also be implemented as, special purpose logic circuitry, e.g., an FPGA (field programmable gate array) or an ASIC (application specific integrated circuit). Devices suitable for storing computer program instructions and data can include non-volatile memory, media and memory devices, including by way of example semiconductor memory devices, e.g., EPROM, EEPROM, and flash memory devices; magnetic disks, e.g., internal hard disks or removable disks; magneto optical disks; and CD ROM and DVD-ROM disks. The processor and the memory can be supplemented by, or incorporated in, special purpose logic circuitry.

[0092] The subject matter described herein can be implemented in a computing system that includes a back end component, e.g., as a data server, or that includes a middleware component, e.g., an application server, or that includes a front end component, e.g., a client computer having a graphical user interface or a web browser through which a user can interact with an implementation of the subject matter described in this specification, or a combination of one or more such back end, middleware, or front end components. The components of the system can be interconnected by any form or medium of digital data communication, e.g., a communication network. Examples of communication networks include a local area network (“LAN”) and a wide area network (“WAN”), an inter-network (e.g., the Internet), and peer-to-peer networks (e.g., ad hoc peer-to-peer networks).

[0093] While operations are depicted in the drawings in a particular order, such operations are not required to be performed in the particular order shown or in sequential order, and all illustrated operations are not required to be performed. Actions described herein can be performed in a different order.

[0094] Having now described some illustrative implementations, it is apparent that the foregoing is illustrative and not limiting, having been presented by way of example. In particular, although many of the examples presented herein involve specific combinations of method acts or system elements, those acts and those elements may be combined in other ways to accomplish the same objectives. Acts, elements and features discussed in connection with one implementation are not intended to be excluded from a similar role in other implementations or implementations.
[0095] The phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting. The use of “including” “comprising” “having” “containing” “involving” “characterized by” “characterized in that” and variations thereof herein, is meant to encompass the items listed thereafter, equivalents thereof, and additional items, as well as alternate implementations consisting of the items listed thereafter exclusively. In one implementation, the systems and methods described herein consist of one, each combination of more than one, or all of the described elements, acts, or components.
[0096] Any references to implementations or elements or acts of the systems and methods herein referred to in the singular may also embrace implementations including a plurality of these elements, and any references in plural to any implementation or element or act herein may also embrace implementations including only a single element. References in the singular or plural form are not intended to limit the presently disclosed systems or methods, their components, acts, or elements to single or plural configurations. References to any act or element being based on any information, act or element may include implementations where the act or element is based at least in part on any information, act, or element.
[0097] Any implementation disclosed herein may be combined with any other implementation or embodiment, and references to “an implementation,” “some implementations,” “one implementation” or the like are not necessarily mutually exclusive and are intended to indicate that a particular feature, structure, or characteristic described in connection with the implementation may be included in at least one implementation or embodiment. Such terms as used herein are not necessarily all referring to the same implementation. Any implementation may be combined with any other implementation, inclusively or exclusively, in any manner consistent with the aspects and implementations disclosed herein.
[0098] References to “or” may be construed as inclusive so that any terms described using “or” may indicate any of a single, more than one, and all of the described terms. References to at least one of a conjunctive list of terms may be construed as an inclusive OR to indicate any of a single, more than one, and all of the described terms. For example, a reference to “at least one of ‘A’ and ‘B’” can include only ‘A’, only ‘B’, as well as both ‘A’ and ‘B’. Such references used in conjunction with “comprising” or other open terminology can include additional items.
[0099] Where technical features in the drawings, detailed description or any claim are followed by reference signs, the reference signs have been included to increase the intelligibility of the drawings, detailed description, and claims. Accordingly, neither the reference signs nor their absence have any limiting effect on the scope of any claim elements.
[0100] Modifications of described elements and acts such as variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations can occur without materially departing from the teachings and advantages of the subject matter disclosed herein. For example, elements shown as integrally formed can be constructed of multiple parts or elements, the position of elements can be reversed or otherwise varied, and the nature or number of discrete elements or positions can be altered or varied. Other substitutions, modifications, changes and omissions can also be made in the design, operating conditions and arrangement of the disclosed elements and operations without departing from the scope of the present disclosure.
[0101] For example, descriptions of positive and negative electrical characteristics may be reversed. Elements described as negative elements can instead be configured as positive elements

and elements described as positive elements can instead by configured as negative elements. For example, elements described as having first polarity can instead have a second polarity, and elements described as having a second polarity can instead have a first polarity. Further relative parallel, perpendicular, vertical or other positioning or orientation descriptions include variations within +/−10% or +/−10 degrees of pure vertical, parallel or perpendicular positioning. References to “approximately,” “substantially” or other terms of degree include variations of +/−10% from the given measurement, unit, or range unless explicitly indicated otherwise. Coupled elements can be electrically, mechanically, or physically coupled with one another directly or with intervening elements. Scope of the systems and methods described herein is thus indicated by the appended claims, rather than the foregoing description, and changes that come within the meaning and range of equivalency of the claims are embraced therein.

