US 20190174943A1

(19) **United States**

(12) **Patent Application Publication**

**SCHOOLEY et al.**

(10) **Pub. No.: US 2019/0174943 A1**

(43) **Pub. Date: Jun. 13, 2019**

(54) **ORNAMENTAL TREE HAVING AN ADJUSTABLE BASE**

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(21) Appl. No.: **16/279,618**

(22) Filed: **Feb. 19, 2019**

**Related U.S. Application Data**

(63) Continuation of application No. 14/994,714, filed on Jan. 13, 2016.

**Publication Classification**

(51) **Int. Cl.**

*A47G 33/12* (2006.01)

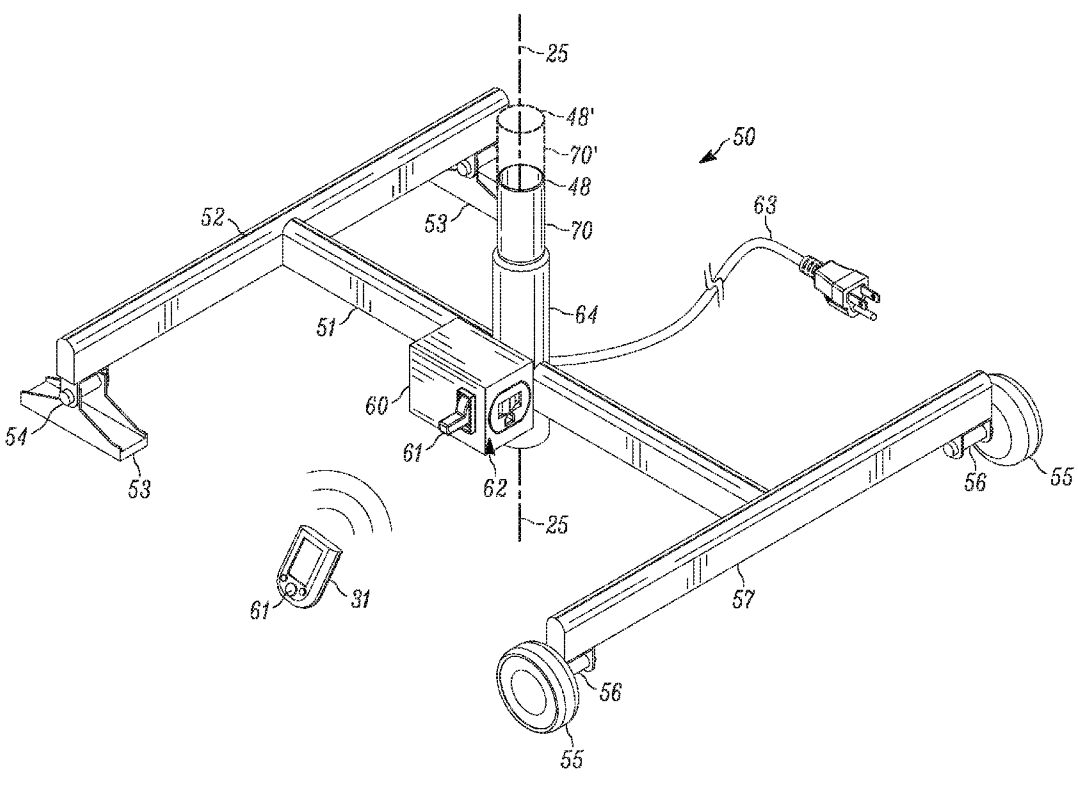
*A47G 33/06* (2006.01)

(52) **U.S. Cl.**

CPC ............. ***A47G 33/12*** (2013.01); ***A47G 33/06*** (2013.01); *A47G 2033/1253* (2013.01); *A47G 2033/1273* (2013.01); *A47G 2033/122* (2013.01)

(57) **ABSTRACT**

A base unit for an ornamental tree is provided that includes a ground support portion adapted to rest upon an underlying surface. The base unit of further includes an adjustable riser attached to and extending upwardly from the ground support to terminate in a distal end portion, the distal end portion of the riser being configured to support a trunk of the ornamental tree. The adjustable riser comprises an adjustment component to adjust the height of the ornamental tree between the ground support portion and the distal end portion of the riser between a first and a second height.



