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CABLE CLIP CONFIGURED TO FACILITATE A DESIRED ALIGNMENT OF THE CABLE CLIP RELATIVE TO ANOTHER CABLE CLIP AND PROVIDE ENHANCED INSTALLATION FLEXIBILITY

Abstract

A cable clip structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility. The cable clip may include a cable capturing portion structurally configured to capture a communication cable, a mounting portion structurally configured to allow the cable clip to be mounted to a mounting surface after capturing the communication cable, and alignment portion structurally configured to interconnect the cable clip with a second cable clip to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION [0001] This application claims the benefit of U.S. Provisional Application No. 63/554,593 filed Feb. 16, 2024, which is currently pending, the disclosure of which is hereby incorporated by reference herein in its entirety.

TECHNICAL FIELD

[0002] The present disclosure relates generally to cable clips for attaching a cable to a mounting surface, and more particularly to a cable clip with an alignment portion structurally configured to facilitate a desired alignment of a cable clip relative to another cable clip and provide enhanced installation flexibility.

BACKGROUND

[0003] Cell towers, sometimes referred to as cell sites, are electric communications structures with mounted antennas that allow the surrounding area to use wireless communication devices like cell phones and tablets. While the communication signals are sent wirelessly from the antennas to the wireless communication devices in the area, communication cables (e.g., fiber conduit) are used to connect individual towers together via a cable network. These communication cables are routed up the tower to connect to the antennas. Cable clips that mount to the cell tower provide an attachment and cable management point for communication cables on cell tower installations.

[0004] Conventional cable clips can lack installation flexibility by requiring technicians to affix the clips to the designated area before placing the conduit in the clip; thus, potentially resulting in nearly irreversible errors. Further, in some implementations, conventional clips do not provide a way to facilitate a desired alignment of multiple clips after installment.

[0005] It may be desirable to provide a cable clip that is configured to facilitate a desired alignment of the cable clip relative to another cable clip, for example, another like cable clip. It may be desirable to provide a cable clip that provides technicians with increased flexibility during installation and a way to facilitate a desired alignment of cable clips relative to each other after installment.

SUMMARY

[0006] The present disclosure provides a cable clip for attaching a communication cable to a mounting surface. In some implementations, the cable clip may be structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility.

[0007] In some embodiments, the cable clip may include a mounting portion structurally configured to facilitate mounting the cable clip to a mounting surface. In some embodiments, the mounting portion may include an engagement portion structurally configured to engage the mounting surface. In some embodiments, the mounting portion may include an attachment portion structurally configured to facilitate attaching the cable clip to the mounting surface.

[0008] In some embodiments, the attachment portion may include a first fastener receiving portion structurally configured to receive a first fastener and a second fastener receiving portion, opposite the first fastener receiving portion, structurally configured to receive a second fastener. In some embodiments, the first and second fastener receiving portions may be laterally offset from a longitudinal axis of the cable clip.

[0009] In some embodiments, the cable clip may include a cable supporting portion structurally configured to support a communication cable on the cable clip.
[0010] In some embodiments, the cable clip may include a cable retaining portion structurally configured to receive the communication cable and to resist the communication cable being withdrawn from the cable clip.
[0011] In some embodiments, the cable clip may include an alignment portion structurally configured to interconnect the cable clip with a second cable clip. In some embodiments, the alignment portion may include a recessed portion and a projecting portion, wherein the recessed portion is structurally configured to receive a second projecting portion of the second cable clip and the projecting portion is structurally configured to be received in a second recessed portion of the second cable clip;
[0012] In some embodiments, the cable clip may include a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure. In some embodiments, the linking portion may include a connecting portion having an area of weakness structurally configured to be fractured to decouple the cable clip from the third cable clip.
[0013] In some embodiments, the mounting portion may be structurally configured to allow the cable clip to be mounted to the mounting surface after the communication cable is captured in the cable retaining portion.
[0014] In some embodiments, the alignment portion may be structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.
[0015] In some embodiments, the attachment portion may include a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the engagement portion and the cable retaining portion.
[0016] In some embodiments, the cable supporting portion may include a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of fingers structurally configured to bracket the cable supporting portion.
[0017] In some embodiments, a cable clip may be structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility.
[0018] In some embodiments, the cable clip may include an attachment portion structurally configured to facilitate attaching the cable clip to a mounting surface, a cable supporting portion structurally configured to support a communication cable on the cable clip, and a cable retaining portion structurally configured to receive the communication cable and to resist the communication cable being withdrawn from the cable clip.
[0019] In some embodiments, the cable clip may include an alignment portion structurally configured to interconnect the cable clip with a second cable clip. In some embodiments, the alignment portion may include a recessed portion and a projecting portion, wherein the recessed portion is structurally configured to receive a second projecting portion of the second cable clip and the projecting portion is structurally configured to be received in a second recessed portion of the second cable clip.
[0020] In some embodiments, the cable clip may include a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure. In some embodiments, the linking portion may include a connecting portion structurally configured to allow the cable clip to be decoupled from the third cable clip.
[0021] In some embodiments, the attachment portion may be structurally configured to allow the cable clip to be attached to the mounting surface after capturing the communication cable in the cable capturing portion.
[0022] In some embodiments, alignment portion may be structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and

