United States Patent Application Publication	20250262962
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	Bruce; David

ANCHOR, ANCHOR ASSEMBLY, AND PEDESTAL FOR USE WITH AN ANCHOR OR ANCHOR ASSEMBLY

Abstract

An anchor including an anchor that has an anchor body having a first end having a pointed tip, a second end opposite the first end, a wall defined between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, and an aperture in the wall of the anchor body. The first aperture is positioned between the helical plate and the second end, and the first aperture is configured to receive one or more wires therethrough. The anchor body is configured to couple to a housing of a charger of an electric vehicle.

Inventors: **Bruce; David (Oakland, FL)**

Applicant: **Hubbell Incorporated** (Shelton, CT)

Family ID: **1000008476349**

Appl. No.: **19/055173**

Filed: **February 17, 2025**

Related U.S. Application Data

us-provisional-application US 63554736 20240216

Publication Classification

Int. Cl.: **B60L53/30** (20190101); **E02D5/80** (20060101)

U.S. Cl.:

CPC **B60L53/30** (20190201); **E02D5/80** (20130101);

Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application claims priority to U.S. Provisional Patent Application No. 63/554,736, filed on Feb. 16, 2024, the entire contents of which is incorporated herein by reference.

FIELD

[0002] The present application relates to an anchor configured to be inserted into the ground and to mechanically couple and electrically power an electric device. The present application is also directed to structure that is useable with the anchor and configured to mechanically couple and electrically power an electric device.

SUMMARY

[0003] In some aspects, the techniques described herein relate to an anchor assembly including: an anchor including an anchor body having a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, and an aperture in the wall of the anchor body, the aperture positioned between the helical plate and the second end, the aperture configured to receive one or more wires therethrough, and an attachment member that is removably couplable to the second end of the anchor body, the attachment member including a mounting plate having an opening configured to be in communication with an interior of the anchor body, the opening configured to receive the one or more wires from the interior of the anchor body, wherein the anchor body is configured to be partially inserted into a ground via rotation of the mounting plate which causes rotation of the anchor body such that the helical plate advances the anchor body into the ground, and wherein the mounting plate is configured to mechanically couple to a housing of an electric device or a pedestal for coupling the housing of the electric device while the one or more wires are mechanically and electrically coupled to the electric device to power the electric device.

[0004] In some aspects, the techniques described herein relate to an anchor assembly, wherein the attachment member further includes a hollow body having a first end and a second end opposite the first end, the mounting plate coupled to the second end such that the opening is in communication with an interior of the hollow body.

[0005] In some aspects, the techniques described herein relate to an anchor assembly, wherein the hollow body includes a first engagement interface that is configured to matingly engage with a second engagement interface of the anchor body.

[0006] In some aspects, the techniques described herein relate to an anchor assembly, wherein the hollow body includes a first threaded interface that is configured to matingly engage with a second threaded interface of the anchor body.

[0007] In some aspects, the techniques described herein relate to an anchor assembly, wherein one of the hollow body and the anchor body includes a detent aperture and the other of the hollow body and the anchor includes a detent that is configured to be removably received in the detent aperture to couple the hollow body to the anchor body.

[0008] In some aspects, the techniques described herein relate to an anchor assembly, wherein the hollow body is coupled to the anchor body via a fastener.

[0009] In some aspects, the techniques described herein relate to an anchor assembly, wherein the attachment member is a first attachment member and the mounting plate is a first mounting plate and wherein the first attachment member is interchangeable with second attachment member that is removably couplable to the second end of the anchor body, the second attachment member including a second mounting plate that is different from the first mounting plate and has an opening configured to be in communication with an interior of the anchor body, the opening configured to receive the one or more wires from the interior of the anchor body.

