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Randel

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(54) **POST MOUNT INSTALLATION DEVICE AND METHOD OF USE**

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E04H 17/26 (2006.01)

(52) **U.S. Cl.**
CPC ***E04H 17/263*** (2013.01)

(58) **Field of Classification Search**
CPC E04H 17/263; E04H 12/2253
USPC 269/17
See application file for complete search history.

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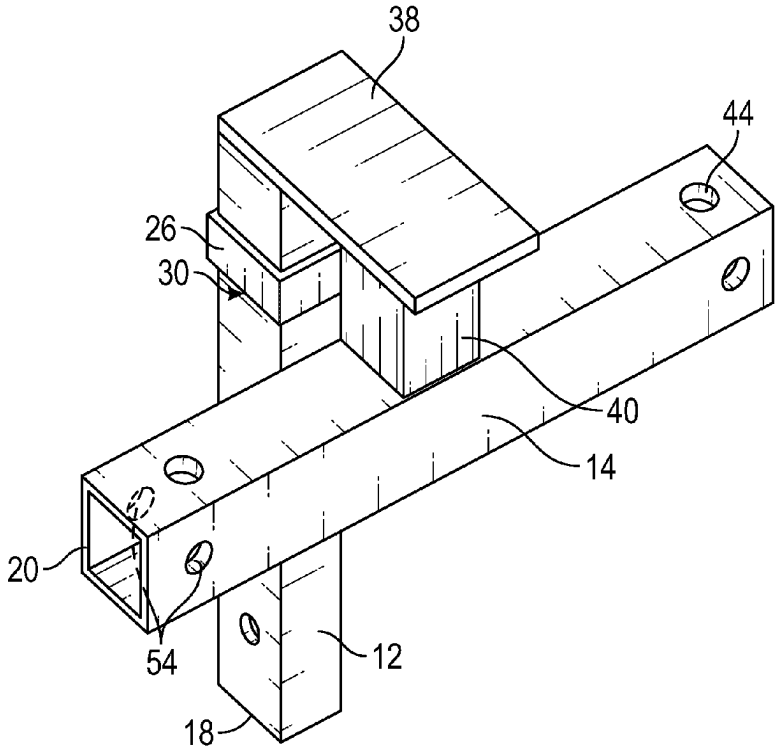
Primary Examiner — Christopher J. Besler

(57) **ABSTRACT**

A post mount installation device enabling installation of a plurality of posts with the posts being substantially parallel and coplanar includes a first pipe, a second pipe, and a third pipe. The first pipe is removably attachable to a first post mount. The second pipe is attached to and extends perpendicularly from the first pipe so that an upper limit of the second pipe is substantially coplanar with an upper end of the first post mount. The second pipe also is substantially parallel to an imaginary line that extends between the first post mount and a location for installation of a second post mount. The third pipe is slidably attached to the second pipe and thus is selectively extensible from the second pipe. A respective opposed end of the third pipe indicates a point adjacent to the location for installation of the second post mount.