to provide enhanced installation flexibility.
[0023] In some embodiments, the cable supporting portion may include a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of projecting portions structurally configured to bracket the cable supporting portion.
[0024] In some embodiments, the attachment portion may include a first flange portion and a first fastener receiving portion on the first flange portion that is structurally configured to receive a first fastener of the one or more fasteners, wherein the first fastener receiving portion is laterally offset from a longitudinal axis of the cable clip.
[0025] In some embodiments, the attachment portion may include a second flange portion opposite the first flange portion and a second fastener receiving portion on the second flange portion structurally configured to receive a second fastener of the one or more fasteners, wherein the second fastener receiving portion is laterally offset from the longitudinal axis of the cable clip.
[0026] In some embodiments, the attachment portion may include a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the cable retaining portion and an engagement portion that is structurally configured to engage the mounting surface to support the cable clip on the mounting surface.
[0027] In some embodiments, the connecting portion may include an area of weakness structurally configured to be fractured to decouple the cable clip and the third cable clip.
[0028] In some embodiments, a cable clip may be structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility.
[0029] In some embodiments, the cable clip may include a mounting portion structurally configured to mount to a mounting surface, a cable capturing portion structurally configured to capture a communication cable, and an alignment portion structurally configured to interconnect the cable clip with a second cable clip.
[0030] In some embodiments, the alignment portion may include a recessed portion and a projecting portion. In some embodiments, the recessed portion may be structurally configured to receive a second projecting portion of the second cable clip and the projecting portion may be structurally configured to be received in a second recessed portion of the second cable clip.
[0031] In some embodiments, the mounting portion may be structurally configured to allow the cable clip to be mounted to the mounting surface after capturing the communication cable in the cable capturing portion.
[0032] In some embodiments, the alignment portion may be structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.
[0033] In some embodiments, the cable capturing portion may include a cable supporting portion structurally configured to support a communication cable on the cable clip and a cable retaining portion structurally configured to receive the communication cable and to resist the communication cable being withdrawn from the cable clip.
[0034] In some embodiments, the cable supporting portion may include a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of projecting portions structurally configured to bracket the cable supporting portion.
[0035] In some embodiments, the mounting portion may include an engagement portion structurally configured to engage the mounting surface to support the cable clip on the mounting surface and an attachment portion structurally configured to facilitate attaching the cable clip to the mounting surface with one or more fasteners.
[0036] In some embodiments, the attachment portion may include a first flange portion and a first fastener receiving portion on the first flange portion that is structurally configured to receive a first fastener of the one or more fasteners, wherein the first fastener receiving portion is laterally offset from a longitudinal axis of the cable clip.

[0037] In some embodiments, the attachment portion may include a second flange portion opposite the first flange portion and a second fastener receiving portion on the second flange portion structurally configured to receive a second fastener of the one or more fasteners, wherein the second fastener receiving portion is laterally offset from the longitudinal axis of the cable clip.
[0038] In some embodiments, the attachment portion may include a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the engagement portion and the cable retaining portion.
[0039] In some embodiments, the cable clip may include a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure.
[0040] In some embodiments, the linking portion may include a connecting portion structurally configured to allow the cable clip to be decoupled from the third cable clip.
[0041] In some embodiments, the connecting portion may include an area of weakness structurally configured to be fractured to decouple the cable clip and the third cable clip. In some embodiments, the area of weakness includes at least one of perforations or a recessed portion.
[0042] Various aspects of the system, as well as other embodiments, objects, features and advantages of this disclosure, will be apparent from the following detailed description of illustrative embodiments thereof, which is to be read in conjunction with the accompanying drawings.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0043] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the present teachings and together with the description, serve to explain the principles of the present teachings.
[0044] FIG. **1** is an isometric view of an example cable clip in accordance with various aspects of the disclosure.
[0045] FIG. **2** is an end view of the cable clip of FIG. **1**.
[0046] FIG. **3** is a top view of the cable clip of FIG. **1** with a cable installed.
[0047] FIG. **4** is an enlarged view of an alignment portion of the cable clip of FIG. **1**
[0048] FIG. **5** is a perspective view of a group of cable clips attached to a mounting surface.
[0049] FIG. **6** is a top view of a group of interconnected cable clips.
[0050] FIG. **7** is an enlarged top view of the interconnection portion of two adjacent cable clips.
[0051] FIG. **8** is an enlarged side view of the interconnection portion of two adjacent cable clips.
[0052] FIG. **9** is a top view of two groups of cable clips arranged in an offset configuration.
[0053] FIG. **10** is a perspective view of two groups of cable clips arranged in an offset configuration attached to a mounting surface.
[0054] FIG. **11** is a perspective view of an example cable clip in accordance with various aspects of the disclosure.
[0055] FIG. **12** is a top view of the cable clip of FIG. **11** with a cable installed.
[0056] FIG. **13** is a perspective view of two cable clips connected to each other.
DETAILED DESCRIPTION
[0057] Reference will now be made in detail to presently preferred embodiments and methods of the present disclosure, which constitute the best modes of practicing the present disclosure presently known to the inventors. The figures are not necessarily to scale. It is to be understood, however, that the disclosed embodiments are merely exemplary of the present disclosure that may be embodied in various and alternative forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but merely as a representative basis for any aspect of the present disclosure and/or as a representative basis for teaching one skilled in the art to variously employ the