[0010] In some aspects, the techniques described herein relate to an anchor assembly, wherein the first mounting plate has a first mounting interface and the second mounting plate has a second mounting interface that is different from the first mounting interface.
[0011] In some aspects, the techniques described herein relate to an anchor assembly, wherein the first attachment member has a first engagement interface and the second attachment member has a second engagement interface that is the same as the first engagement interface, each of the first and second engagement interfaces configured to engage a complementary mating interface of the anchor body.
[0012] In some aspects, the techniques described herein relate to an anchor including: a body including a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a first portion defined between the first end and a location between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, a first aperture in the wall and in communication with an interior of the body, the aperture being in the first portion, the first aperture configured to receive one or more wires into the interior from an outside of the body, a second portion defined between the second end and the location, the second portion integrally formed with the first portion as a single-piece, a second aperture positioned between the first and the second end, the second aperture configured to receive the one or more wires from the interior of the body, and a bracket coupled to the second portion, the bracket configured to mechanically couple a housing of a charger for an electric vehicle while the one or more wires are mechanically and electrically coupled to the charger through the first and second apertures to power the charger, wherein the body is configured to be partially inserted into a ground via rotation which causes the helical plates to advance the first portion into the ground; and wherein the first portion is configured to be positioned under a surface of the ground and the second portion is configured to project from the ground such that the charger is supported by the second portion above the ground.
[0013] In some aspects, the techniques described herein relate to an anchor, wherein the bracket is a first bracket, the charger is a first charger, the one or more wires are one or more first wires, and further including a second bracket coupled to the second portion, the second bracket configured to mechanically couple a housing of a second charger for an electric vehicle while the one or more second wires are mechanically and electrically coupled to the charger to power the second charger.
[0014] In some aspects, the techniques described herein relate to an anchor, wherein the first bracket and the second bracket are spaced apart from one another about a periphery of the second portion.
[0015] In some aspects, the techniques described herein relate to an anchor, wherein the second end includes a tool mounting interface configured to removably couple to a tool for driving the body into the ground.
[0016] In some aspects, the techniques described herein relate to an anchor assembly including: an anchor including an anchor body having a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a first portion defined between the first end and a location between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, a first aperture in the wall of the anchor body, the first aperture being in the first portion and providing access to an interior of the anchor body, and a second portion defined between the second end and the location, the second portion integrally formed with the first portion as a single-piece, and a cap that is couplable to the second end, the cap including a cap body having a first end being an open end, a second end opposite the first end, a wall extending between the first end and the second end, and a second aperture in the wall of the cap body and in communication with an interior of the cap body, wherein the cap body is configured to be coupled to the anchor body, wherein the first aperture is configured to guide one or more wires from an outside of the anchor body through the interior of the anchor body and the interior of the cap body to the second aperture, wherein the cap body is configured to mechanically

couple to a housing of a charger for an electric vehicle while the one or more wires are mechanically and electrically coupled to the charger to power the charger, wherein the anchor body is configured to be partially inserted into a ground via rotation which causes the helical plates to advance the first portion into the ground, and wherein the first portion is configured to be positioned at least partially under a surface of the ground and the second portion is configured to project from the ground such that the charger is supported by the second portion.

[0017] In some aspects, the techniques described herein relate to an anchor assembly, wherein the cap body is coupled to the anchor body before the anchor body is inserted into the ground.

[0018] In some aspects, the techniques described herein relate to an anchor assembly, wherein the cap body is coupled to the anchor body after the anchor body is inserted into the ground.

[0019] In some aspects, the techniques described herein relate to an anchor assembly, wherein the cap body is coupled to the anchor body by a fastener.

[0020] In some aspects, the techniques described herein relate to an anchor assembly, wherein a bracket is coupled the cap body, the bracket configured to mechanically couple the housing of the charger.

[0021] In some aspects, the techniques described herein relate to an anchor assembly, wherein a portion of the wall of the cap body adjacent the second aperture defines a device mounting interface for mechanically coupling the housing of the charger.

[0022] In some aspects, the techniques described herein relate to an anchor assembly, wherein the second end of the anchor includes a tool mounting interface configured to removably couple to a tool for driving the anchor body into the ground.

[0023] Other aspects of the application will become apparent by consideration of the detailed description and accompanying drawings.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] FIG. **1**A illustrates a schematic of an anchor according to an embodiment having a bracket with a mounting interface for mounting an electric device, such as an electric vehicle charger.

[0025] FIG. **1**B illustrates an exemplary charger for an electric vehicle mounting to a wall.

[0026] FIG. **1**C is a perspective view of the electric vehicle charger of FIG. **1**B.

[0027] FIG. **1**D is another perspective view of the electric vehicle charger of FIG. **1**B.

[0028] FIG. **2** illustrates a schematic of an anchor assembly according to another embodiment of the invention, the anchor assembly including an anchor and a cap.

[0029] FIG. **3** illustrates a schematic of a pedestal for use with an anchor and including either the bracket of FIG. **1**A or the cap of FIG. **2** or both.

[0030] FIG. **3**A illustrates a perspective view of a pedestal for use with an anchor, the pedestal having a weather cap and a cover plate.

[0031] FIG. **3**B illustrates a rear view of the pedestal of FIG. **3**A.

[0032] FIG. **3**C illustrates a side view of the pedestal of FIG. **3**A.

[0033] FIG. **3**D illustrates a front view of the pedestal of FIG. **3**A.

[0034] FIG. **3**E is a cross-sectional view of the pedestal of FIG. **3**A along the line **3**E—**3**E of FIG. **3**C.

[0035] FIG. **3**F illustrates a perspective view of another pedestal for use with an anchor, the pedestal having a mounting interface.

[0036] FIG. **3**G illustrates a side view of the pedestal of FIG. **3**F.

[0037] FIG. **3**H illustrates a front view of the pedestal of FIG. **3**F.

[0038] FIG. **3**I illustrates a cross-sectional view of FIG. **3**F along the line **3**I—**3**I of FIG. **3**H.

[0039] FIG. **3**J illustrates a cross-sectional view of FIG. **3**F along the line **3**J—**3**J of FIG. **3**G.