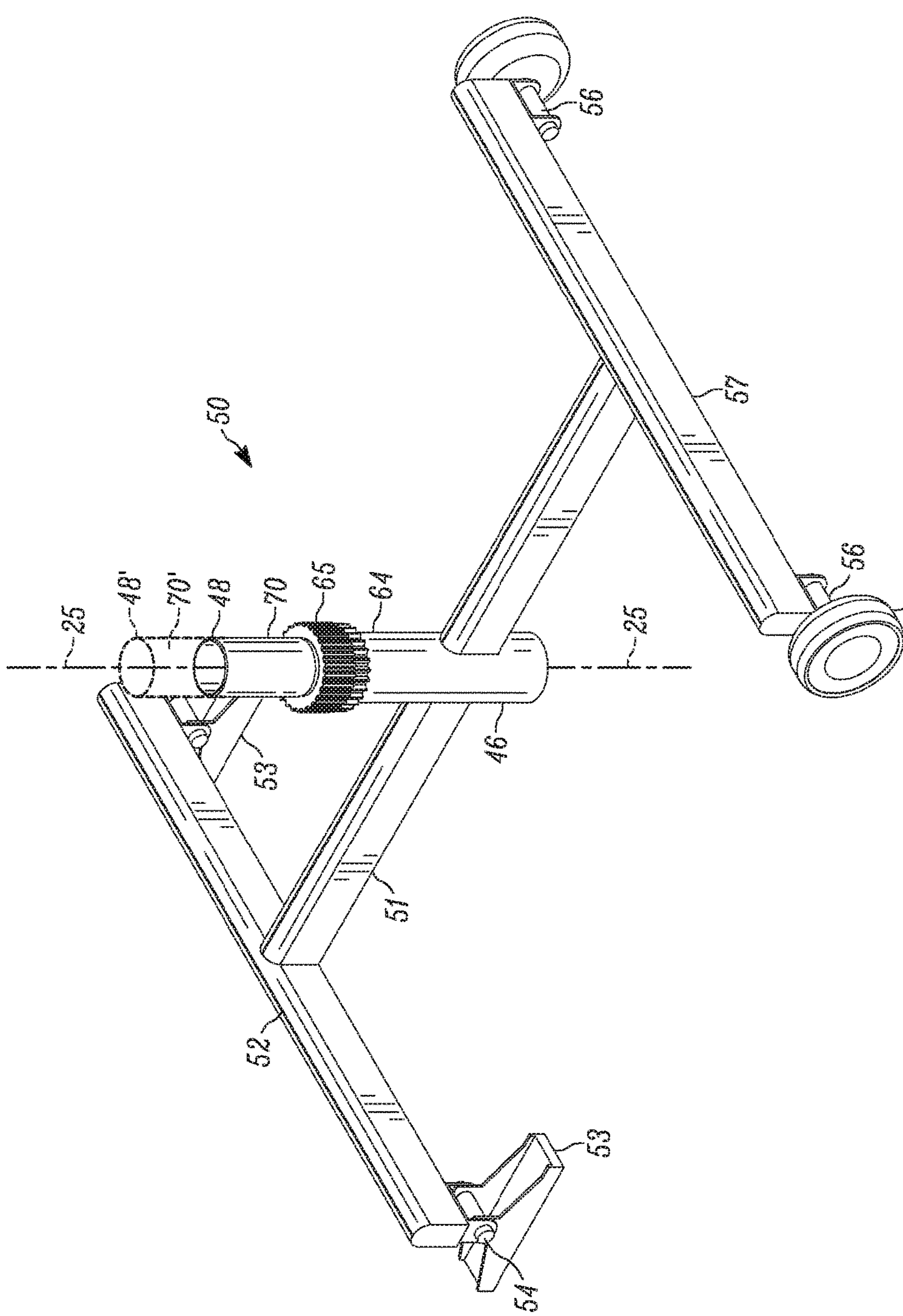



FIG. 1

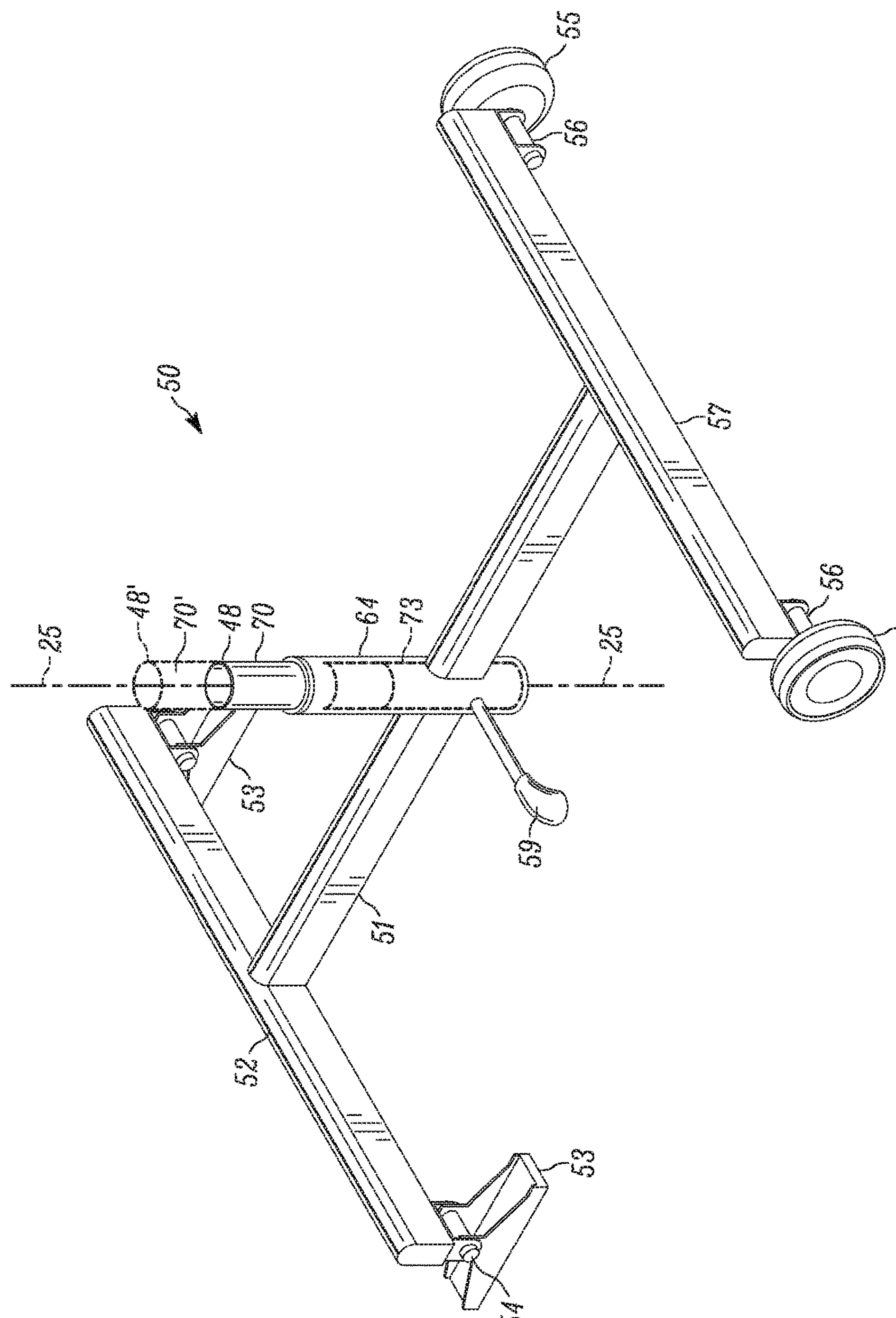



FIG. 2

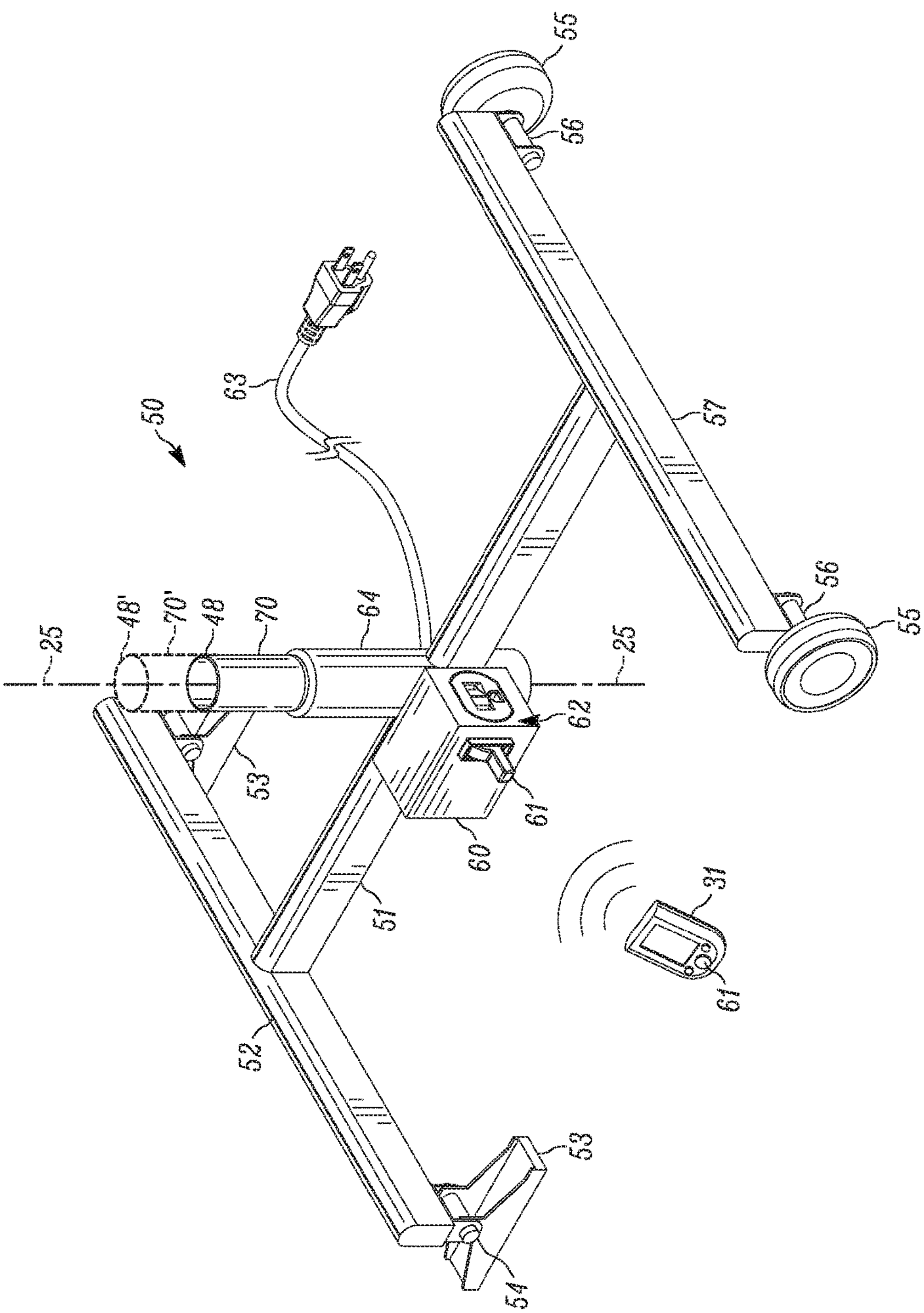



FIG. 3

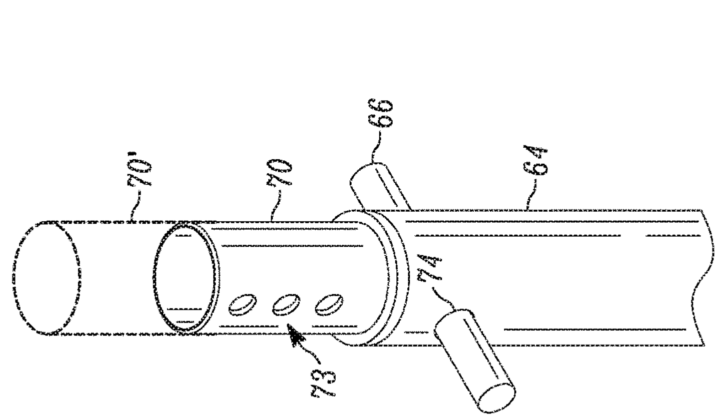



FIG. 4

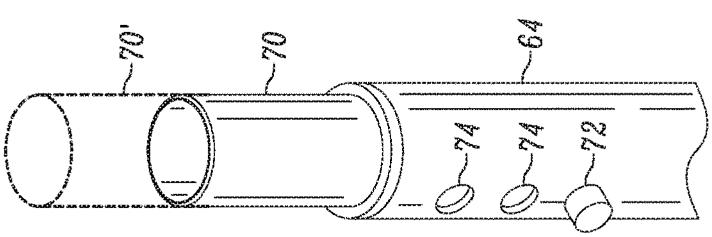



FIG. 5