5 Claims, 6 Drawing Sheets



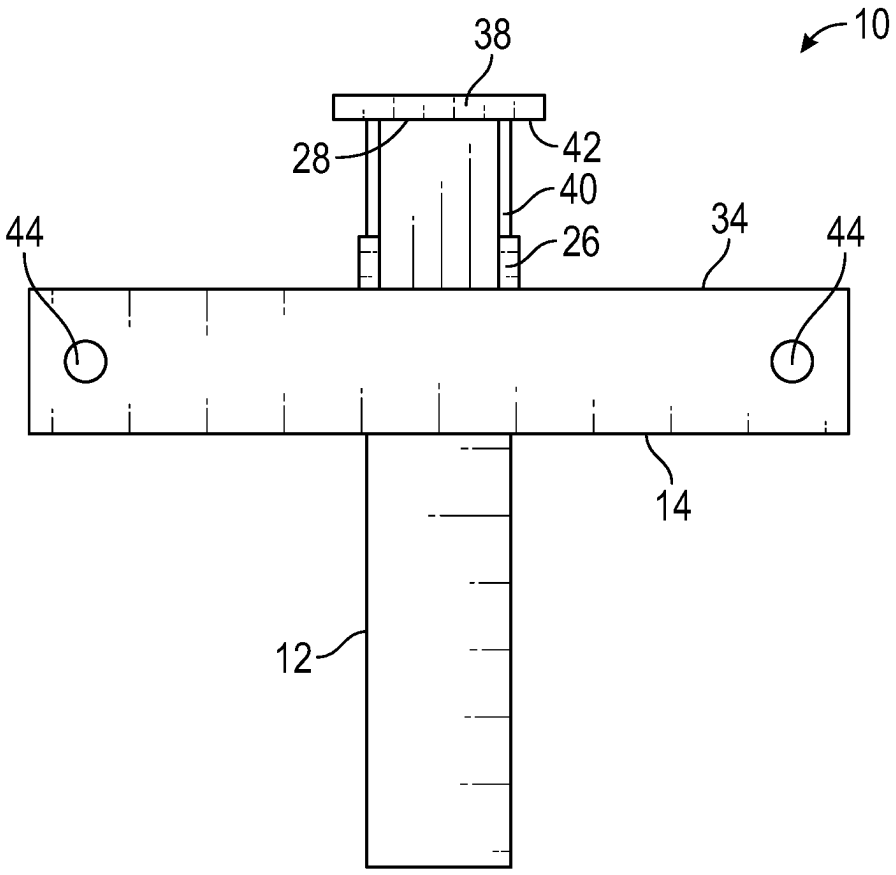


FIG. 1

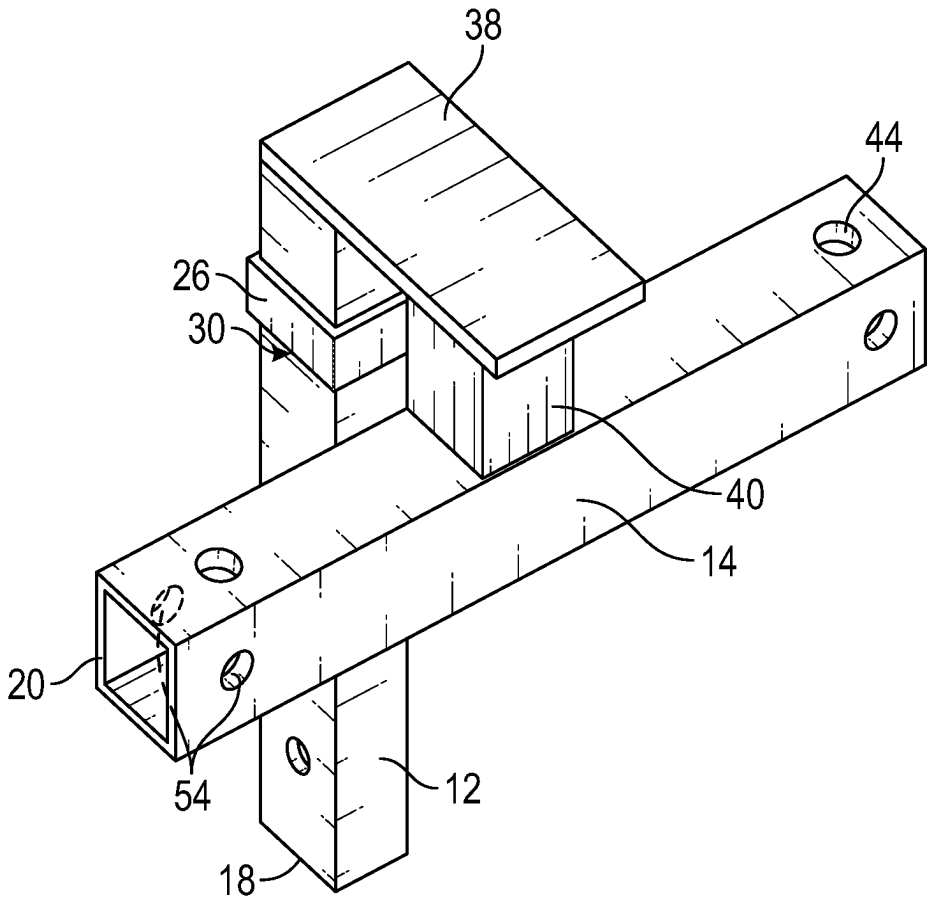


FIG. 2

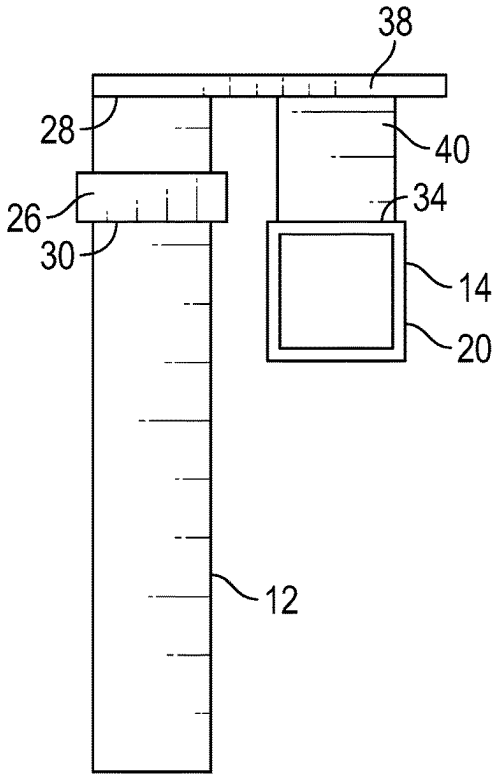


FIG. 3

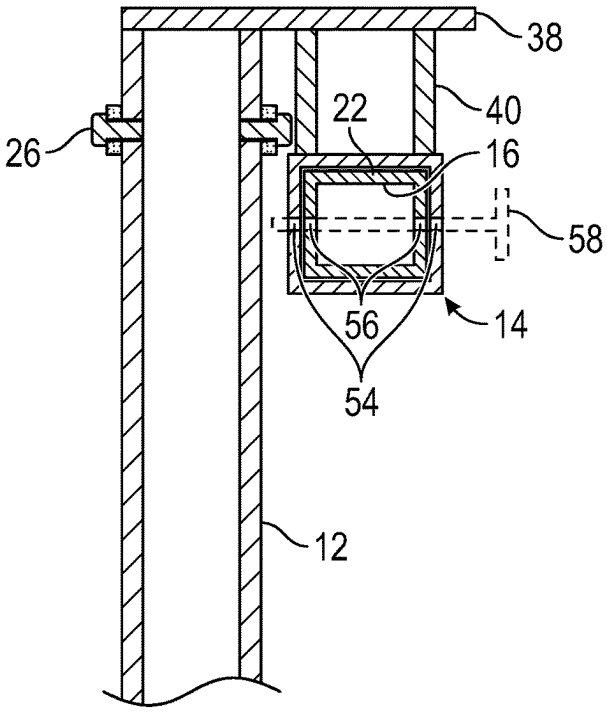


FIG. 4

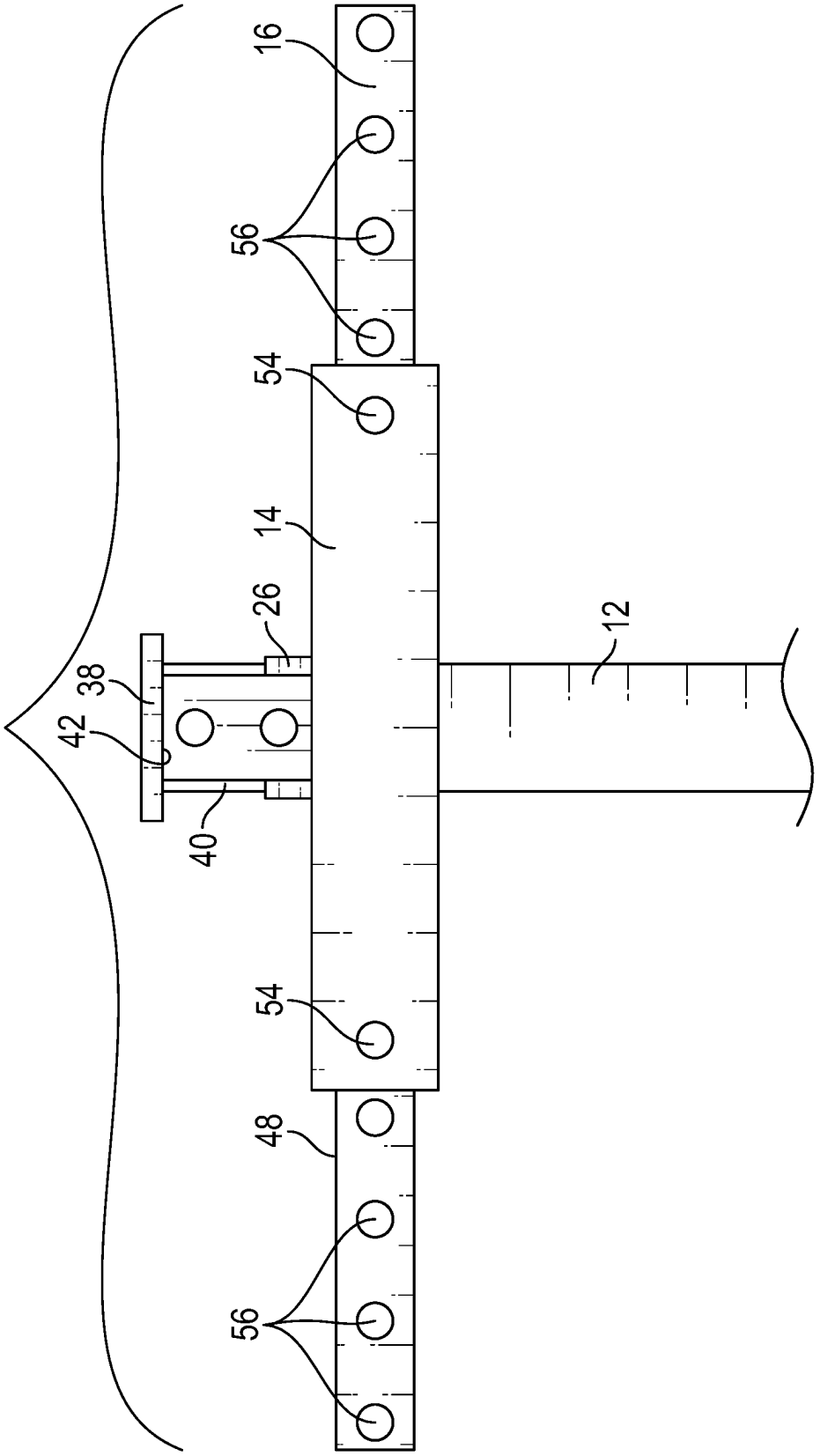


FIG. 5

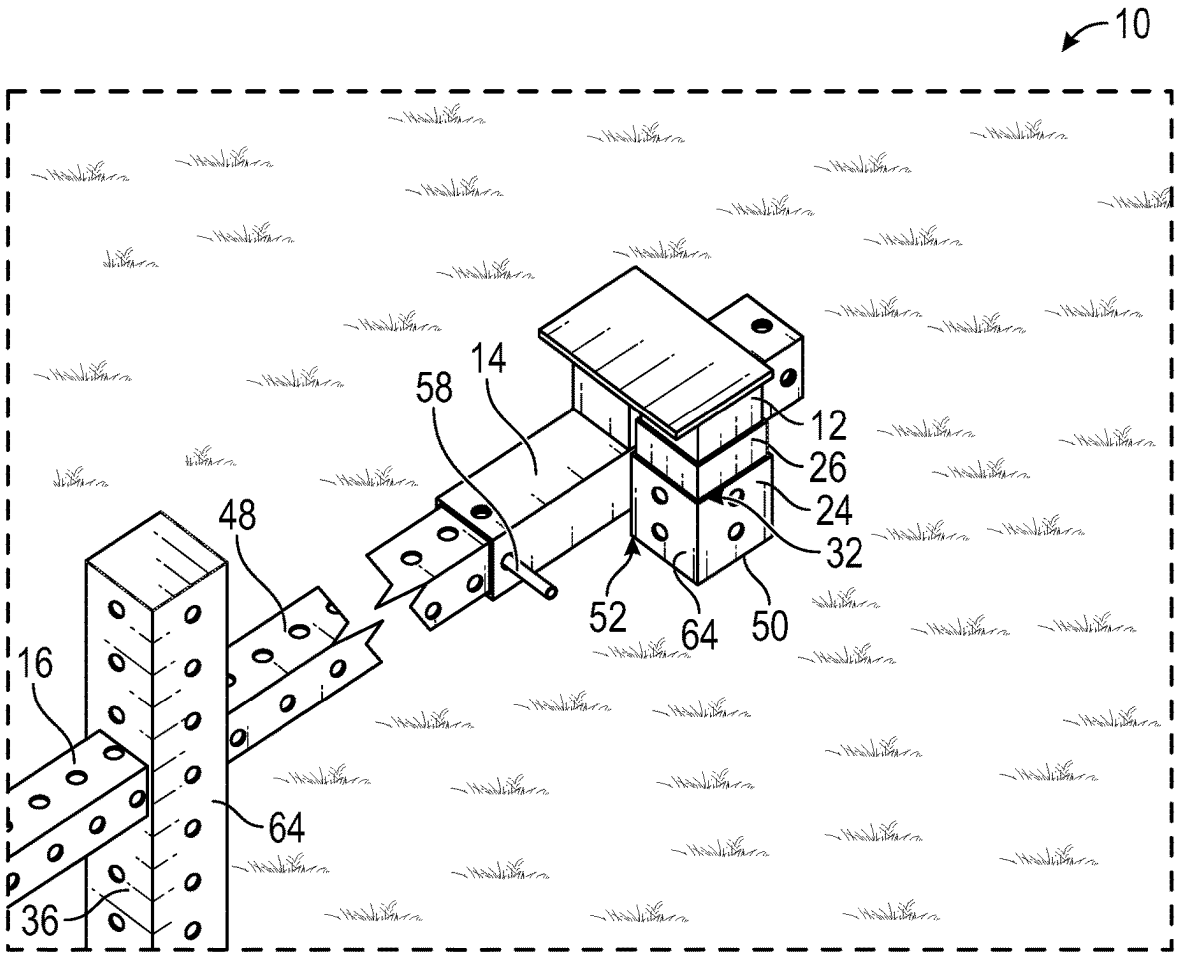


FIG. 6

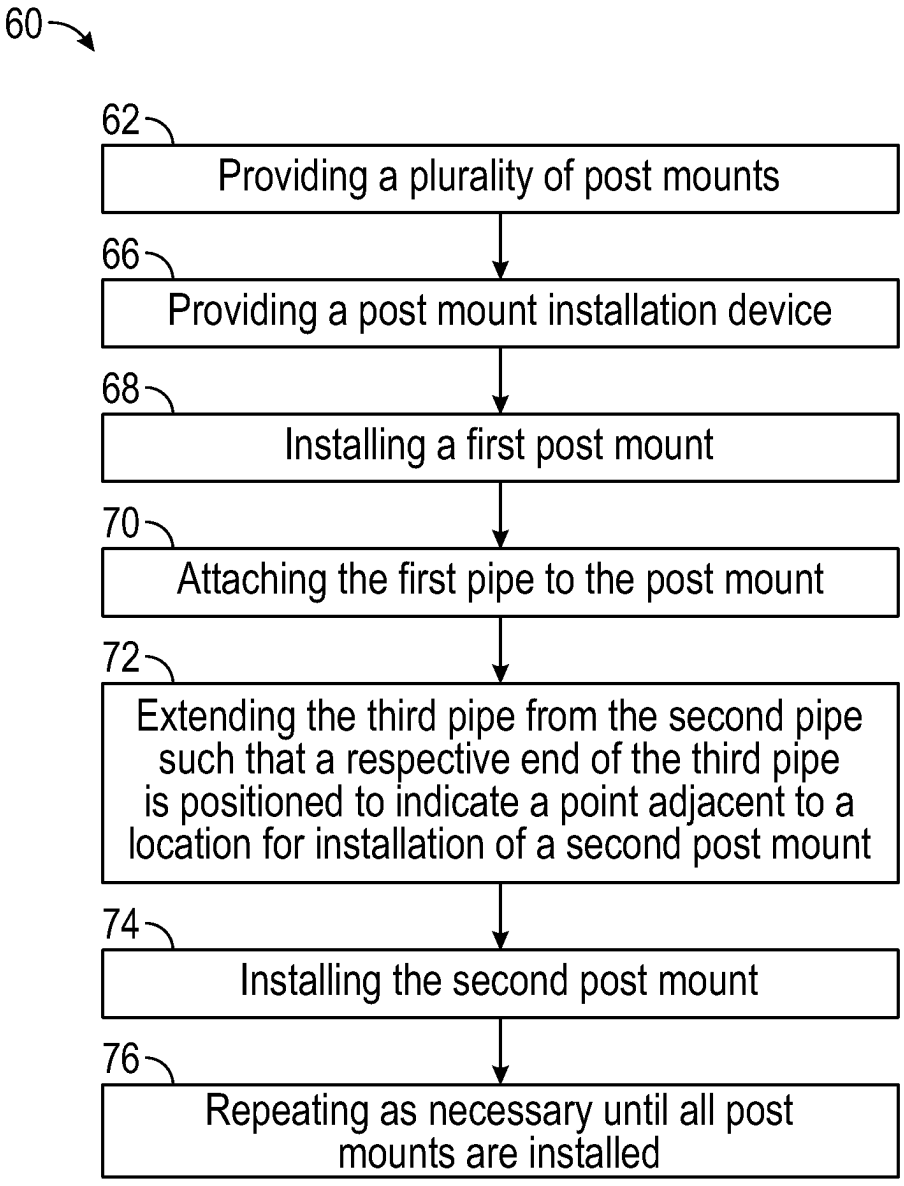

60
62
Providing a plurality of post mounts
66
Providing a post mount installation device
68
Installing a first post mount
70
Attaching the first pipe to the post mount
72
Extending the third pipe from the second pipe such that a respective end of the third pipe is positioned to indicate a point adjacent to a location for installation of a second post mount
74
Installing the second post mount
76
Repeating as necessary until all post mounts are installed

FIG. 7

POST MOUNT INSTALLATION DEVICE AND METHOD OF USE

CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

Not Applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC OR AS A TEXT FILE VIA THE OFFICE ELECTRONIC FILING SYSTEM

Not Applicable

STATEMENT REGARDING PRIOR DISCLOSURES BY THE INVENTOR OR JOINT INVENTOR

Not Applicable

BACKGROUND OF THE INVENTION

(1) Field of the Invention

The disclosure relates to installation devices and more particularly pertains to a new installation device enabling installation of a plurality of posts with the posts being substantially parallel and coplanar. The present invention discloses an installation device for post mounts that enables a user to install the post mounts properly so that posts subsequently attached to the post mounts are parallel and coplanar.