[0040] FIG. **3**K illustrates a perspective of an anchor.
[0041] FIG. **3**L illustrates a side view of the anchor of FIG. **3**K.
[0042] FIG. **3**M illustrates a top view of the anchor of FIG. **3**K.
[0043] FIG. **3**N is a detailed view of a portion of the anchor of FIG. **3**N.
[0044] FIG. **3**O illustrates a perspective of an anchor.
[0045] FIG. **3**P illustrates a side view of the anchor of FIG. **3**O.
[0046] FIG. **3**Q is a detailed view of a portion of the anchor of FIG. **3**P.
[0047] FIG. **3**R illustrates a top view of the anchor of FIG. **3**O.
[0048] FIG. **4** illustrates a schematic of an anchor assembly according to another embodiment.
[0049] FIG. **5** illustrates a schematic of a sheath for use with the anchor FIGS. **1**A or **2** or pedestal or the pedestals of FIGS. **3**, **3**A, and **3**F.

DETAILED DESCRIPTION

[0050] Before any embodiments of the application are explained in detail, it is to be understood that the application, and the devices and method described herein, are not limited in their application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The devices and methods in this application are capable of other embodiments and of being practiced or of being carried out in various ways.
[0051] Referring now to the figures, in particular FIG. **1**A and **2**-**4**, an exemplary embodiment of an anchor **10** according to the present disclosure is shown. The anchor **10** may also be referred to as a "foundation," "screw-in foundation," or "helical pile". The anchor **10** is configured to mount an electric vehicle charger **11**, as shown in FIGS. **1**B-**1**D, or another electric device. In this exemplary embodiment, the anchor **10** is a helical pile anchor having an anchor body **12**. In the illustrated embodiment, the anchor body **12** is a straight pipe, tube, or shaft that may be round or square in shape, or any other shape, such as a hexagon shape. In the illustrated embodiments, the anchor body **12** includes a first end **16** and a second end **20** opposite the first end **16**. A wall **24** extends between the first end **16** and the second end **20** and encloses a hollow interior **28** of the anchor body **12**.
[0052] The first end **16** includes a projection **32** that has a pointed or inclined tip **36**. An aperture **40** extends through the wall **24** and is in communication with the interior **28** of the anchor body **12**. In the illustrated embodiment, the aperture **40** is positioned closer to the first end **16** than to the second end **20**. The aperture **40** is configured to receive one or more wires **44** from the outside of the anchor body **12** into the interior **28** of the anchor body **12**. In some embodiments, a tool mounting interface **48** may be coupled to the second end **20**. The tool mounting interface **48** is configured to be coupled to a tool, as discussed in greater detail below.
[0053] In the embodiment illustrated in FIGS. **1**A and **2**, the anchor body **12** has a first portion **60** and a second portion **64**. In the illustrated embodiments, the first portion **60** and the second portion **64** are integrally formed as a single piece. The first portion **60** is defined between the first end **16** and a location between the first end **16** and the second end **20**. The second portion **64** is defined between the second end **20** and the location. In the illustrated embodiment, the aperture **40** is in the first portion **60**. Although not shown, in some embodiments, a bearing plate may be coupled to the wall **24** at the location or anywhere between the first end **16** and the second end **20**. The bearing plate may integrally formed with the anchor body as a single-piece or otherwise coupled to the anchor body. The bearing plate may be configured to be supported by the ground when the anchor **10** is in use. In some cases, the bearing plate may include the tool mounting interface **48**′ for driving the anchor into the ground, as discussed in greater detail below.
[0054] In the embodiment of FIG. **1**A, the second end **20** is configured to couple to a tool (not shown) used to screw the anchor body **12** into the soil. Therefore, in some embodiments, the second end **20** may include the tool mounting interface **48** (e.g., including one or more apertures or elongated slots, shown in FIGS. **3**K, **3**M, **3**O, and **3**R) used for passing fasteners (e.g., bolts, not

shown) therethrough. The fasteners may couple the second end **20**, and therefore the anchor body **12**, to the tool. Accordingly, rotation of the tool causes rotation of the anchor body **12**.

[0055] At or near first end of the anchor body **12** is one or more load bearing helical plates **70** that, when rotated with the anchor body **12** (via the tool), screw the anchor **10**, e.g., the helical pile, into the ground or other support surface with minimal disruption to the surrounding area.

[0056] The one or more load bearing helical plates **70** on the anchor body **12** may have the same diameter, or the load bearing helical plates **70** may have different diameters that are, for example, in a tapered arrangement. For example, the tapered arrangement may be such that the smallest diameter load bearing helical plate **70** is closest to the pointed tip **36** and the largest load bearing helical plate **70** is at a distance away from the pointed tip **36**. If multiple load bearing helical plates **70** are employed, the load bearing helical plates **70** on the anchor body **12** would be spaced apart at a distance sufficient to promote individual plate **70** load bearing capacity, as is known. In the embodiment of the anchor **10** herein, a single load bearing helical plate **70** attached to the anchor body **12** is shown. The present disclosure also contemplates an anchor body **12** with multiple load bearing helical plates **70**, where the distance between the load bearing helical plates **70** is preferably a multiple of the diameter of the lower load bearing helical plate.