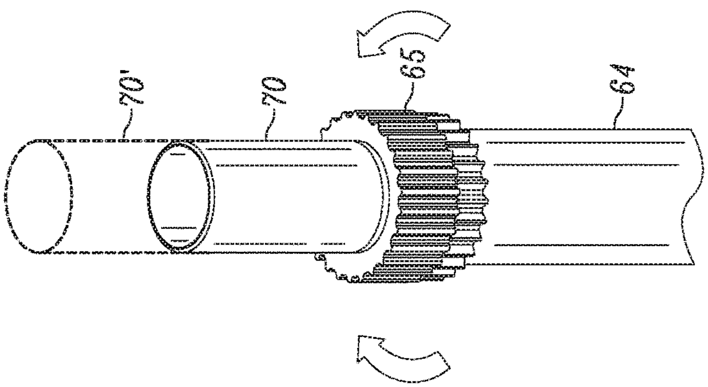



FIG. 6

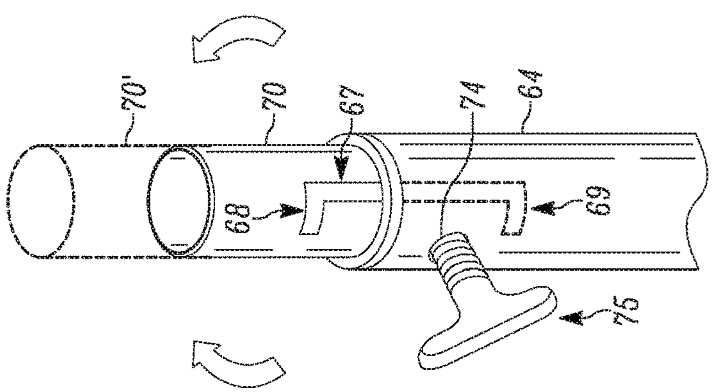



FIG. 7

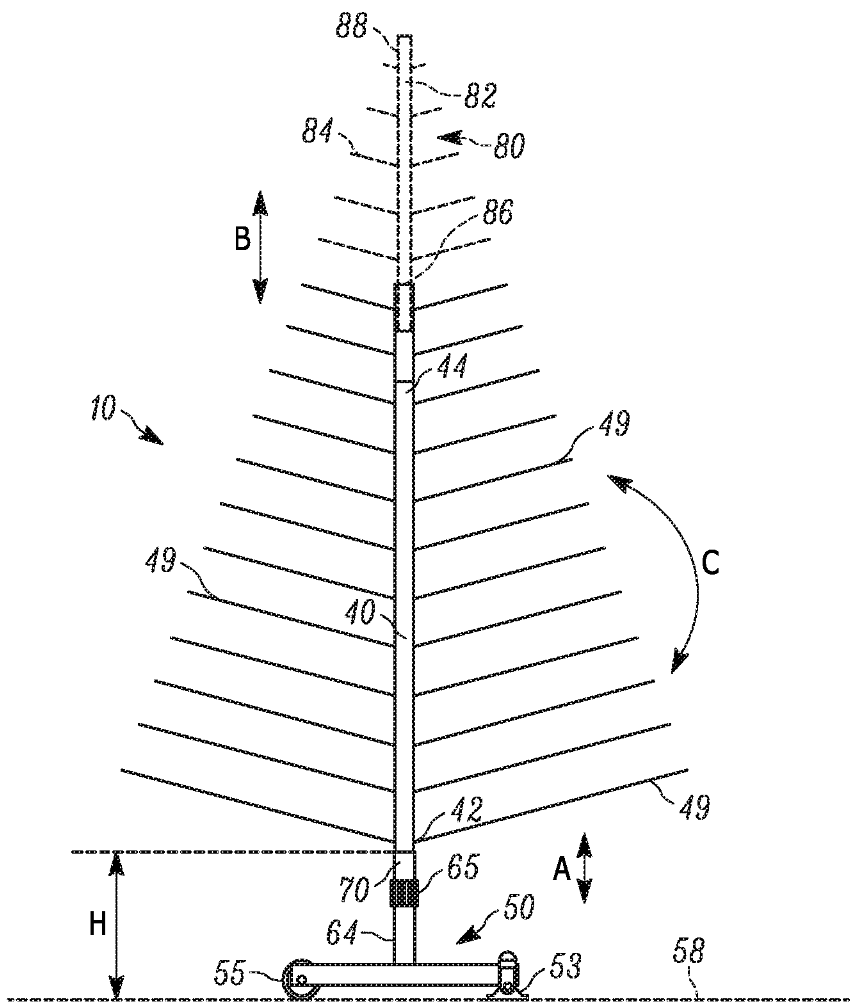



FIG. 8

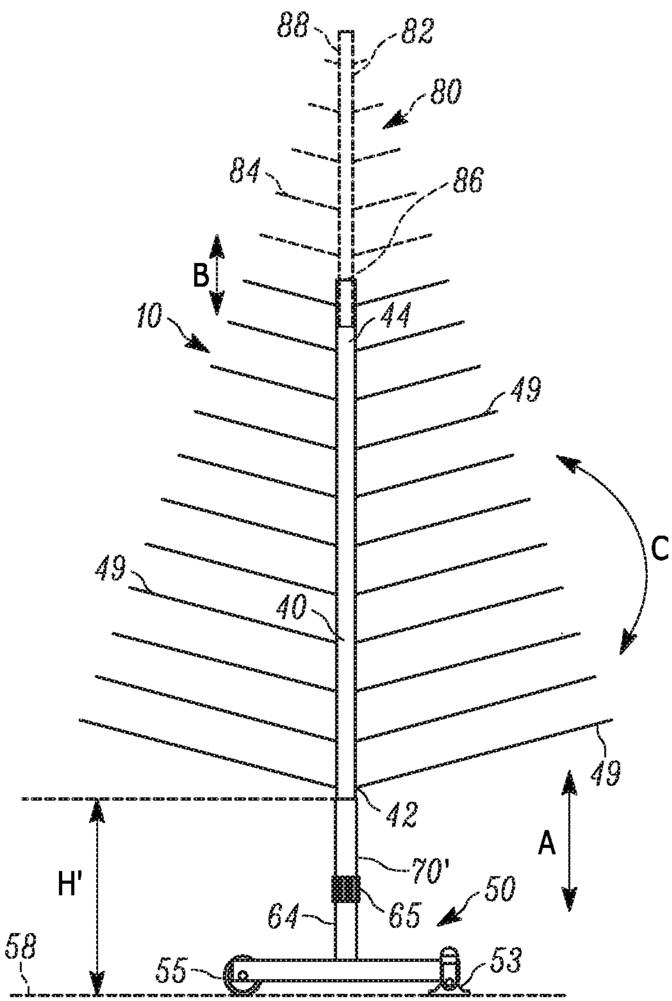



FIG. 9

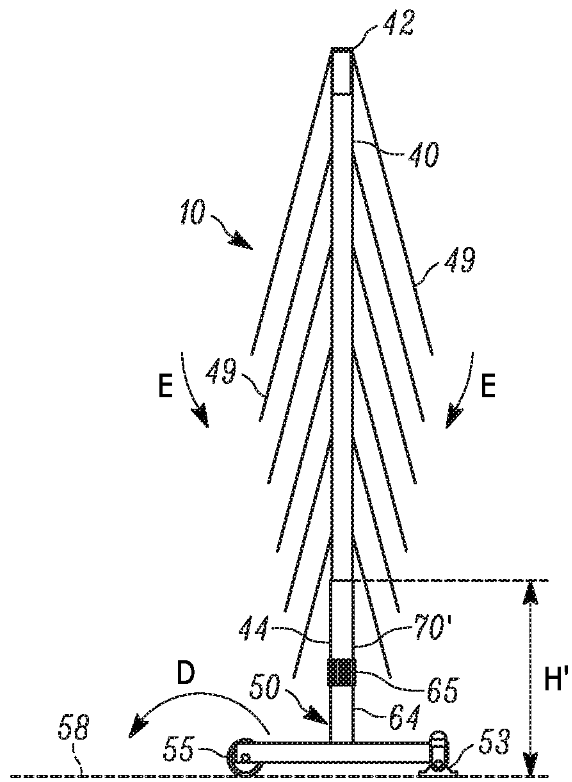



FIG. 10