present disclosure.
[0058] It is also to be understood that this present disclosure is not limited to the specific embodiments and methods described below, as specific components and/or conditions may, of course, vary. Furthermore, the terminology used herein is used only for the purpose of describing particular embodiments of the present disclosure and is not intended to be limiting in any way.
[0059] It must also be noted that, as used in the specification and the appended claims, the singular form “a,” “an,” and “the” comprise plural referents unless the context clearly indicates otherwise. For example, reference to a component in the singular is intended to comprise a plurality of components.
[0060] Implementations of the disclosure provide a cable clip **10** for attaching a communication cable **12** (e.g., a fiber optic cable) (FIG. **3**) to a mounting surface **14**. As used in this application, the term “communication cable” includes a duct, conduit, or sheathing that is structurally configured to receive a fiber optic cable, coaxial cable, or the like. For example, FIG. **3** illustrates a conduit captured by the cable clip. Thus, in some implementations, the cable clip **10** may be structurally configured to capture a duct, conduit, or sheathing for receiving a fiber optic cable, coaxial cable, or the like and/or may be structurally configured to capture the fiber optic cable, coaxial cable, etc.
[0061] In some implementations, the cable clip **10** may be structurally configured to interconnect with one or more adjacent, like cable clips to facilitate a desired alignment of a plurality of the cable clips relative to each other after installment. Thus, in some implementations, the cable clip may be structurally configured to ensure a desired alignment relative to another cable clip. In some implementations, the cable clip **10** may be structurally configured to allow a user to mount the cable clip **10** both before the communication cable **12** has been captured by the cable clip **10** or after the cable has been captured by the cable clip **10**.
[0062] The cable clip **10** may be configured in a variety of ways, including shape, size, materials used, etc. Referring to FIGS. **1-3**, in some implementations, the cable clip **10** may include a first end portion **16**, a second end portion **18** opposite the first end portion **16**, a central longitudinal axis A (FIG. **3**) extending from the first end portion **16** to the second end portion **18**, a width W, a height H, and a length L. In some implementations, the cable clip **10** may include a mounting portion **20** and a cable capturing portion **21**.
[0063] The mounting portion **20** may be structurally configured to facilitate mounting the cable clip **10** to the mounting surface **14** (see FIG. **2**). In some implementations the mounting portion **20** may be structurally configured to allow the cable clip **10** to mount to the mounting portion **20** both before the communication cable **12** is captured by the cable clip **10** and after the communication cable **12** is captured by the cable clip **10**.
[0064] The mounting portion **20** may be configured in a variety of ways. In some implementations, the mounting portion **20** may include an engagement portion **22**. The engagement portion **22** may be structurally configured to engage the mounting surface **14** to support the cable clip **10** on the mounting surface **14**. In other implementations, however, the engagement surface **24** may be other than planar. In some implementations, the engagement surface **24** may have a generally rectangular profile. In other implementations, however, the engagement surface **24** may be any suitable shape (e.g., oval, circular, trapezoidal, etc.).
[0065] In some implementations, the mounting portion **20** may include an attachment portion **26** structurally configured to facilitate attaching the cable clip **10** to the mounting surface **14** with one or more fasteners **28** (e.g., screws, straps, nails, cable ties, etc.). The attachment portion **26** may be configured in a variety of ways. In some implementations, the attachment portion **26** may include a first flange portion **30** at, or proximal to, the first end portion **16** and a second flange portion **32** at, or proximal to, the second end portion **18**. As shown in FIGS. **1** and **6**, in some implementations, the attachment portion **26** may include a first fastener receiving portion **34** on the first flange portion **30** and a second fastener receiving portion **36** on the second flange portion **32**.
[0066] In some implementations, the attachment portion **26** may be structurally configured to allow

the one or more fasteners **28** to attach the cable clip **10** to the mounting surface **14** while the communication cable **12** is captured by the cable capturing portion **21**. For example, in some implementations, the first fastener receiving portion **34** may be positioned offset a first distance D**1** from the longitudinal axis A of the cable clip **10** (FIG. **4**). The first distance D**1** may be sufficient to allow a first of the one or more the fasteners **28** to be received within the first fastener receiving portion **34** and engaged with the mounting surface **14** to secure the cable clip **10** to the mounting surface **14** while the communication cable **12** is captured by the cable capturing portion **21**.

[0067] In some implementations, the second fastener receiving portion **36** may be likewise offset from the longitudinal axis A to allow a second of the one or more the fasteners **28** to be received within the second fastener receiving portion **36** and engaged with the mounting surface **14** to secure the cable clip **10** to the mounting surface **14** while the communication cable **12** is captured by the cable capturing portion **21**.

[0068] In some implementations, the second fastener receiving portion **36** may be offset the same first distance D**1** as the first fastener receiving portion **34**. In other implementations, however, the second fastener receiving portion **36** may be offset a different distance. In some implementations, the first fastener receiving portion **34** may be offset in a first direction relative to the longitudinal axis A and the second fastener receiving portion **36** may be offset in a second direction opposite the first direction.

[0069] In some implementations, the attachment portion **26** may include a third fastener receiving portion **37** structurally configured to receive one or more fastening strips **38** (e.g., bands, straps, belts, wires, cable ties, etc.) (FIG. **5**) to attach the cable clip **10** to the mounting surface **14**. In some implementations, the third fastener receiving portion **37** may define a path **39** for receiving the one or more fastening strips **38** between the engagement portion **22** and the cable capturing portion **21**. For example, in some implementations, the third fastener receiving portion **37** may be a slot and the path **39** may extend traverse (e.g., perpendicular) to the longitudinal axis A of the cable clip **10**. Thus, the one or more fastening strips **38** may be received through the third fastener receiving portion **37** along the path **39** and extend traverse (e.g., perpendicular) to the longitudinal axis A of the cable clip **10**.

[0070] The cable capturing portion **21** may be configured in a variety of ways. In some implementations, the cable capturing portion **21** may include a cable supporting portion **40** and a cable retaining portion **42**. The cable supporting portion **40** may be structurally configured to support the communication cable **12** on the cable clip **10**. In some implementations the cable supporting portion **40** may be structurally configured to support the communication cable **12** a second distance D**2** from the mounting surface **14**.