[0057] Thus, the anchor body **12** is configured to be partially inserted into the ground via rotation of the same (via the tool) which causes the helical plates **70** to advance the anchor **10** into the ground. With respect to the embodiments of FIGS. **1**A and **2**, the first portion **60** is configured to be positioned under a surface of the ground and the second portion **64** is configured to project from the ground. When included, the bearing plate is configured to be supported by a surface of the ground.

[0058] In the embodiment of FIG. **1**A, the tool mounting interface **48** is positioned at the second end **20**. Also, the second end **20** of the anchor body **12** further includes a pair of apertures **74**, each of which is adjacent to the second end **20**. Also, a first bracket **80** and a second bracket **80** are coupled adjacent to the second end **20**. The first bracket **80** corresponds to one aperture **74** and second bracket **80** corresponds to the other aperture **74**. The brackets **80** are each configured to mechanically couple to a housing of an electric vehicle charger. That is, each of the brackets **80** includes a device mounting interface configured to mechanically couple to the housing of the electric vehicle charger. In the illustrated embodiment, the brackets **80** may be welded to the anchor body **12**, but in other embodiments, the brackets **80** may be coupled to the anchor body **12** in other suitable ways (e.g., by fasteners, e.g., bolts). In the illustrated embodiment, there are two apertures **74** and two brackets **80**, and therefore two chargers can be mechanically coupled to anchor body **12**. In other or additional embodiments, the anchor body **12** may have a single bracket **80** (and therefore a single corresponding aperture **74**) or more than two brackets **80** (and therefore more than two corresponding apertures **74**). Regardless, the number of apertures **74** adjacent the second end **20** would correspond to the number of brackets **80** (and therefore chargers) intended to be coupled adjacent thereto.

[0059] The bracket **80** and the device mounting interface thereof may have any suitable configuration. For example, the device mounting interface of the bracket **80** may have one or more slots and/or apertures. One or more of the slots and/or apertures may be configured to movably receive a fastener. That is, a portion of a fastener may extend through one or more of the slots or apertures to be received in fastener hole (not shown) of the housing of the charger. The brackets **80** may be mechanically coupled to the housing of the charger in other suitable ways (e.g., by a snap-fit, friction-fit, detent mechanism, etc.).

[0060] In the illustrated embodiment, one of the apertures in each of the brackets **80** is positioned generally adjacent to the corresponding aperture **74** in the second end **20**. The wires **44** inserted into the anchor body **12** through the aperture **40** are able to be guided through the interior **28** to the respective apertures **74** in the second end **20** and through the respective aperture in the brackets **80**, such that wires can be mechanically and electrically coupled to the chargers to power the chargers.

[0061] As noted above, in the illustrated embodiment, because there are two brackets **80**, two chargers may be coupled to the anchor **10**. In the illustrated embodiment, the first and second brackets **80** are the same having the same device mounting interface, yet configured to be coupled to different mechanical mating structures (not shown) of different chargers. Accordingly, the first bracket **80** could be used to couple the housing of a first charger and the second bracket **80** could be used to couple to the housing of a second charger that is the same or different than the first charger. In other embodiments, the brackets **80** may be different from one another and may have different device mounting interfaces. Also, as shown, the apertures **74** and corresponding brackets **80** are positioned on opposite sides of the anchor body **12**. In other embodiments, the apertures **74** and corresponding brackets **80** may be positioned at other locations about the periphery of the anchor body **12**. Also, because the brackets **80** are positioned adjacent the second end **20**, the brackets **80** couple the chargers such that they supported by the second portion **64** of the anchor body **12** above the ground. As shown, each of the brackets **80** of FIG. **1**A are positioned at generally the same height relative to the ground. Accordingly, the chargers are positioned at generally the same height relative to the ground. In other embodiments, the brackets **80** (and therefore the apertures **74**) may be positioned at different heights relative to one another such that the chargers may be positioned at generally different heights.

[0062] In the embodiment of FIG. **2**, the second end **20** of the anchor body **12** is an open end. In such case, the wires **44** may extend through the second end **20**. In other embodiments, the second end **20** may be a closed end and apertures **74** (like those of FIG. **1**A) adjacent the second end **20** may extend through the wall **24**. In such case, the wires **44** may extend through the apertures **74**. Also, a cap **150** may be coupled to the second end **20**. The cap **150** includes a cap body **154** that has a first end **158** and a second end **162** opposite the first end **158**. In some embodiments, the tool mounting interface **48** may be positioned at the second end **162**. A wall **164** of the cap body **154** extends between the first end **158** and the second end **162**. The first end **158** is an open end providing access to an interior **166** of the cap body **154**. Also, one or more apertures **170** may extend through the wall **164** of the cap body **154**. The apertures **170** are in communication with the interior **166**. In the illustrated embodiment, although only one is shown, there are two apertures **170** that extend through the cap body **154**, one on opposite sides thereof. In other embodiments, there may be a single aperture **170** or more than two apertures **170**.