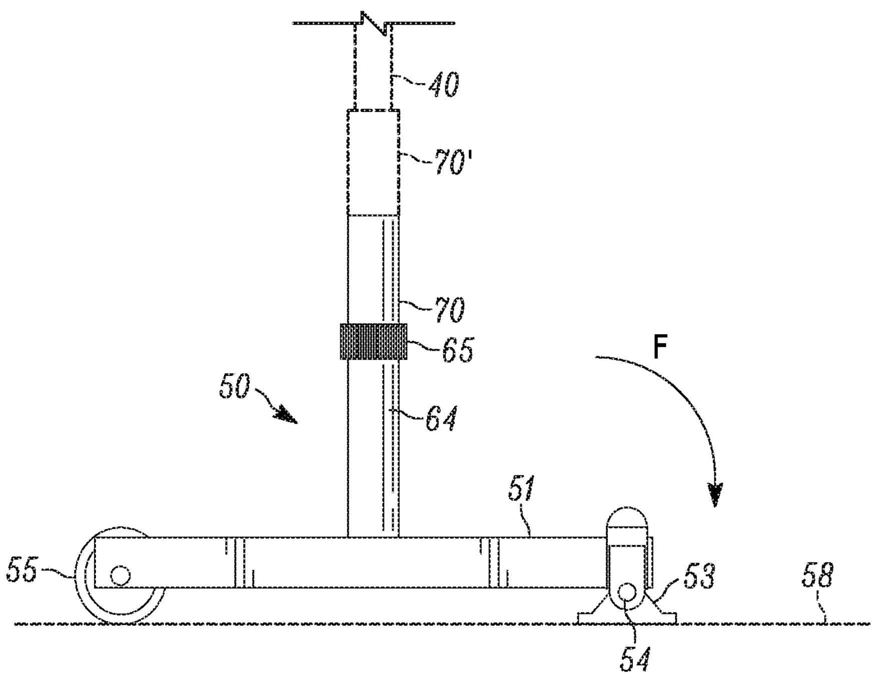



FIG. 11A

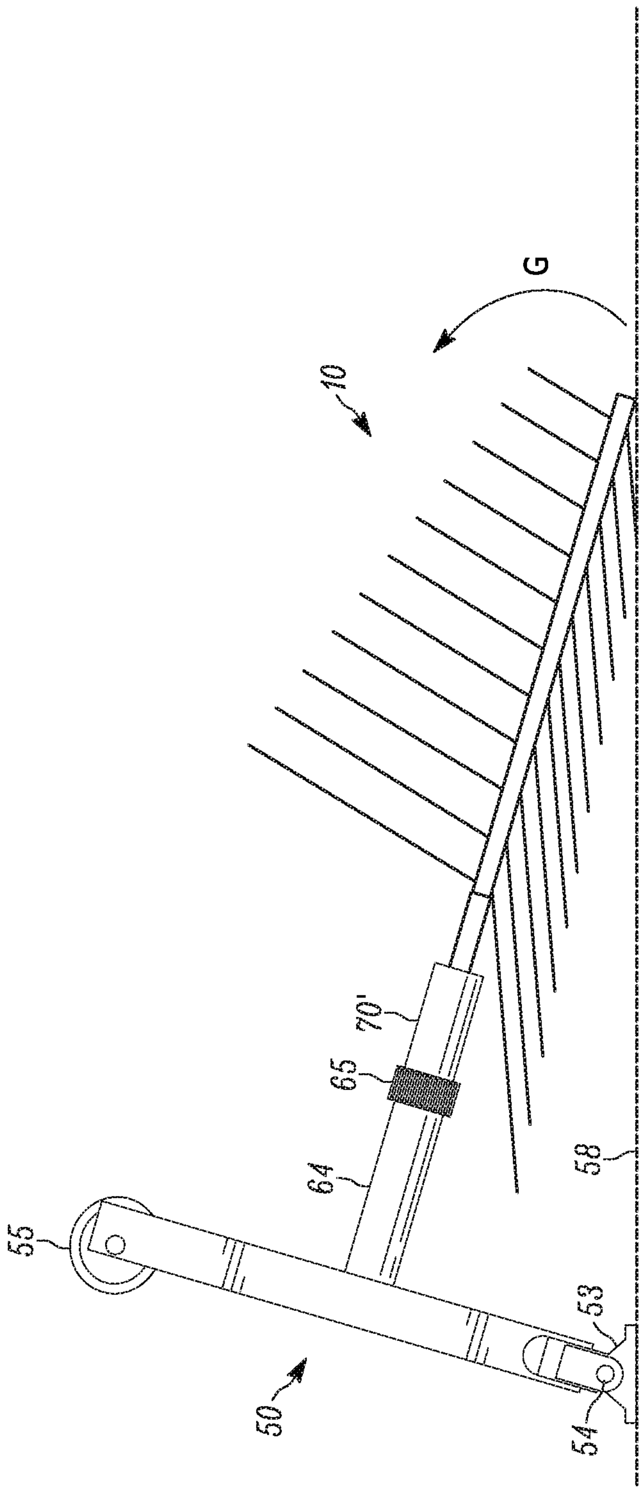



FIG. 11B

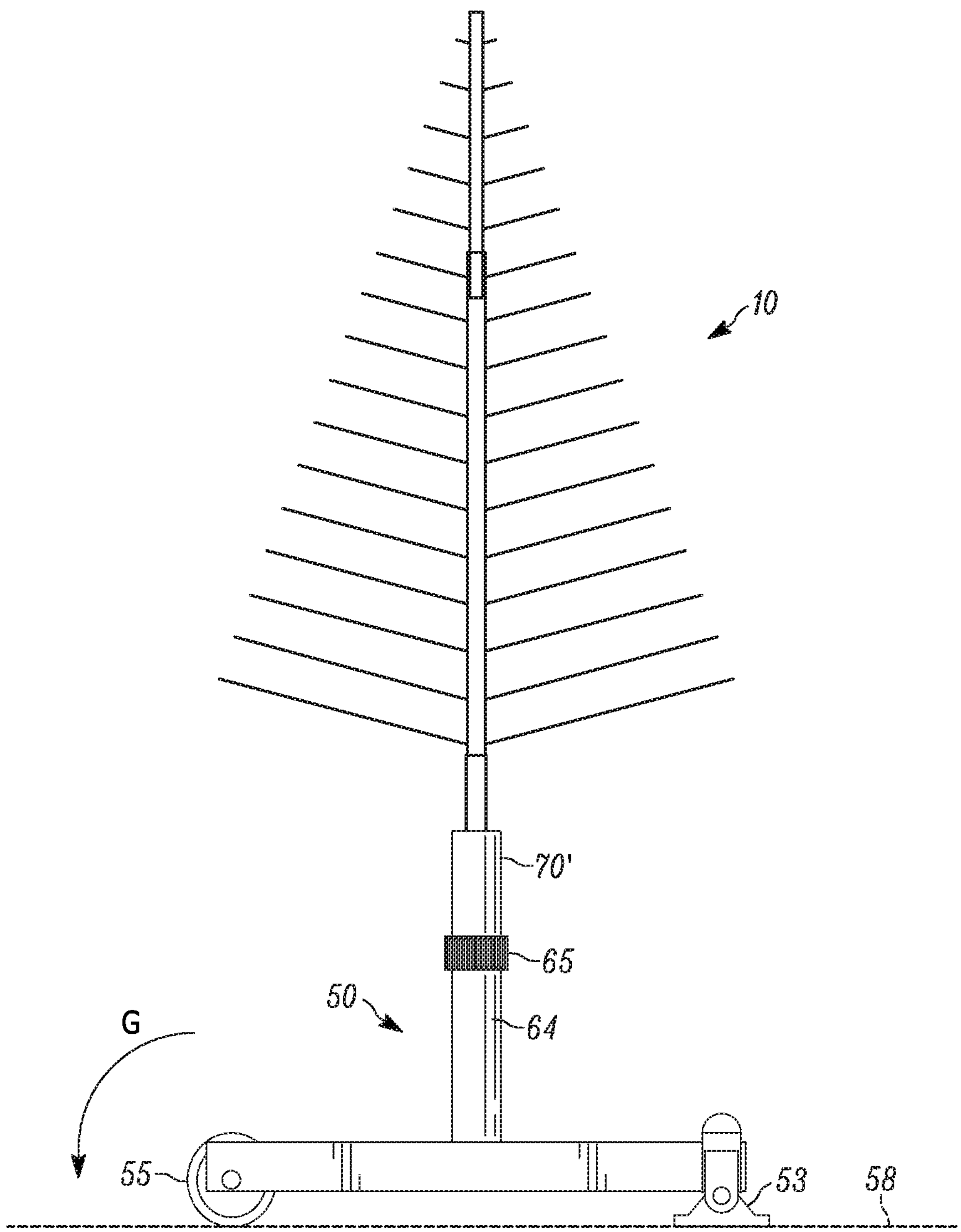



FIG. 11C

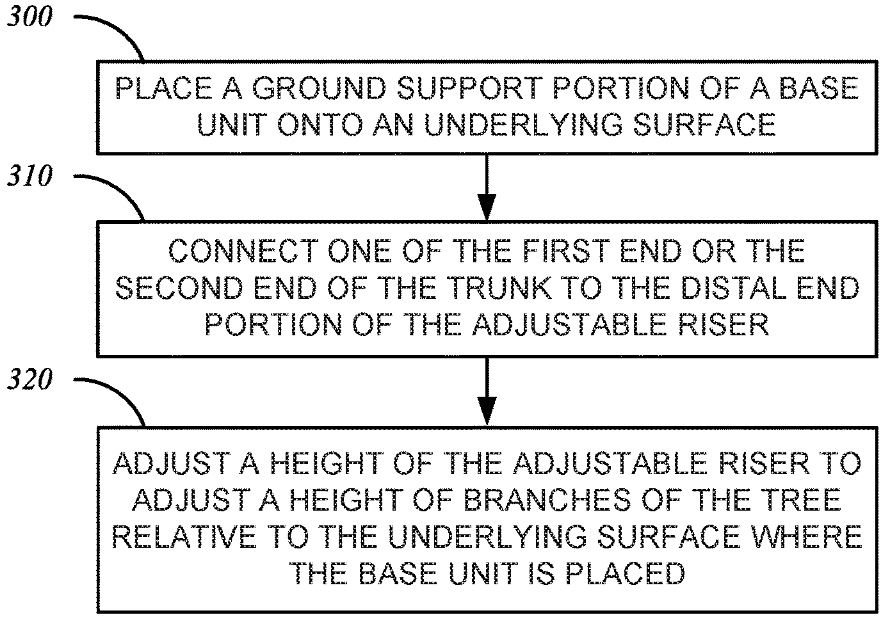

300
PLACE A GROUND SUPPORT PORTION OF A BASE UNIT ONTO AN UNDERLYING SURFACE
310
CONNECT ONE OF THE FIRST END OR THE SECOND END OF THE TRUNK TO THE DISTAL END PORTION OF THE ADJUSTABLE RISER
320
ADJUST A HEIGHT OF THE ADJUSTABLE RISER TO ADJUST A HEIGHT OF BRANCHES OF THE TREE RELATIVE TO THE UNDERLYING SURFACE WHERE THE BASE UNIT IS PLACED