Claims

1. An apparatus, comprising: an adjustment assembly configured to move an arm of the apparatus; and the adjustment assembly including: a first member and a second member, the first member configured to disengage from the second member; and the second member configured to rotate relative to the first member to move the arm with the first member disengaged from the second member.
2. The apparatus of claim 1, comprising: the adjustment assembly configured to dispose within a body of the apparatus; and the body including an interface assembly configured to interface with the first member to cause the first member to disengage from the second member.
3. The apparatus of claim 1, comprising: the second member configured to couple with a clutch assembly; the clutch assembly configured to couple with the arm of the apparatus; and the clutch assembly configured to rotate with the second member disengaged from the first member.
4. The apparatus of claim 1, comprising: the first member including a protrusion configured to: engage with a first slot of the second member to engage the first member with the second member; and engage with a second slot of the second member to engage the first member with the second member responsive to disengagement of the first member with the second member.
5. The apparatus of claim 1, comprising: the second member including a first slot and a second slot; the first slot separated from the second slot by a first angle; and the first angle to define a rotation amount that the arm of the apparatus rotates about an axis with the first member disengaged from the second member.
6. The apparatus of claim 1, comprising: a spring assembly configured to rotate the arm of the apparatus with the first member disengaged from the second member.
7. The apparatus of claim 1, comprising: an interface assembly disposed at least partially external to a body of the apparatus; the interface assembly including an inclined plane to move the first member along an axis to release the second member; and the first member including a gap configured to receive the inclined plane.
8. The apparatus of claim 1, comprising: a mounting assembly including: a recess configured to receive a protrusion of an attachment assembly to couple the apparatus with a vehicle; and a lever to move an engagement element to engage the engagement element with the protrusion.
9. The apparatus of claim 8, comprising: the engagement element configured to move the protrusion from a first position within the recess to a second position within the recess.
10. The apparatus of claim 8, comprising: the recess including a first portion and a second portion to guide the protrusion to a first position within the mounting assembly.
11. The apparatus of claim 1, comprising: the arm of the apparatus including a first segment and a second segment; at least a portion of the second segment configured to dispose within the first segment; and the second segment configured to be movable relative to the first segment thereby to adjust a length of the arm of the apparatus.

12. The apparatus of claim 11, comprising: an interface to dispose on a body of the arm of the apparatus; and the interface configured to release the second segment to adjust the length of the arm of the apparatus.

13. The apparatus of claim 11, comprising: the second segment including a first groove and a second groove; an interface to dispose on a body of the arm of the apparatus; and the interface including an element to: engage with the first groove; and engage with the second groove responsive to disengagement with the first groove.

14. The apparatus of claim 1, comprising: a coupling assembly to couple the apparatus with a crossbar of a vehicle, the coupling assembly including: a first linkage to receive a first fastener; a second linkage to receive a second fastener; a third linkage to couple the first linkage with the second linkage; and a lever to couple with the first linkage, the lever configured to move the first linkage to adjust a position of the first fastener and a position of the second fastener.

15. The apparatus of claim 14, comprising: the first linkage and the second linkage configured to move from a first position to a second position prior to an adjustment in the position of the first fastener and the position of the second fastener.

16. The apparatus of claim 14, comprising: the first fastener and the second fastener configured to insert within an opening of the crossbar of the vehicle; and the first fastener and the second fastener configured to couple with the crossbar of the vehicle.

17. A vehicle, comprising: an apparatus, including: an adjustment assembly configured to move an arm of the apparatus; and the adjustment assembly including: a first member and a second member, the first member configured to disengage from the second member; and the second member configured to rotate relative to the first member to move the arm with the first member disengaged from the second member.

18. The vehicle of claim 17, comprising: the adjustment assembly configured to dispose within a body of the apparatus; and the body including an interface assembly to interface with the first member to cause the first member to disengage from the second member.

19. The vehicle of claim 17, comprising: the second member including a first slot and a second slot; the first slot separated from the second slot by a first angle; and the first angle to define a rotation amount that the arm of the apparatus rotates about an axis with the first member disengaged from the second member.

20. A method, comprising: disposing, within a body of an apparatus, an adjustment assembly including a first member and a second member, the adjustment assembly configured to move an arm of the apparatus; disengaging, via an interface assembly of the apparatus, the first member from the second member; and rotating, responsive to disengaging the first member from the second member, the second member to move the arm of the apparatus.