[0063] In some embodiments, although not shown in detail in FIG. **2**, a first bracket **80** and a second bracket **80** may be coupled to the cap **150**. That is, like the embodiment of FIG. **1**A, each of the brackets **80** may be coupled to the cap **150** adjacent to one of the apertures **170**. The brackets **80** may be the same as those discussed above and therefore the details will not be repeated. The brackets **80** may be welded (or otherwise coupled) to the cap body **154** such that an aperture of each bracket **80** is adjacent to the corresponding aperture **170**. As noted above, the brackets **80** have device mounting interfaces that are each configured to mechanically couple a housing of a charger thereto. In other embodiments, there may be a single bracket to couple a single charger or more than two brackets to couple more than two chargers. The apertures **170** and brackets **80** may be positioned at other locations relative to the cap body **154**.

[0064] In some embodiments, although not shown in detail in FIG. **2**, a portion of the wall **164** of the cap body **154** adjacent to each of the apertures **170** may be configured as a device mounting interface for mechanically coupling the housing of the charger. For example, the portion of the wall **164** may have a similar configuration to that of the device mounting interface of the brackets **80**. That is, as discussed above, a plurality of slots and apertures may surround the respective aperture **170** in a pattern and one or more may receive a fastener therethrough for engaging with fastening holes (not shown) in the housing of the charger.

[0065] The cap **150** is configured to be coupled to the anchor **10**. In particular, the cap body **154** is configured to be coupled to the anchor body **12** such that the open first end **158** of the cap **150** couples to the second end **20** of the anchor body **12**. In the illustrated embodiment, the cap body

154 is coupled to the anchor body **12** via fasteners **180** (e.g., bolts, etc.). In other embodiments, the cap body **154** may be coupled in other ways (e.g., via a threaded engagement, detent mechanism, a snap fit engagement, or other suitable method). As discussed with respect to FIG. **1**A, the aperture **40** in the anchor body **12** are configured to guide one or more wires **44** from the outside of the anchor body **12** to the apertures **170**. That is, wires **44** may be guided through the aperture **40** of the anchor body **154** to the respective apertures **170** via the interior **28** of the anchor body **12** and the interior **166** of the cap body **154**. Thus, the cap **150**, via the wall **164** or brackets **80**, is configured to mechanically couple to the housings of two chargers, each configured for an electric vehicle while the one or more wires **44** are mechanically and electrically coupled to the chargers to power the chargers. As shown, the cap **150** couples to the anchor body **12** such that the chargers are supported by the second portion **64** of the anchor **10** above the ground.

[0066] In some embodiments, the cap **150** may be coupled to the anchor body **12** before the anchor **10** is inserted into the ground. Accordingly, the tool mounting interface **48** may be included on at the second end of the cap **150**, such that the cap **150** may be used to drive the anchor **10**, with the cap **150**, into the ground. In some embodiments, the cap **150** may be coupled to the anchor body **12** after the anchor **10** is inserted into the ground. In such case, the tool mounting interface **48** could be at the second end **20** of the anchor body **12**, such that the anchor **10** may be driven into the ground prior to the cap **150** being coupled to the anchor **10**.

[0067] In other embodiments, such as that of FIG. **3**, the brackets **80** or the cap **150** (with or without brackets **80**) may be coupled to a pedestal **200** that is couplable to an anchor **10′** having another configuration, which has similar features to the anchor **10** except as otherwise noted. The anchor **10′** is shown in FIGS. **3** and **3**K-**3**R. As shown, the tool mounting interface **48′** of the anchor **10′** is part of a mounting plate **202** that is coupled to the second end **20′** of the anchor **10′**. In addition to the tool mounting interface **48′**, the mounting plate **202** includes an opening **203** that provides access to the interior **28′** of the anchor **10′**. In some embodiments, the mounting plate **202** may have a pedestal mounting interface **240** that is complementary to an anchor mounting interface **244** of a mounting plate **204** of the pedestal **200**. In some embodiments, the pedestal mounting interface **240** may be one or more apertures (not shown) defined in a pattern. In some embodiments, the aperture pattern may be individually drilled into the mounting plate **202** to fit the respective anchor mounting interface **244**. Accordingly, with respect to FIGS. **3**K, **3**M, **3**O, **3**R, the mounting plate **202** may be blank except for the tool mounting interface **48′** and the aperture pattern later-added to suit the pedestal **200** to be coupled thereto. Like the anchor **10**, the anchor **10′** includes the aperture **40′**, the pointed or inclined tip **36**, and the helical plate **70**. In the embodiment of FIG. **3**, the entire anchor **10′** is positioned within the ground when installed and the mounting plate **202** is at the surface of the ground. Once the anchor **10′** is installed, the pedestal **200** can be coupled to the mounting plate **202** thereof, as discussed further below. The anchor **10** may have different dimensions (e.g., outer and inner diameters/widths, wall thicknesses, mounting plate configurations, mounting plate dimensions, first end configurations, etc.) as shown in FIGS. **3**K-**3**N and **3**O-**3**R.