FIG. 12

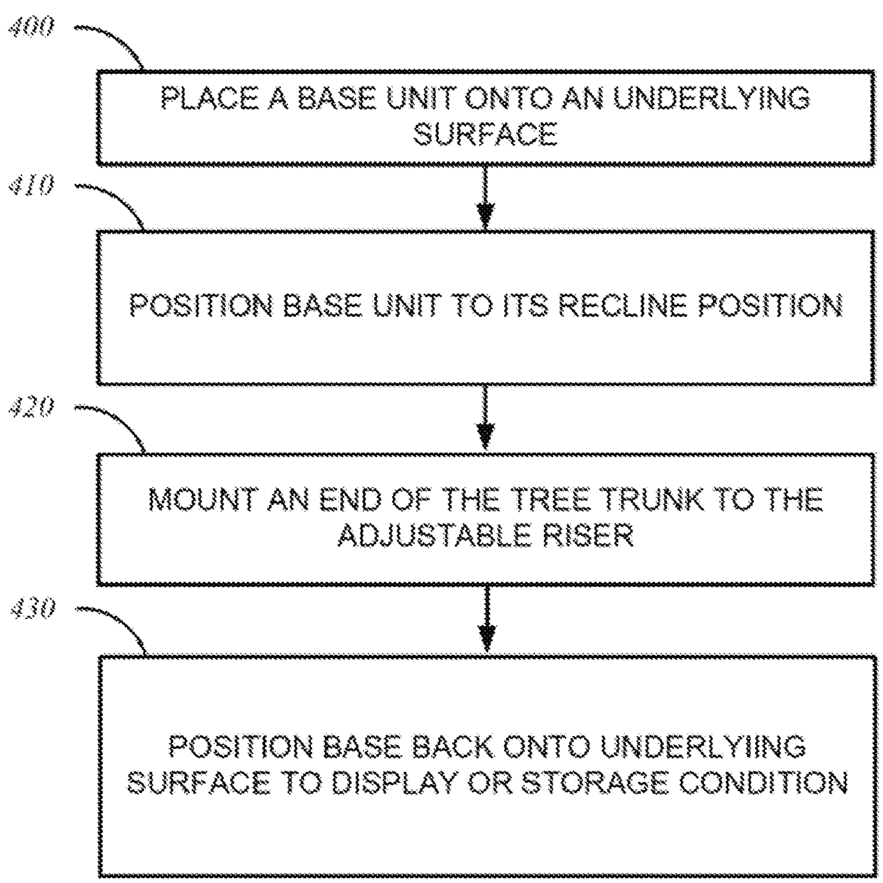

400
PLACE A BASE UNIT ONTO AN UNDERLYING SURFACE
410
POSITION BASE UNIT TO ITS RECLINE POSITION
420
MOUNT AN END OF THE TREE TRUNK TO THE ADJUSTABLE RISER
430
POSITION BASE BACK ONTO UNDERLYIING SURFACE TO DISPLAY OR STORAGE CONDITION

FIG. 13

# ORNAMENTAL TREE HAVING AN ADJUSTABLE BASE

## CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is a continuation of U.S. application Ser. No. 14/994,714, filed Jan. 13, 2016, and entitled ADJUSTABLE BASE FOR AN ORNAMENTAL TREE, which is incorporated herein by reference in its entirety.

## TECHNICAL FIELD

[0002] This disclosure relates to an adjustable base for an ornamental tree and to methods of using the tree and the base.

## BACKGROUND

[0003] When decorating a space, such as during holidays, it is often desirable to include trees as part of such decorations. To allow such decorations to last substantially indefinitely without maintenance and allow for repeated cycles of storage and deployment of such decorations. In some circumstances, it is desirable to provide artificial trees rather than live trees. Examples of such decorations are Christmas trees typically deployed during holiday seasons occurring near the end or beginning of each calendar year.

## SUMMARY

[0004] This disclosure relates to an adjustable base for an ornamental tree and to a method for using an adjustable base with an ornamental tree.

[0005] In one example, an apparatus includes a ground support portion adapted to rest upon an underlying surface. An adjustable riser is attached to and extends from the ground support along a longitudinal axis to terminate in a distal end portion. The distal end portion of the riser is adapted to support a trunk of an ornamental tree, the adjustable riser comprising an adjustment component adapted to adjust a height of the distal end portion of the riser along the longitudinal axis with respect to the ground support portion between a first height and a second height.

[0006] In another example, a method includes placing a ground support portion of a base unit onto an underlying surface. The base unit includes an adjustable riser attached to and extending from the ground support portion along a longitudinal axis thereof to terminate in a distal end portion. The distal end portion of the riser is adapted to support both ends of an elongated trunk of a tree having spaced apart first and second ends. The method also includes mounting one of the first end or the second end of the trunk to the distal end portion of the adjustable riser and adjusting a height of the adjustable riser to adjust a height of the tree relative to the underlying surface where the base unit is placed.

[0007] In yet another example, a collapsible ornamental tree includes a base unit and a trunk. The base unit includes a ground support adapted to rest upon an underlying surface, wherein a given portion of the ground support includes at least two wheels thereon, and another portion of the ground support does not include any wheels thereon. An adjustable riser extends outwardly from the ground support along a longitudinal axis to terminate in a distal end portion, the longitudinal axis being transverse to a plane extending through the ground support. A trunk of elongate form extends between a first end and a second end. Both the first end and the second end are adapted to be supported separately by the base unit when attached to the distal end portion of the adjustable riser. A plurality of limbs are pivotably attached to the trunk and moveable between a display condition and a storage condition. When the first end of the trunk is connected to the distal end portion of the adjustable riser, the branches are in the display condition as to be closer to horizontal than the storage condition. When the second end of the trunk is connected to the distal end portion of the adjustable riser, the branches are in the storage condition as to be closer to vertical than the display condition.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. **1** illustrates an example of a perspective view of an adjustable base for an ornamental tree, the base configured for supporting a trunk of the ornamental tree thereon in both a deployed orientation and a collapsed orientation.

[0009] FIG. **2** illustrates another example of a perspective view of an adjustable for an ornamental tree.

[0010] FIG. **3** illustrates yet another example of a perspective view of an adjustable for an ornamental tree.

[0011] FIG. **4** illustrates an example connector for an adjustable riser of the base.

[0012] FIG. **5** illustrates another example connector for an adjustable riser of the base.

[0013] FIG. **6** illustrates yet another example connector for an adjustable riser of the base.

[0014] FIG. **7** illustrates yet another example connector for an adjustable riser of the base.

[0015] FIG. **8** illustrates a front view of the base and ornamental tree shown in the deployed configuration, with the adjustable riser at a first height, and with a treetop portion shown in broken lines.

[0016] FIG. **9** illustrates a front view of the base and ornamental tree shown in the deployed configuration, with the adjustable riser at a second height, and with a treetop portion shown in broken lines.

[0017] FIG. **10** illustrates an alternative front view illustrating the storage condition for the ornamental tree.

[0018] FIG. **11**A illustrates an example adjustable base on an underlying surface.

[0019] FIG. **11**B illustrates an example adjustable base in preparation for deployment.

[0020] FIG. **11**C illustrates an example adjustable base in a deployed configuration.

[0021] FIG. **12** is a flow diagram depicting a method for implementing the adjustable base to present the tree in a deployed configuration.

[0022] FIG. **13** is a flow diagram depicting another method for implementing the adjustable base to present the tree in a deployed configuration.

## DETAILED DESCRIPTION

[0023] This disclosure relates to an adjustable base for an ornamental tree and to methods of using the tree and the base. The base provides ground support for the ornamental tree, and can be configured to both store the ornamental tree in a collapsed arrangement (also referred to as a storage configuration), as well as facilitate deployment of the ornamental tree for display. The base includes a riser having a distal end portion that is adapted to support a main trunk of the ornamental tree. The riser further is configured to have an adjustable axial length that can be adapted to adjust the height of the tree with respect to an underlying surface where there base rests. The adjustment of the riser's length can be performed via a pneumatic actuator, an electrical actuator (e.g., motor) or other mechanism, such as disclosed herein.