[0071] The cable supporting portion **40** may be configured in a variety of ways. In some implementations, the cable supporting portion **40** may include a concave surface **44** (e.g., semicircular or U-shaped cross-sectional profile). In some implementations, the cable supporting portion **40** may be structurally configured to support the communication cable **12** on the cable clip **10** such that the communication cable **12** extends parallel to the longitudinal axis A. In some implementations, the cable supporting portion **40** may include one or more features structurally configured to resist movement (e.g., axial movement and/or rotational movement) of the captured communication cable **12** relative to the cable supporting portion **40**. For example, in some implementations, the concave surface **44** may be textured (e.g., ridges, bumps, etc.) that engage the communication cable **12** to resist movement of the communication cable **12** relative to the concave surface **44**. In some implementations, the communication cable **12** may include corresponding structure on an exterior surface **50** that engage the features on the cable supporting portion to resist relative movement (e.g., grooves on the exterior surface configured to engage ridges on the concave surface **44** or vice versa).

[0072] The cable retaining portion **42** may be structurally configured to resist the cable being withdrawn from the cable clip **10** once captured. The cable retaining portion **42** may be configured

in a variety of ways. In some implementations, the cable retaining portion **42** may be structurally configured to allow the communication cable **12** to snap into the cable clip **10** and engage the cable supporting portion **40**. For example, some implementations, the cable retaining portion **42** may be structurally configured to flex outward when the communication cable **12** is snaped into the cable clip **10** and then flex back inward to resist the communication cable **12** from being withdrawn from the cable clip **10**. The cable retaining portion **42** may be made from any suitable material (e.g., plastic, hard rubber, etc.) that allows the cable retaining portion **42** to flex outward when the communication cable **12** is snaped into the cable clip **10** and then flex back inward to resist the communication cable **12** from being withdrawn from the cable clip **10**.

[0073] In some implementations, the cable retaining portion **42** may include a plurality of projecting portions **46** (e.g., fingers) extending away from the cable supporting portion **40** (i.e., in direction opposite the mounting portion **20**). For example, in some implementations, the cable retaining portion **42** may include four projecting portions **46** structurally configured to bracket the cable supporting portion **40** (e.g., extend upward from four corners of the cable supporting portion **40**. In some implementations, the projecting portions **46** may be curved inward. In some implementations, the concave surface **44** and the projecting portions **46** may be curved to complement an exterior surface **50** (FIG. **3**) of the communication cable **12**.

[0074] In some implementations, the cable clip **10** may include an alignment portion **52** structurally configured to interconnect or interlink two or more adjacent, like cable clips to facilitate a desired alignment of the two or more cable clips relative to each other during and after installment. The alignment portion **52** may be configured in a variety of ways, including method of interconnecting, location, size, shape, orientation, alignment, etc.

[0075] In some implementations, the alignment portion **52** may include structure on a periphery of the cable clip **10** that may be structurally configured to interact or engage complimentary structure on a second cable clip. In some implementations, the alignment portion **52** may be associated with (e.g., located on or adjacent to) the mounting portion **20**. In some implementations, the alignment portion **52** may be located on one or both of the first flange portion **30** and the second flange portion **32**.

[0076] In some implementations, the alignment portion **52** may include a recessed portion **54** and a protruding portion **56**. In some implementations, the recessed portion **54** and the protruding portion **56** are arranged adjacent each other. In some implementations, the alignment portion **52** may include a first recessed portion and protruding portion pair **60** positioned on the first flange portion **30** and a second recessed portion and protruding portion pair **62** positioned on the second flange portion **32**.

[0077] In some implementations, the first recessed portion and protruding portion pair **60** may be located at, or proximal to, a first corner **64** of the mounting portion **20**. In some implementations, the first fastener receiving portion **34** may be located at, or proximal to, a second corner **66** of the mounting portion **20** wherein the first corner **64** is opposite the second corner **66**. Likewise, in some implementations, the second recessed portion and protruding portion pair **62** may be located at, or proximal to, a third corner **68** of the mounting portion **20**. In some implementations, the second fastener receiving portion **36** may be located at, or proximal to, a fourth corner **70** of the mounting portion **20** wherein the third corner **68** is opposite the fourth corner **70**.

[0078] Referring to FIG. **5**, a plurality of cable clips **10** are shown attached side-by-side in a row R. In some embodiments, the mounting surface **14** may be convex. In other implementations, the cable clips **10** can be attached to a mounting surface **14** with any suitable shape (e.g., planar, concave, uneven, etc.). In the illustrated example, four cable clips **10** are shown attached to the mounting surface **14** by the fastening strips **38**. In some implementations, the plurality of cable clips **10** may be attached to the mounting surface **14** by receiving the fastening strips **38** through the third fastener receiving portion **37** along the path **39** (FIG. **1**) of each cable clip **10**. Thus, in some implementations, a single fastening strips **38** may attach a plurality of cable clips **10** to the

mounting surface **14**.

[0079] In some implementations, each of the plurality of cable clips **10** can be individually attached to the mounting surface **14** via the fastening strips **38** (FIG. **3**) and the first and second fastener receiving portions **34**, **36** as described above. In some implementations, one of, or both of, the fasteners **28** and the fastening strips **38** may be used to attach the cable clips **10** to the mounting surface **14**.