[0068] As shown in FIGS. **3**, **3**A, and **3**F, the pedestal **200** may have various configurations. In all embodiments, the pedestal **200** has the mounting plate **204** having the anchor mounting interface **244** and a support member **208** coupled to and extending from the mounting plate **204**. The support member **208** has a hollow interior **210** (FIG. **3**I) that is accessible view an opening **205** (FIG. **3**I) in the mounting plate **204**. The support member **208** also has a first end **216** coupled to the mounting plate **204** and a second end **220** that is opposite the first end **216**. The first end **216** is an open end that provides access to the interior **210**. The second end **220** may be a closed end or an open end. If the second end **220** is a closed end, the pedestal **200** includes apertures **224** at or adjacent to the second end **220** that are in communication with the interior **210** of the pedestal **200**. Accordingly, in some embodiments, as shown in FIG. **3**, each of the brackets **80** having the device mounting interface may be positioned adjacent one of the apertures **224**, as discussed above relative to the

embodiment of FIG. **1**A. In other embodiments, the apertures **224** may be positioned elsewhere in the periphery of the pedestal such that the brackets **80** are positioned at other location relative to the pedestal **200**. As shown in FIG. **3**, if the second end **220** is an open end, the cap **150** may be coupled to the second end **220**, as discussed above relative to the embodiment of FIG. **2**. In still other embodiments, shown in FIG. **3**B, the device mounting interface may be defined by one or more areas of the pedestal **200** adjacent to and surrounding the apertures **224**. For example, in FIG. **3**B, the device mounting interface includes apertures (not shown) positioned on opposite sides of the aperture **224** for receiving bolts **225** (mated with nuts **226**) that couple to the housing of the electric vehicle charger. In still other embodiments, shown in FIGS. **3**G and **3**H, the bracket **80** having the device mounting interface may project from a second end **220** of the pedestal **200**. In such case, the apertures **224** are positioned at the second end **220**. In the embodiment of FIG. **3**G, the bracket **80** is integrally formed with the pedestal **200** as a single-piece, but in other embodiments, the bracket **80** may be coupled to the second end **220** of the pedestal in other ways. In some embodiments, such as FIGS. **3**A-**3**E, the pedestal may further include a cover plate **227** configured to be removably coupled to the support member **308** and a weather cap **228** configured to be removably coupled to the support member **208**.

[0069] The mounting plate **204** of the pedestal **200** may be coupled to the mounting plate **202** of the anchor **10**′ such that the support member **208** extends from the surface of the ground. Specifically, the mounting interfaces **240**, **244** of the respective mounting plates **202**, **204** are configured to align for coupling via fasteners (e.g., bolts) or the like. Accordingly, the entire pedestal **200** extends from the surface of the ground. The chargers, which are coupled to the pedestal **200** via brackets **80**, the cap **150**, or otherwise, are therefore supported above the surface of the ground. Moreover, the opening **205** of the pedestal **200** is configured to be positioned adjacent the opening **203** in the mounting plate **202** of the anchor **10**′ such that the interior **210** of the pedestal **200** is in communication with interior **28**′ of the anchor **10**′. Accordingly, wires (not shown in FIG. **4**) may be routed from the aperture **40**′ in the anchor body **12**′ through the interior **28**′ of the anchor body **12**′ and the interior **210** of the pedestal **200** to the apertures **224** thereof. The wires are therefore accessible at or adjacent to the second end **220**, as discussed above with respect to FIGS. **1**A and **3**, to mechanically and electrically couple to the chargers to power the chargers.

[0070] As shown in FIG. **4**, the mounting plate **202** may be part of an attachment member **300** that is removably couplable to the second end **20**′ of an anchor **10**′. In this way, attachment member **300** can be interchangeable with another attachment member **300**, as discussed in greater detail below. The attachment member **300** is described herein as being used with the anchor **10**′, but in other embodiments, the attachment member **300** may be used with the anchor **10** instead. In the embodiment of FIG. **4**, the attachment member **300** may include a hollow body **304** and the mounting plate **202** having the opening **203**, the tool mounting interface **48**′, and the pedestal mounting interface **240**. The hollow body **304** includes a first end **316** and a second end **320** opposite the first end **316**. The mounting plate **202** is coupled to the second end **320** of the hollow body **304** and the opening **203** in the mounting plate **202** is in communication with an interior of the hollow body **304**. The attachment member **300**, and the mounting plate **202** thereof, may be used to couple a pedestal **200** (described above) including a charger for an electric vehicle (as discussed above) or a pedestal carrying another suitable electric device. In other embodiments, the mounting plate **202** may alternatively coupled to any other suitable electric device (e.g., an outdoor light, a pole mounted 5G small cell antenna, etc.).