**[0024]** In some examples, the distal end of the riser can also be configured for dual uses, namely, to attach and support a lower end of the trunk to support the tree in the display configuration and to attach to and support an upper end (axially opposing the lower end) of the main trunk to support the tree in the storage configuration. This dual use of the base thus enables the base to support the tree in the storage configuration or the display configuration depending on which end of the trunk is attached to the riser.

**[0025]** Additionally, since the height of the riser is adjustable, in either the storage or display configuration, the distance between the group of tree limbs that are closest to the base and the underlying surface can be varied to space such limbs at a desired distance from the underlying surface. In the storage configuration, for example, the distance can be set by the user to provide sufficient space to accommodate limbs that have been collapsed along the trunk. In the display configuration, for example, the distance can be set by the user to make the tree taller or shorter for various purposes, such as to accommodate large presents under the tree or based on ceiling height.

**[0026]** As a further example, the base can be plugged into an exterior power source and serve as a central point of connection. For example, the base can include a receptacle for plugging in a cord for lighting or other ornamental fixtures located on the tree. As another example, a post can be attached to the base fitted with electrical connectors configured to mate with the trunk and/or limbs, through which electrical power can be distributed. In some examples, the height of the riser can be adjusted by an electrical actuator (e.g., motor) that is supplied power from the power source that also supplies electricity to the tree lights. In some examples, a motor is configured to tilt the base from a substantially vertical orientation to a substantially horizontal orientation to facilitate storage or deployment of the tree.

**[0027]** Referring to the drawings, wherein like reference numerals represent like parts throughout the various drawing figures, FIG. **1** depicts an example of a base **50** that is adapted to support an ornamental tree, such as tree **10** of FIGS. **8** and **9**. As disclosed herein, the ornamental tree **10** can be supported on the same base in a deployed condition or in a storage condition. The limbs can be moveable to facilitate changing between display and storage conditions. For instance, when the tree **10** is to be stored, the limbs can be moved toward a top end of the main trunk in the storage condition (see, e.g., FIG. **10**) to be have an orientation that are closer to vertical than in the display condition (e.g., FIG. **8**). Thus, in the storage condition the tree has a lesser width compared to the deployed condition to accommodate being stored in a smaller space (e.g., within a storage bag or other container). The limbs can be connected to the main trunk via hinged or other moveable connections adapted to support the limbs as to extend outwardly from the trunk in a generally horizontal orientation when the trunk is positioned vertically upright position in its display condition. Such pivoting allows for rotation of the limbs from the generally horizontal orientation (e.g., substantially transverse to trunk slightly angled upwardly) and a collapsed configuration (storage condition) where the limbs are oriented closer to the trunk than to perpendicular.

**[0028]** The base **50** functions as a stand for supporting tree **10** in both its storage condition and display condition. The base **50** includes a body portion **46** to house adjustment and attachment features for operation of the adjustable base **50**. As shown in the example of FIG. **1**, body portion **46** includes a post **64** that is fixed to the base **50** and extends substantially vertically when the base is positioned on an underlying surface (e.g., the ground). An adjustable riser **70** extends axially from a proximal end of the post **64** to terminate at a distal end portion **48** of the riser. The distal end portion **48** is adapted to support a trunk of tree **10**. As disclosed herein, for example, the distal end of the riser **70** can support one of the ends of the main trunk for the tree **10** when the tree is in the deployed configuration (see, e.g., FIGS. **8** and **9**) and supports another end of the main trunk when in its collapsed configuration (see, e.g., FIG. **10**). For example, the ends of the main trunk can fit within a hollow portion of the riser or the riser may fit within a hollow interior of the trunk.

**[0029]** In the example of FIG. **1**, the base **50** has a series of elements joined together to form a main portion of the base **50**. As one example, the post **64** can include a hollow core that has an opening at its distal end that can receive one of the ends of the main trunk of the tree therein for support of the tree **10**, such as may be in either a deployed configuration (FIGS. **8** and **9**) or in a collapsed configuration (FIG. **10**). In the example, the post **64** is mounted to a central arm **51**, with two outer arms **52**, **57** on opposite ends of the central arm **51**, resulting in a substantially "H" shaped support. While the example base **50** demonstrated in FIG. **50** is generally H-shaped, other shapes and arrangements of elements can be utilized to provide a base, such as star-shaped, X-shaped or the like. Additionally, the post **64** can be positioned near a central part of the base, such as disclosed herein or, in other examples, the post **64** could located closer to one of the edges.

**[0030]** As a further example, the base can include wheels **55** such as provided near opposite ends of an outer arm **57** of the base **50**. For instance, the wheels **55** can rotate about an axle **56** to facilitate movement of the base **50** across an underlying surface. The wheels **55** can be further used to move the tree **10** while mounted in the base **50** in either the collapsed (storage) configuration or the deployed configuration.

**[0031]** The base **50** can also include one or more pivoting feet **53** attached to outer arm **52** by use of a pintle **54**. The feet **53** help prevent the base **50** from slipping when on a flat surface such as a floor. Further, when the base **50** is tilted such that the opposite outer arm **57** is raised from the floor, the feet **53** maintain contact as to provide support and stability for the base **50**. For instance, the feet can support the base as it rotates about an axis extending through the pintles **54** to reposition the base **50** when changing the tree between its storage and display conditions (e.g., FIGS. **11**A, **11**B and **11**C).

**[0032]** In some examples, each of the feet **53** can be configured to provide more than two degrees of freedom (e.g., more than one angle of rotation), as to accommodate uneven surfaces more completely with such a pivoting feature. In the example of FIG. **1**, the foot **53** has a somewhat triangular configuration when viewed from the side. For instance, an underlying tread contact portion of each foot **53** is relatively large to provide a fixed contact surface area to support the base **50** at ends of the outer arms opposite the wheels **55**. Locks can be provided on the wheels **55** so that the rotation of the wheels **55** can be selectively enabled and disabled, such as when it is desired that the base **50** be particularly stable. Utilization of the foot **53** can also resist sliding and horizontal movement of the base **50** in a horizontal direction.

**[0033]** As a further example, the base **50** can remain in a fixed position when both feet **53** and wheels **55** contact the ground, and can be readily moved if the base **50** is tilted slightly (typically with other portions of the tree **10** supported upon the base **50**) and then the entire tree **10** and base **50** can be rolled upon the wheels **55** (see FIGS. **11A-11C**). Wheels **55** are sized sufficiently large and positioned upon the axles **56** at appropriate locations so that portions of the wheels **55** extend below lowermost portions of the outer arms **52**. In this way, the wheels **55** are in contact with an underlying support surface, when the base **50** is in an upright orientation (see for instance FIG. **8**). The contact portion of each foot **53** can include a pliant surface material to resist sliding on the surface (e.g., rubber tread or the like). The tree **10** is thus stable when erected and oriented vertically, but can be tilted onto the wheels **55** and then readily rolled across the underlying surface from one position to another. Such rolling movement can occur when the tree **10** is in a deployed configuration (FIGS. **8** and **9**) or in a collapsed configuration (FIG. **10**).

**[0034]** The adjustable riser **70** of the base **50** can be used to adjust the height of the tree **10**. For example, the distal end portion **48** of the riser **70** can be set to a selected height (e.g., six inches to about 20 inches) demonstrated at **48'** and **70'** above the underlying surface. The height of the riser can be adjusted when the tree is mounted to the riser, either in the display condition or storage condition, or when no tree is mounted to the riser. Adjusting the height of the riser **70** allows for a user to decorate the tree **10** when in its display condition. For example, the riser can be set to a lower height to help users reach and decorate top parts of the tree and then be adjusted to an increased height for subsequent display. Additionally, the height of the riser **70** can be set to define the height of the tree for accommodating different environments (e.g., a different ceiling height in multiple rooms where the ornamental tree may be deployed).