[0080] In some implementations, a fastener **71** (e.g., a band, a strap, a belt, a strip, a cable tie, etc.) may be used to assist in retaining the communication cable **12** in the cable retaining portion **42**. For example, in some implementations, the fastener **71** may be received through the third fastener receiving portion **37** along the path **39** between the engagement portion **22** and the cable capturing portion **21** (FIG. **1**) and wrap around the communication cable **12** received in the cable retaining portion **42**, as shown in FIG. **5**. Thus, while the cable retaining portion **42** may be structurally configured to retain the communication cable **12** in the cable clip **10**, the fastener **71** may provide an additional way for retaining the communication cable **12**.

[0081] As shown in FIGS. **6-8**, the cable clip **10** may include a linking portion **72** structurally configured to link the cable clip **10** to one or more adjacent cable clips **10**. The linking portion **72** may be structurally configured in a variety of ways. In some implementations, the linking portion **72** may be structurally configured such that two or more cable clips **10** may be formed as a unitary structure (e.g., molded together as two or more connected cable clips **10**). In some implementations, the linking portion **72** may be structurally configured to link the cable clip **10** to one or more adjacent cable clips **10** in a side-by-side arrangement. In some implementations, the linking portion **72** may be structurally configured to be fractured or broken to separate the cable clip **10** from one or more adjacent cable clips **10**.

[0082] FIG. **6** illustrates a group of four connected cable clips **10**. In particular, a first cable clip **10***a*, a second cable clip **10***b*, a third cable clip **10***c*, and a fourth cable clip **10***d* are interconnected. In other implementations, however, more or less than four cable clips **10** may be interconnected.

[0083] In some implementations, the first cable clip **10***a* may include a first linking portion **72***a* having a first lateral portion **74***a* and a second lateral portion **76***a* opposite the first lateral portion **74***a*. Likewise, the second cable clip **10***b* may include a second linking portion **72***b* having a first lateral portion **74***b* and a second lateral portion **76***b* opposite the first lateral portion **74***b*, the third cable clip **10***c* may include a third linking portion **72***c* having a first lateral portion **74***c* and a second lateral portion **76***c* opposite the first lateral portion **74***c*, and the fourth cable clip **10***d* may include a fourth linking portion **72***d* having a first lateral portion **74***d* and a second lateral portion **76***d*. opposite the first lateral portion **74***d*.

[0084] As shown in FIG. **7**, in some implementations, the first linking portion **72***a* of the first cable clip **10***a* may be connected to the second linking portion **72***b* of the second cable clip **10***b*. In particular, in some implementations, the second lateral portion **76***a* of the first cable clip **10***a* may be connected to the first lateral portion **74***b* of the second cable clip **10***b*. The second lateral portion **76***a* may be connected to the first lateral portion **74***b* in a variety of ways. For example, in some implementations the second lateral portion **76***a* may be connected to the first lateral portion **74***b* by a connecting portion **78** structurally configured allow the first cable clip **10***a* and the second cable clip **10***b* to be separated when desired.

[0085] The connecting portion **78** may be configured in a variety of ways. In some implementations, the connecting portion **78** forms a line or an area of weakness **80** (e.g., thinner area, perforated area, creased area, notched area, or other weakened area) structurally configured to be fractured to unlink the first cable clip **10***a* and the second cable clip **10***b*. For example, in some implementations, the connecting portion **78** may be thinner than surrounding areas (i.e., the adjacent lateral portions). For example, referring to FIG. **7**, in some implementations, the second lateral portion **76***a* of the first cable clip **10***a* has a first thickness T**1**, the first lateral portion **74***b* of the second cable clip **10***b* has a second thickness T**2**, and the connecting portion **78** has a third

thickness T**3** that may be less than the first thickness T**1** and/or the second thickness T**2**. In some implementations, the first thickness T**1** and the second thickness T**2** may be the same or substantially similar.

[0086] In some implementations, the connecting portion **78** may have a recessed portion **82** defining the thinner third thickness T**3**. The recessed portion **82** may be any suitable shape and size. For example, in some implementations, the recessed portion **82** may be a triangular notch extending along the connecting portion **78** between the first cable clip **10***a* and the second cable clip **10***b*. In some implementations, the connecting portion **78** may include one or more perforations **84**. The one or more perforations **84** may be configured in a variety of ways, including the number of perforations, the shape and the size of the perforations, the arrangement of the perforations, etc. In some implementations, the connecting portion **78** may include three, spaced-apart, diamond-shaped perforations **84** arranged in series along the along the connecting portion **78**.

[0087] The second cable clip **10***b* may be connected to and separable from the third cable clip **10***c* and the third cable clip **10***c* may be connected to and separable from the fourth cable clip **10***d* in the same manner as described above regarding the first cable clip **10***a* being connected to and separable from the second cable clip **10***b*.

[0088] In some implementations, the connecting portions **78** form flexible or bendable connections between the connected cable clips **10** in the group. For example, the implementation of FIG. **5** illustrates four separated cable clips **10** mounted to the convex mounting surface **14**. In other implementations, however, the cable clips **10** may be connected via the linking portions **72** and mounted as a unitary structure onto the mounting surface **14**. Since the connecting portions **78** may form flexible or bendable connections, the connected cable clips **10** may mount onto a convex, concave, or otherwise curved surface in addition to a planar surface.