[0071] As shown, the attachment member **300** is configured to be coupled to the second end **20**′ of the anchor body **12**′ such that the opening **203** in the mounting plate **202** is in communication with the interior **28**′ of the anchor body **12**′. In the illustrated embodiment, the hollow body **304** has a first engagement interface **324** and the second end **20**′ of the anchor body **12**′ has second engagement interface **328** that is configured to matingly receive the first engagement interface **324** of the hollow body **304**. In other embodiments, the first engagement interface **324** may be

configured to matingly receive the second engagement interface **328**, instead. In the illustrated embodiment, the first engagement interface **324** is a threaded interface and the second engagement interface **328** is a threaded interface. Accordingly, the hollow body **304** (and therefore the attachment member **300**) is coupled to the second end **20′** of the anchor body **12′** via threaded engagement between the first and second threaded interfaces **324**, **328**. In the illustrated embodiment, the threaded interfaces are configured opposite the direction of rotation of insertion of the anchor **10′**. The first and second engagement interfaces **324**, **328** may have other configurations. For example, one of the hollow body **304** and the anchor body **12′** may include a detent aperture (not shown) and the other of the hollow body **304** and the anchor body **12′** may include a detent that is configured to be removably received in the detent aperture to couple the hollow body **304** (and therefore the attachment member) to the anchor body. That is, the first or second engagement interface may be a detent, while the other of the first or second engagement interface may be a detent aperture. In other embodiments, the hollow body **304** may be coupled to the anchor body **12′** via a fastener (e.g., a bolt). Regardless, in any embodiment, the attachment member **300** is configured to be locked (via the engagement interfaces, fasteners, or other suitable locking mechanism) relative to the anchor body **12**.

[0072] The attachment member **300** may be a first attachment member with the first mounting plate **202** may have a first pedestal mounting interface **240′** configured to couple a pedestal **200** having one anchor mounting interface **244′**. If necessary, the first attachment member **300** having the first mounting plate **202** with the first pedestal mounting interface **240′** may be interchangeable with a second attachment member **300** having a second mounting plate **202** with a second pedestal mounting interface **240′** that is different than the first pedestal mounting interface **240′**. The second pedestal mounting interface **240′** may be suitable for coupling another pedestal having another anchor mounting interface **244′**. The second attachment member **300** has the same first engagement interface **324** for coupling to the complementary second engagement interface **328** of the anchor body **12′**. Accordingly, the second mounting plate **202** with the second pedestal mounting interface **240′** can be coupled to the anchor body **12′**. In this way, changes in design of the pedestal or electric device do not require an entirely new anchor **10′**. Rather, one need only swap out the attachment member **300** with the first pedestal mounting interface **240′** for another attachment member **300** with the appropriate second pedestal mounting interface **240′**. Such a change is quicker and less cumbersome to make.

[0073] Although the attachment member **300** shown herein has having the hollow body **304** extending from the mounting plate **202** and used to couple the mounting plate to the anchor body **12**, in other embodiments the hollow body may be omitted. In such case, the mounting plate **202** would include the first engagement interface **324** (e.g., threaded interface, detent/detent aperture, etc.), such that the mounting plate **202** itself would couple to the anchor body **12**.

[0074] In some embodiments, as shown in FIG. **5**, a sheath **400** may be coupled to the second portion **64** of the anchor **10** (FIGS. **1**A and **2**) or the support member **208** of the pedestal (FIG. **3**). The sheath **400** may include identifying indicia **404** (e.g., logos, etc.).

[0075] The anchor body **12**, **12′** of each of the anchors **10**, **10′** is fabricated from a rigid material capable of supporting the particular load the anchor is intended to support. Examples of suitable rigid materials include steel, galvanized steel, aluminum, cast aluminum, and other alloys, as well as non-metallic materials such as carbon fiber. The length of the first portion **60** of the anchor body **12** of the anchor **10** and the anchor body **12′** of the anchor **10′** for a particular installation would depend upon the load the anchor **10** is to carry, the soil conditions, and the type of structure the anchor is intended to support.

[0076] Various features and advantages of the application are set forth in the following claims.

Claims

1. An anchor assembly comprising: an anchor including an anchor body having a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, and an aperture in the wall of the anchor body, the aperture positioned between the helical plate and the second end, the aperture configured to receive one or more wires therethrough, and an attachment member that is removably couplable to the second end of the anchor body, the attachment member including a mounting plate having an opening configured to be in communication with an interior of the anchor body, the opening configured to receive the one or more wires from the interior of the anchor body, wherein the anchor body is configured to be partially inserted into a ground via rotation of the mounting plate which causes rotation of the anchor body such that the helical plate advances the anchor body into the ground, and wherein the mounting plate is configured to mechanically couple to a housing of an electric device or a pedestal for coupling the housing of the electric device while the one or more wires are mechanically and electrically coupled to the electric device to power the electric device.

2. The anchor assembly of claim 1, wherein the attachment member further includes a hollow body having a first end and a second end opposite the first end, the mounting plate coupled to the second end such that the opening is in communication with an interior of the hollow body.