(2) Description of Related Art Including Information Disclosed Under 37 CFR 1.97 and 1.98

The prior art relates to installation devices, which may comprise an extensible rod have clamping members or brackets at each end that are attachable to posts. While these installation devices are useful in positioning posts, many fencing systems and support systems using multiple posts rely on post mounts that are attached to or positioned in the ground. These prior art installation devices do not enable proper positioning of post mounts. Related prior art includes post location marking devices, which may include a pair of pipes and a crossmember, and drilling jigs having two collars slidably attached to a crossmember. What is lacking in the prior art is an installation device that is attachable to a first post mount and which can be used to indicate proper positioning of a second post mount.

BRIEF SUMMARY OF THE INVENTION

An embodiment of the disclosure meets the needs presented above by generally comprising a first pipe, a second pipe, and a third pipe. The first pipe is configured to be removably attachable to a first post mount. The second pipe is attached to and extends perpendicularly from the first pipe so that an upper limit of the second pipe is substantially coplanar with an upper end of the first post mount. The second pipe also is substantially parallel to an imaginary line that extends between the first post mount and a location for installation of a second post mount. The third pipe is slidably attached to the second pipe and thus is selectively extensible from the second pipe. A respective opposed end of the third pipe is configured to indicate a point adjacent to the location for installation of the second post mount.

Another embodiment of the disclosure includes a method for installing post mounts. Provision steps entail providing a plurality of post mounts and providing a post mount installation device, according to the disclosure above. Operational steps are installing a first post mount, attaching the first pipe to the first post mount, extending the third pipe from the second pipe such that a respective opposed end of the third pipe is positioned to indicate a point adjacent to a location for installation of a second post mount, installing the first second mount, and repeating as necessary until all post mounts have been installed.

There has thus been outlined, rather broadly, the more important features of the disclosure in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the disclosure that will be described hereinafter and which will form the subject matter of the claims appended hereto.

The objects of the disclosure, along with the various features of novelty which characterize the disclosure, are pointed out with particularity in the claims annexed to and forming a part of this disclosure.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWING(S)

The disclosure will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. **1** is a front view of a post mount installation device according to an embodiment of the disclosure.

FIG. **2** is an isometric perspective view of an embodiment of the disclosure.

FIG. **3** is a side view of an embodiment of the disclosure.

FIG. **4** is a cross-sectional view of an embodiment of the disclosure.

FIG. **5** is an in-use view of an embodiment of the disclosure.

FIG. **6** is an in-use view of an embodiment of the disclosure.

FIG. **7** is a flow diagram for a method utilizing an embodiment of the disclosure.

DETAILED DESCRIPTION OF THE INVENTION

With reference now to the drawings, and in particular to FIGS. **1** through **7** thereof, a new installation device embodying the principles and concepts of an embodiment of the disclosure and generally designated by the reference numeral **10** will be described.

As best illustrated in FIGS. **1** through **7**, the post mount installation device **10** generally comprises a first pipe **12**, a

second pipe **14**, and a third pipe **16**, each of which have a cross-sectional profile. As shown in FIGS. **1-6**, the cross-sectional profiles of the first pipe **12**, the second pipe **14**, and the third pipe **16** are square. The present invention also anticipates the cross-sectional profile **18** of the first pipe **12** being alternatively shaped so as to match shapes of various post mounts **64**, such as, but not limited to, circular, rectangular, hexagonal, and the like. Additionally, the present invention anticipates the cross-sectional profile **20** of the second pipe **14** and the cross-sectional profile **22** the third pipe **16** being alternatively shaped, with the only limitation being that the cross-sectional profile **20** of the second pipe **14** is complementary to the cross-sectional profile **22** of the third pipe **16**, for reasons that are made apparent below.

The first pipe **12** is configured to be removably attachable to a first post mount **24**, as shown in FIGS. **5** and **6**. The first pipe **12** is circumferentially complementary to the first post mount **24** and thus is configured to be selectively inserted into the first post mount **24** to removably attach the first pipe **12** to the first post mount **24**. A collar **26** is attached to and extends circumferentially around the first pipe **12** proximate to an upper terminus **28** of the first pipe **12**. A lower limit **30** of the collar **26** is configured to rest on an upper end **32** of the first post mount **24** upon insertion the of first pipe **12** into the first post mount **24**, as shown in FIG. **6**.