[0089] In some implementations, a plurality of cable clips **10** may be arranged proximal or adjacent each other. For example, FIG. **9** illustrates a first group **90** of the cable clips **10** arranged in a first row R**1** and a second group **92** of the cable clips **10** arranged in a second row R**2** proximal the first row R**1** such that the alignment portions **52***a* of the first group **90** of the cable clips **10** engage the alignment portions **52***b* of the second group **92** of the cable clips **102**. In the illustrated example, the first group **90** of the cable clips **10** may be formed as a first unitary structure of four cable clips **10** connected via the linking portions **72** as described above. Similarly, the second group **92** of the cable clips **10** may be formed as a second unitary structure of four cable clips **10** connected via linking portions **72** as described above. In other implementations, the first group **90** of the cable clips **10** and/or the second group **92** of the cable clips **10** may have more or less than four cable clips in each group and may have some or all of the cable clips within a group not connected.

[0090] As shown in FIG. **9**, in some implementations, when the alignment portions **52***a* of the first group **90** of the cable clips **10** engage the alignment portions **52***b* of the second group **92** of cable clips **10**, the recessed portions **54** and the projecting portions **56** at the second end portion **18** of the first group **90** of the cable clips **10** engage corresponding protruding portions **56** and recessed portions **54**, respectively, at the first end portion **16** of the second group **92** of cable clips **10**. Thus, lateral movement, as shown by arrow Y, of the first group **90** of the cable clips **10** relative to the second group **92** of the cable clips **10** may be restricted which helps to facilitate a desired alignment of the cable clips **10** relative to each other before and after installment.

[0091] Referring to FIG. **9**, in some implementations, when the alignment portions **52***a* of the first group **90** of the cable clips **10** engage the alignment portions **52***b* of the second group **92** of the cable clips **10**, the first group **90** of the cable clips **10** may be laterally offset a third distance D**3** from the second group **92** of cable clips **10** such that the longitudinal axis A of a cable clip **10** of the first group **90** of the cable clips **10** extends between two cable clips **10** of the second group **92** of the cable clips **10** or is adjacent a cable clip **10** from the second group **92** of the cable clips **102**. In some implementations, the distance D**3** may be half the width W of the cable clips **10**.

[0092] FIG. **10** illustrates an example of a plurality of cable clips **10** arranged proximal or adjacent

each other. In some implementations, a first group **94** of the cable clips **10** may be arranged side-by-side in a first row R**1** and a second group **92** of the cable clips **10** may be arranged side-by-side in a second row R**2** proximal the first row R**1**. In some implementations, the first group **94** of the cable clips **10** may be laterally offset from the second group **96** of the cable clips **10**. The cable clips **10** in each row may be formed as a unitary structure, as shown in FIG. **9**, or one or more of the cable clips **10** in each row may be separated for the other cable clips **10** in the row. In some implementations, one or more alignment portions **52***a* of the cable clips **10** in the first row R**1** may be engaged with a corresponding alignment portion **52***b* of a cable clip in the second row R**2** to help facilitate a desired alignment of cable clips **10** relative to each other. In other implementations, however, the cable clips **10** may be arranged without the alignment portions **52** engaging, as shown in FIG. **10**.

[0093] As shown in FIG. **10**, each of the cable clips **10** in the two rows R**1**, R**2** may be utilized to secure a corresponding communication cable **12**. For example, a first communication cable **12***a* may be secured with the cable retaining portion **42** of a first of the cable clips **10***a*, a second communication cable **12***b* may be secured with the cable retaining portion **42** of a second cable clip **10***b*, and so one. In some implementations, each of the communication cables **12** may be secured by a corresponding fastener **71** in the same manner as described regarding the cable clips **10** in the example of FIG. **5**.

[0094] In some implementations, the arrangement of the cable clips **10**, as shown in FIG. **10**, may be such that a communication cable **12** captured by a cable clip **10** in the first row R**1** may extend between two cable clips **10** in the second row R**2**. In some implementations, the communication cable **12** captured by the cable clip **10** in the first row R**1** may overlap one of the lateral portions **74**, **76** (FIG. **6**) of the two cable clips in the second row R**2** that the communication cable **12** passes between. For example, the second distance D**2** (FIG. **2**) may be sufficient to raise the communication cable **12** above the lateral portions **74**, **76** (FIG. **6**) of each of the two cable clips in the second row R**2** that the communication cable **12** passes between allowing for a more compact spacing between the cable clips **10** in the two rows R**1**, R**2**.

[0095] In some implementations, the one or more cable clips **10** in a first row R**1** and/or the one or more cable clips **10** in a second row R**2** may be secured to the mounting surface **14** in the same manner as described regarding the cable clips **10** in the example of FIG. **5** (i.e., with the fastening strips **38** and/or the fasteners **28**).

[0096] Referring to FIGS. **11-13**, illustrate an example implementation of a cable clip **100** for attaching the communication cable **12** (e.g., FIG. **3**) to the mounting surface **14** (FIG. **13**). The cable clip **100** may be similar to the cable clip **10** of FIGS. **1-10**. For example, the cable clip **100** may be structurally configured to interconnect with one or more adjacent, like cable clips to facilitate a desired alignment of a plurality of the cable clips relative to each other after installment.

[0097] In some implementations, the cable clip **100** may include a first end portion **116**, a second end portion **118** opposite the first end portion **116**, a central longitudinal axis A extending from the first end portion **116** to the second end portion **118**. The cable clip **100** may include a mounting portion **120** and a cable capturing portion **121** the same, or similar to, the cable clip **10** of FIGS. **1-10**. For example, the mounting portion **120** may include an engagement portion **122** structurally configured to engage the mounting surface **14** to support the cable clip **10** on the mounting surface **14** and an attachment portion **126** structurally configured to facilitate attaching the cable clip **10** to the mounting surface **14** with one or more fasteners (e.g., screws, straps, nails, cable ties, straps, bands, etc.) (not shown).