3. The anchor assembly of claim 2, wherein the hollow body includes a first engagement interface that is configured to matingly engage with a second engagement interface of the anchor body.

4. The anchor assembly of claim 2, wherein the hollow body includes a first threaded interface that is configured to matingly engage with a second threaded interface of the anchor body.

5. The anchor assembly of claim 2, wherein one of the hollow body and the anchor body includes a detent aperture and the other of the hollow body and the anchor includes a detent that is configured to be removably received in the detent aperture to couple the hollow body to the anchor body.

6. The anchor assembly of claim 2, wherein the hollow body is coupled to the anchor body via a fastener.

7. The anchor assembly of claim 1, wherein the attachment member is a first attachment member and the mounting plate is a first mounting plate and wherein the first attachment member is interchangeable with second attachment member that is removably couplable to the second end of the anchor body, the second attachment member including a second mounting plate that is different from the first mounting plate and has an opening configured to be in communication with an interior of the anchor body, the opening configured to receive the one or more wires from the interior of the anchor body.

8. The anchor assembly of claim 7, wherein the first mounting plate has a first mounting interface and the second mounting plate has a second mounting interface that is different from the first mounting interface.

9. The anchor assembly of claim 7, wherein the first attachment member has a first engagement interface and the second attachment member has a second engagement interface that is the same as the first engagement interface, each of the first and second engagement interfaces configured to engage a complementary mating interface of the anchor body.

10. An anchor comprising: a body including a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a first portion defined between the first end and a location between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, a first aperture in the wall and in communication with an interior of the body, the aperture being in the first portion, the first aperture configured to receive one or more wires into the interior from an outside of the body, a second portion defined between the second end and the location, the second portion integrally formed with the first portion as a single-piece, a second aperture positioned between the first and the second end, the second aperture configured to receive the one or more wires from the interior of the body, and a bracket

coupled to the second portion, the bracket configured to mechanically couple a housing of a charger for an electric vehicle while the one or more wires are mechanically and electrically coupled to the charger through the first and second apertures to power the charger, wherein the body is configured to be partially inserted into a ground via rotation which causes the helical plates to advance the first portion into the ground; and wherein the first portion is configured to be positioned under a surface of the ground and the second portion is configured to project from the ground such that the charger is supported by the second portion above the ground.

11. The anchor of claim 10, wherein the bracket is a first bracket, the charger is a first charger, the one or more wires are one or more first wires, and further comprising a second bracket coupled to the second portion, the second bracket configured to mechanically couple a housing of a second charger for an electric vehicle while the one or more second wires are mechanically and electrically coupled to the charger to power the second charger.

12. The anchor of claim 11, wherein the first bracket and the second bracket are spaced apart from one another about a periphery of the second portion.

13. The anchor of claim 10, wherein the second end includes a tool mounting interface configured to removably couple to a tool for driving the body into the ground.

14. An anchor assembly comprising: an anchor including an anchor body having a first end having a pointed or inclined tip, a second end opposite the first end, a wall defined between the first end and the second end, a first portion defined between the first end and a location between the first end and the second end, a helical plate coupled to the wall adjacent to the first end, a first aperture in the wall of the anchor body, the first aperture being in the first portion and providing access to an interior of the anchor body, and a second portion defined between the second end and the location, the second portion integrally formed with the first portion as a single-piece, and a cap that is couplable to the second end, the cap including a cap body having a first end being an open end, a second end opposite the first end, a wall extending between the first end and the second end, and a second aperture in the wall of the cap body and in communication with an interior of the cap body, wherein the cap body is configured to be coupled to the anchor body, wherein the first aperture is configured to guide one or more wires from an outside of the anchor body through the interior of the anchor body and the interior of the cap body to the second aperture, wherein the cap body is configured to mechanically couple to a housing of a charger for an electric vehicle while the one or more wires are mechanically and electrically coupled to the charger to power the charger, wherein the anchor body is configured to be partially inserted into a ground via rotation which causes the helical plates to advance the first portion into the ground, and wherein the first portion is configured to be positioned at least partially under a surface of the ground and the second portion is configured to project from the ground such that the charger is supported by the second portion.

15. The anchor assembly of claim 14, wherein the cap body is coupled to the anchor body before the anchor body is inserted into the ground.

16. The anchor assembly of claim 14, wherein the cap body is coupled to the anchor body after the anchor body is inserted into the ground.

17. The anchor assembly of claim 14, wherein the cap body is coupled to the anchor body by a fastener.

18. The anchor assembly of claim 14, wherein a bracket is coupled the cap body, the bracket configured to mechanically couple the housing of the charger.

19. The anchor assembly of claim 14, wherein a portion of the wall of the cap body adjacent the second aperture defines a device mounting interface for mechanically coupling the housing of the charger.

20. The anchor assembly of claim 14, wherein the second end of the anchor includes a tool mounting interface configured to removably couple to a tool for driving the anchor body into the ground.