The second pipe **14** is attached to and extends perpendicularly from the first pipe **12** so that an upper limit **34** of the second pipe **14** is substantially coplanar with the upper end **32** of the first post mount **24**. The second pipe **14** also is substantially parallel to an imaginary line that extends between the first post mount **24** and a location for installation of a second post mount **36**. The second pipe **14** may be attached to the first pipe **12** by means of a plate **38** and a spacer **40**. The plate **38** is attached to and extends from the upper terminus **28** of the first pipe **12**. The spacer **40** is attached to a lower face **42** of the plate **38**, distal from the first pipe **12**, and also is attached to the second pipe **14** so that the upper limit **34** of the second pipe **14** is substantially coplanar with the lower limit **30** of the collar **26**. In another configuration (not shown) of the post mount installation device **10**, the first post mount **24** is insertable into first pipe **12** and the second pipe **14** is attached directly to the first pipe **12**.

The third pipe **16** is slidably attached to the second pipe **14** and thus is selectively extensible from the second pipe **14**. The third pipe **16** is circumferentially complementary to the second pipe **14** so that the third pipe **16** is slidable within the second pipe **14**. A fastener **44** is attached to the second pipe **14** and is configured to enable attachment of the second pipe **14** to the third pipe **16** to fixedly position the third pipe **16** relative to the second pipe **14**. A respective opposed end **46** of the third pipe **16** is configured to indicate a point adjacent to the location for installation of the second post mount **36**.

It often is required to install a plurality of posts so that the posts are substantially parallel and substantially coplanar, as might be the case when two or three posts are installed to support a sign. Upon installation of a first post mount **24**, it can be difficult to properly install a second post mount **36** so that one ends up with posts that are substantially parallel and substantially coplanar. The same holds true for subsequent post mounts **64** that might need to be installed. The post mount installation device **10** facilitates proper installation of the second post mount **36**, and subsequent post mounts **64**, by properly spacing the second post mount **36** from the first post mount **24**, via selective extension of the third pipe **16**, and by assuring that the first post mount **24** and second post mount **36** are level, as the upper end **32** of the first post mount **24** is flush with a top **48** of the third pipe **16**.

The post mount installation device **10** also can assist in installing the first post mount **24** so that it is oriented as desired relative to a reference line, such as in providing a plurality of posts in a vertical plane that is substantially perpendicular to a roadway. It can be difficult to install the first post mount **24** so that its front edge **50** and back edge **52** are perpendicular (or other desired angle) relative to a reference line. It is much easier to achieve the desired orientation with the first post mount **24** by removably attaching it to the post mount installation device **10**. Prior to final attachment to the surface, the first post mount **24** can be checked for level by positioning a level (not shown) upon the third pipe **16**. The third pipe **16** also is much easier to relate to the reference line than are the front edge **50** and the back edge **52** of the first post mount **24**, which are much shorter that the third pipe **16**.

The fastener **44** may comprise a pair of first holes **54**, the first holes **54** of which are opposingly positioned in the second pipe **14**. A plurality of second holes **56** is positioned in the third pipe **16** so that the second holes **56** are substantially evenly spaced between the opposed ends **46** of the third pipe **16**. Each second hole **56** is opposingly positioned in the third pipe **16** relative to an associated second hole **56**. A pin **58** is selectively insertable through the pair of first holes **54**, a respective second hole **56**, and an associated second hole **56** to fixedly position the third pipe **16** relative to the second pipe **14**. The second holes **56** may be separated by defined increments, such as one inch. The present invention anticipates the fastener **44** comprising other fastening means, such as, but not limited to, twist locks, clamps, spring-loaded pins, and the like.

The present invention also anticipates a bracket, a socket, or the like (not shown) that is attached to the third pipe **16** proximate to the respective opposed end **46** that is positioned adjacent to the location for installation of the second post mount **36**. The bracket or socket would support the second post mount **36** during installation, allowing it to be more easily plumbed and installed.

In use, the post mount installation device **10** enables a method for installing post mounts **60**, which comprises a first provision step **62** that entails providing a plurality of post mounts **64**. A second provision step **66** of the method **60** is providing a post mount installation device **10**, according to the specification above. A first operational step **68** of the method **60** is installing a first post mount **24**. A second operational step **70** of the method **60** is attaching the first pipe **12** to the first post mount **24**. A third operational step **72** of the method **60** is extending the third pipe **16** from the second pipe **14** so that a respective opposed end **46** of the third pipe **16** is positioned to indicate a point adjacent to a location for installation of a second post mount **36**. A fourth operational step **74** of the method **60** is installing the second post mount **36**. A fifth operational step **76** of the method **60** is repeating as necessary until all the post mounts **64** are installed.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of an embodiment enabled by the disclosure, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by an embodiment of the disclosure.