[0098] In some implementations, the engagement portion **122** may define a generally planar engagement surface **124**. In some implementations, the attachment portion **126** may include a fastener receiving portion **137** structurally configured to receive a fastener (e.g., a band, a strap, a belt, a strip, a cable tie, etc.) to attach the cable clip **100** to the mounting surface **114**. In some implementations, the fastener receiving portion **137** defines a path **139** for receiving the fastener

between the engagement portion **122** and the cable capturing portion **121**, similar to the fastener receiving portion **37** and path **39** of the cable clip **10**. In some implementations, the path **139** may be traverse (e.g., perpendicular) to a longitudinal axis A of the cable clip **100**.

[0099] The cable capturing portion **121** may include a cable supporting portion **140** structurally configured to support the communication cable **12** on the cable clip **100** and a cable retaining portion **142** structurally configured to resist the cable being withdrawn from the cable clip **100** once captured. In some implementations, the cable supporting portion **140** may include a surface **144** (e.g., a concave surface) structurally configured to support the communication cable **12** a distance above the mounting surface **14**.

[0100] In some implementations, the cable retaining portion **142** may be structurally configured to allow the communication cable **12** to snap into the cable clip **100** and engage the cable supporting portion **140**. For example, in some implementations, the cable retaining portion **142** may include a plurality of fingers **146** extending away from the cable supporting portion **140** (i.e., in direction opposite the mounting portion **20**).

[0101] In some implementations, the attachment portion **126** may not include first and second flange portions like the first and second flange portions **30**, **32** of the illustrated implementations of the cable clip **10**. The cable clip **100**, however, may still be attached to the mounting surface **14** with one or more fasteners in addition to, or as an alternative to, the fastener received though the fastener receiving portion **137**. For example, in some implementations, the cable supporting portion **140** may be structurally configured to allow a fastener (e.g., a screw, a nail, etc.) to be driven through the surface **144** (e.g., at point Z in FIG. **12**) and into the mounting surface **14** to secure the cable clip **100** to the mounting surface **14**.

[0102] In some implementations, the cable clip **100** may include an alignment portion **152** structurally configured to interconnect or interlink two or more adjacent, like cable clips to facilitate a desired alignment of the two or more cable clips relative to each other during and after installment. The alignment portion **152** may be configured in a variety of ways, including method of interconnecting, location, size, shape, orientation, alignment, etc.

[0103] In some implementations, the alignment portion **152** may include a recessed portion **154** and a protruding portion **156**. The recessed portion **154** may be structurally configured to receive a corresponding protruding portion on a second cable clip (not shown) and the protruding portion **156** may be structurally configured to be received in a corresponding recessed portion on a second cable clip (not shown). The recessed portion **154** and the protruding portion **156** may be configured in a variety of ways, such as for example, the shape, the size, the location on the cable clip, etc. In some implementations, the recessed portion **154** may include a pair of spaced apart recesses **157** positioned on the first end portion **116** and the protruding portion **156** may include a pair of spaced apart protruding portions **159** positioned on the second end portion **118**. In other implementations, the recessed portion **154** and/or the protruding portion **156** may include more or less than a pair of recessed portions and a pair of protruding portions, respectively.

[0104] As shown in FIG. **13**, in the illustrated implementation, the cable clip **100** may be connected, end-to-end, with a second cable clip **100***b*. For example, second end portion **118** of the cable clip **100** may be connected to the first end portion **116***a* of the second cable clip **100***b* such that the pair of spaced apart protruding portions **159** on the cable clip **100** may be received within a corresponding pair of recesses (e.g. recesses **157**) (not shown) on the second cable clip **100***b*. In some implementations, the longitudinal axis A of the cable clip **100** may extend parallel to (e.g., coaxial with) a corresponding longitudinal axis (not shown) of the second cable clip **100***b*.

[0105] In some implementations, the recessed portion **154** and the projecting portion **156** are structurally configured to engage a corresponding projecting portion and recessed portion of additional cable clips with a friction fit that resist separating the cable clips once connected. Further, the alignment portion **152** may be structurally configured to resist relative movement (e.g., rotational movement, lateral movement, and longitudinal movement) between two connected cable

clips or a series of connected cable clips. Thus, the alignment portion **152** may facilitate a desired alignment of the two or more interconnected cable clips relative to each other during and after installment.

[0106] While at least one example, non-limiting embodiment has been presented in the foregoing detailed description, it should be appreciated that a vast number of variations exist. It should also be appreciated that the exemplary embodiment or exemplary embodiments are only examples, and are not intended to limit the scope, applicability, or configuration of the disclosure in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing the exemplary embodiment or exemplary embodiments. It should be understood that various changes can be made in the function and arrangement of elements without departing from the scope of the disclosure as set forth in the appended claims and the legal equivalents thereof.

Claims

1. A cable clip structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility, comprising: a mounting portion structurally configured to facilitate mounting the cable clip to a mounting surface, the mounting portion including an engagement portion structurally configured to engage the mounting surface and an attachment portion structurally configured to facilitate attaching the cable clip to the mounting surface; a cable supporting portion structurally configured to support a communication cable on the cable clip; a cable retaining portion structurally configured to receive the communication cable and to resist the communication cable being withdrawn from the cable clip; an alignment portion structurally configured to align the cable clip relative to a second cable clip; and a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure; wherein the attachment portion includes a first fastener receiving portion structurally configured to receive a first fastener and a second fastener receiving portion, opposite the first fastener receiving portion, structurally configured to receive a second fastener, wherein the first and second fastener receiving portions are laterally offset from a longitudinal axis of the cable clip; wherein the alignment portion includes a recessed portion and a projecting portion, wherein the recessed portion is structurally configured to receive a second projecting portion of the second cable clip and the projecting portion is structurally configured to be received in a second recessed portion of the second cable clip; wherein the linking portion includes a connecting portion having an area of weakness structurally configured to be fractured to decouple the cable clip from the third cable clip; and wherein the mounting portion is structurally configured to allow the cable clip to be mounted to the surface after capturing the communication cable in the cable capturing portion; and wherein the alignment portion is structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.

2. The cable clip of claim 1, wherein the attachment portion includes a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the engagement portion and the cable retaining portion.

3. The cable clip of claim 1, wherein the cable supporting portion includes a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of fingers structurally configured to bracket the cable supporting portion.

4. A cable clip structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility, comprising: attachment portion structurally configured to facilitate attaching the cable clip to a mounting surface; a cable supporting portion structurally configured to support a communication cable on the cable clip; a cable retaining portion structurally configured to receive the communication cable and to resist the

communication cable being withdrawn from the cable clip; an alignment portion structurally configured to align the cable clip relative to a second cable clip; and a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure; wherein the linking portion includes a connecting portion structurally configured to allow the cable clip to be decoupled from the third cable clip; wherein the alignment portion includes a recessed portion and a projecting portion, wherein the recessed portion is structurally configured to receive a second projecting portion of the second cable clip and the projecting portion is structurally configured to be received in a second recessed portion of the second cable clip; wherein the attachment portion is structurally configured to allow the cable clip to be attached to the mounting surface after the communication cable is received in the cable retaining portion; and wherein the alignment portion is structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.

5. The cable clip of claim 4, wherein the cable supporting portion includes a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of projecting portions structurally configured to bracket the cable supporting portion.

6. The cable clip of claim 4, wherein the attachment portion includes a first flange portion and a first fastener receiving portion on the first flange portion that is structurally configured to receive a first fastener of the one or more fasteners, wherein the first fastener receiving portion is laterally offset from a longitudinal axis of the cable clip.

7. The cable clip of claim 6, wherein the attachment portion includes a second flange portion opposite the first flange portion and a second fastener receiving portion on the second flange portion structurally configured to receive a second fastener of the one or more fasteners, wherein the second fastener receiving portion is laterally offset from the longitudinal axis of the cable clip.

8. The cable clip of claim 7, wherein the attachment portion includes a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the cable retaining portion and an engagement portion that is structurally configured to engage the mounting surface to support the cable clip on the mounting surface.

9. The cable clip of claim 4, wherein the connecting portion includes an area of weakness structurally configured to be fractured to decouple the cable clip and the third cable clip.

10. A cable clip structurally configured to facilitate a desired alignment of the cable clip relative to another cable clip and provide enhanced installation flexibility, comprising: a mounting portion structurally configured to mount to a mounting surface, a cable capturing portion structurally configured to capture a communication cable; and an alignment portion structurally configured to align the cable clip relative to a second cable clip; wherein the mounting portion is structurally configured to allow the cable clip to be mounted to the mounting surface after capturing the communication cable in the cable capturing portion; and wherein the alignment portion is structurally configured to facilitate a desired alignment of the cable clip relative to the second cable clip during and after installment and to provide enhanced installation flexibility.

11. The cable clip of claim 10, wherein the cable capturing portion includes a cable supporting portion structurally configured to support a communication cable on the cable clip and a cable retaining portion structurally configured to receive the communication cable and to resist the communication cable being withdrawn from the cable clip.

12. The cable clip of claim 11, wherein the cable supporting portion includes a concave surface structurally configured to receive the communication cable and the cable retaining portion includes a plurality of projecting portions structurally configured to bracket the cable supporting portion.

13. The cable clip of claim 10, wherein the mounting portion includes an engagement portion structurally configured to engage the mounting surface to support the cable clip on the mounting surface and an attachment portion structurally configured to facilitate attaching the cable clip to the mounting surface with one or more fasteners.

14. The cable clip of claim 13, wherein the attachment portion includes a first flange portion and a

first fastener receiving portion on the first flange portion that is structurally configured to receive a first fastener of the one or more fasteners, wherein the first fastener receiving portion is laterally offset from a longitudinal axis of the cable clip.

15. The cable clip of claim 14, wherein the attachment portion includes a second flange portion opposite the first flange portion and a second fastener receiving portion on the second flange portion structurally configured to receive a second fastener of the one or more fasteners, wherein the second fastener receiving portion is laterally offset from the longitudinal axis of the cable clip.

16. The cable clip of claim 15, wherein the attachment portion includes a third fastener receiving portion structurally configured to define a path, transverse to the longitudinal axis, for receiving a fastening strip between the engagement portion and the cable retaining portion.

17. The cable clip of claim 10, further comprising a linking portion structurally configured to link the cable clip to a third cable clip as a unitary structure.

18. The cable clip of claim 17, wherein the linking portion includes a connecting portion structurally configured to allow the cable clip to be decoupled from the third cable clip.

19. The cable clip of claim 18, wherein the connecting portion includes an area of weakness structurally configured to be fractured to decouple the cable clip and the third cable clip.

20. The cable clip of claim 19, wherein the area of weakness includes at least one of perforations or a recessed portion.

21. The cable clip of claim 10, wherein the alignment portion includes a recessed portion and a projecting portion, wherein the recessed portion is structurally configured to receive a second projecting portion of the second cable clip and the projecting portion is structurally configured to be received in a second recessed portion of the second cable clip;