Therefore, the foregoing is considered as illustrative only of the principles of the disclosure. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the disclosure to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the disclosure. In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be only one of the elements.

I claim:

1. A post mount installation device comprising:

a first pipe configured to be removably attachable to a first post mount, wherein the first pipe has a free end being circumferentially complementary to the first post mount, wherein the free end of the first pipe is configured for selective insertion into the first post mount for removably attaching the first pipe to the first post mount;

a second pipe attached to and extending perpendicularly from relative to the first pipe, such that an upper limit of the second pipe is substantially coplanar with an upper end of the first post mount, and such that the second pipe is substantially parallel to an imaginary line extending between the first post mount and a location for installation of a second post mount;

a third pipe slidably attached to the second pipe, such that the third pipe is selectively extensible from the second pipe, wherein a respective opposed end of the third pipe is configured for indicating a point adjacent to the location for installation of the second post mount;

a collar attached to and extending circumferentially around the first pipe proximate to an upper terminus of the first pipe, wherein a lower limit of the collar is configured for resting upon the upper end of the first post mount upon insertion the of first pipe into the first post mount;

a plate attached to and extending from the upper terminus of the first pipe; and

a spacer attached to a lower face of the plate distal from the first pipe, the spacer being attached to the second pipe, such that the upper limit of the second pipe is substantially coplanar with the lower limit of the collar.

2. The post mount installation device of claim **1**, further including a fastener attached to the second pipe and being configured for enabling attachment of the second pipe to the third pipe for fixedly positioning the third pipe relative to the second pipe.

3. The post mount installation device of claim **2**, further including:

the third pipe being circumferentially complementary to the second pipe, such that the third pipe is slidable within the second pipe;

the fastener comprising:

a pair of first holes, the first holes of the pair of first holes being opposingly positioned in the second pipe;

a plurality of second holes positioned in the third pipe such that the second holes of the plurality of second holes are substantially evenly spaced between opposed ends of the third pipe and such that each second hole of the plurality of second holes is opposingly positioned in the third pipe relative to an associated second hole of the plurality of second holes; and

a pin selectively insertable through the pair of first holes, a respective second hole, and the associated second hole for fixedly positioning the third pipe relative to the second pipe.

4. The post mount installation device of claim **1**, wherein each of the first pipe, the second pipe, and the third pipe have a cross-sectional profile, the cross-sectional profile of each of the first pipe, the second pipe, and the third pipe being square.

5. A mounting base installation device comprising:

a first pipe configured to be removably attachable to a first post mount, the first pipe having a free end being circumferentially complementary to the first post mount, wherein the free end of the first pipe is configured for selective insertion into the first post mount for removably attaching the first pipe to the first post mount;

a second pipe attached to and extending perpendicularly relative to the first pipe, such that an upper limit of the second pipe is substantially coplanar with an upper end of the first post mount, and such that the second pipe is substantially parallel to an imaginary line extending between the first post mount and a location for installation of a second post mount;

a third pipe slidably attached to the second pipe, such that the third pipe is selectively extensible from the second pipe, wherein a respective opposed end of the third pipe is configured for indicating a point adjacent to the location for installation of the second post mount, the third pipe being circumferentially complementary to the second pipe, such that the third pipe is slidable within the second pipe, each of the first pipe, the second pipe, and the third pipe have a cross-sectional profile, the cross-sectional profile of each of the first pipe, the second pipe, and the third pipe being square;

a collar attached to and extending circumferentially around the first pipe proximate to an upper terminus of the first pipe, wherein a lower limit of the collar is configured for resting upon the upper end of the first post mount upon insertion the of first pipe into the first post mount;

a plate attached to and extending from the upper terminus of the first pipe;

a spacer attached to a lower face of the plate distal from the first pipe, the spacer being attached to the second pipe, such that the upper limit of the second pipe is substantially coplanar with the lower limit of the collar;

a fastener attached to the second pipe and being configured for enabling attachment of the second pipe to the third pipe for fixedly positioning the third pipe relative to the second pipe, the fastener comprising:

a pair of first holes, the first holes of the pair of first holes being opposingly positioned in the second pipe;

a plurality of second holes positioned in the third pipe such that the second holes of the plurality of second holes are substantially evenly spaced between opposed ends of the third pipe and such that each second hole of the plurality of second holes is opposingly positioned in the third pipe relative to an associated second hole of the plurality of second holes; and

a pin selectively insertable through the pair of first holes, a respective second hole, and the associated

second hole for fixedly positioning the third pipe relative to the second pipe.

* * * * *