**[0035]** The riser **70** can include one or more features configured to adjust the height of the distal end portion **48** of the riser **70** along a longitudinal axis **25** extending through the riser. The longitudinal axis **25** extends transverse to a plane extending through the ground support of the base **50**, which plane is generally parallel to the underlying surface **58** when the wheels **55** and feet **53** rest on the surface. The desired height of the riser **70** can be set along the axis **25** by a locking mechanism to ensure the riser **70** does not collapse into the post **64** when the tree **10** is mounted thereon. As an example, the riser **70** includes one or more tubes of a fixed length and a diameter dimensioned to fit within an interior hollow core of the main support post **64**. Once inserted within the hollow core, the height of the riser **70** is adjustable with respect to the post **64** and can be fixed by the locking mechanism.

**[0036]** In the example of FIG. **1**, the locking mechanism includes a tension ring **65** that can be rotated about the central longitudinal axis **25** of the post **64** in one direction to increase tension between the post **64** and the riser **70** and thereby fix the height of the riser with respect to the post **64**. The tension ring **65** can also be rotated in the opposite direction to decrease tension between the post **64** and riser **70** to allow the user to adjust the height of the riser. Thus, as shown, riser **70** shows the distal end portion **48** of the riser at a first height from the ground, and riser **70'** and its distal end **48'**, as demonstrated by dashed lines, are at a second, increased height from the ground. In other examples, the riser **70** can be a telescoping pole that can include two or more sections that may be extended by one or more associated mechanical components and locked at a desired height.

**[0037]** As another example, FIG. **2** demonstrates the base **50** including a pneumatic mechanism **73** to adjust the height of the riser **70**. Pneumatic devices such as pneumatic cylinders, also known as air cylinders, are mechanical devices which use the power of compressed gas to produce a force in a reciprocating linear motion. Like hydraulic cylinders, a piston is forced to move in the desired direction. The piston can be a disc or cylinder, and the piston rod transfers the force it develops to the object to be moved. For example, the piston is attached to an actuatable member **59** that terminates in a handle or pedal, which can be actuated to adjust the height of the riser **70**. In some examples, the activation of the arm (e.g., a pumping action by pressing the pedal **59** in a downward fashion) can automatically build up compressed gas to incrementally increasing the height of the tree in response to the by actuation of the handle or pedal **59**. The piston can thereby incrementally move the piston upward by actuating the pedal **59** to raise the pneumatic mechanism **73**, and thus the riser (and tree) attached thereto, to a desired height. In order to lower the height of the riser **70**, a prolonged downward force applied to pedal **59** releases the buildup of compressed gas, and the pneumatic mechanism **73** can be urged to a lower position. In other examples, the activation of the handle or pedal **59** can enable a user to apply force axially along the riser to either increase or decrease the height or a riser, similar to a pneumatic chair.

**[0038]** Example pneumatic mechanisms **73** are single-acting, double-acting, and telescoping cylinders. A single-acting cylinders (SAC) uses the pressure imparted by compressed air to create a driving force in one direction (in the present case, outward from the riser), and a spring to return to the piston to the riser. A double-acting cylinder (DAC) uses the force of air to move in both extend and retract strokes. They have two ports to allow air in, one for outstroke and one for instroke. Stroke length for this design is not limited, however, the piston rod is more vulnerable to buckling and bending. Telescoping cylinders can be either single or double-acting. The telescoping cylinder incorporates a piston rod nested within a series of hollow stages of increasing diameter. Upon actuation, the piston rod and each succeeding stage "telescopes" out as a segmented piston. Thus, a telescoping cylinder allows for a longer stroke than would be achieved with a single-stage cylinder of the same collapsed (i.e., retracted) length. The type of pneumatic mechanisms **73** thus may be chose according to the desired range of heights for the adjustable base **50**.

**[0039]** In another example, the height of the riser **70** can be adjusted by a hand powered lever and crank attached to the base **50**. The lever and crank provides for communicating motion or for converting reciprocating motion into rotary motion. The crank can consist of a lever attached at right angles to a rotating shaft by which reciprocating motion is imparted to or received from the shaft. The crank is used to convert circular motion into reciprocating motion, or vice versa. The lever may be a bent portion of the shaft, or a separate arm or disk attached to it. Attached to the end of the crank by a pivot is a connecting rod. The end of the rod attached to the crank moves in a circular motion that can be turned manually about an axle. In this case, a user applies rotational force to the crank. In operation, rotating the crank turns one or more gears that are attached to a mechanism attached to the riser. This motion results in a change in the height of the riser, such that rotating the crank in a first direction will increase the height of the riser, and rotating the crank in a second direction will lower the height of the riser. When the lever is not in motion, the height of the tree can be remain fixed. For example, the lever can lock in place once the desired height is achieved.

**[0040]** As yet another example, FIG. **3** depicts the riser **70** connected to an electric motor configured to adjust the height of the riser **70**. The electric motor can be contained within a motor housing **60** and mechanically coupled to adjust the height of the riser **70**. The motor can be activated to adjust the height of the riser **70** up or down in response to actuating a switching mechanism **61**, which controls electrical energy supplied to the motor. The switching mechanism **61** can be located on the motor housing **60** itself (as shown), embedded in a cord **63** that is connected to the motor, located in the housing **60** and activated by wireless communication through a remote control **31**, and/or other switching type. A user can provide input to the switching mechanism **61** to actuate the motor and thereby generate mechanical force to raise or lower the height of the riser **70**.

**[0041]** In some examples, the tree **10** can be permanently wired with lights. A plug **62** can be provided which is attachable to a power receptacle, such as by use of cord **63**. Another cord can extend from the plug **62** to the trunk **40**. In other examples, the electrical connection to the lights can be provided internally within the riser **70** and trunk **40** and extend to the limbs. As these cords pass the limbs **49**, the cords can be routed out the limbs **49** and terminate at various different locations with lights or other fixtures.

**[0042]** In another example, the cord can be wrapped around an exterior of the trunk **40**. The cord can be camouflaged to have a color similar to that of the trunk **40** and limbs **49** (i.e., green) to help hide the cords. In one example, the interior of each of the post **64** and riser **70** can include electrical contacts. A corresponding set of electrical contacts can be provided on the trunk **40** to mate with the electrical contacts of the post and/or riser, thereby providing electrical current to the lights and fixtures located on the tree **10**. In other examples, the electrical wiring can be disposed, at least partially within the trunks and/or branches of the tree.

**[0043]** Other controls can be provided on the motor housing **60** and/or the remote control **31**. For example, controls can actuate another motor to rotate the tree while on display. Lights associated with the tree can be turned on and off, as well as additional features such as blinking, changing colors, and changing operation in response to environmental stimuli (e.g., transitioning color as the temperature changes, blinking in rhythm with a musical score, etc.). In another example, the motor can tilt the base **50** to automatically change the orientation of the riser **70** in order to facilitate transition from a deployed condition to a storage condition or vise versa, in accordance with the systems and methods described herein.

**[0044]** Additionally, the riser **70** can be configured with one or more locking mechanisms to secure the riser **70** at a fixed axial position with respect to the post **64**. In one example illustrated in FIG. **4**, the riser **70** can include a plurality of holes **74** extending through the riser **70** transverse to the longitudinal riser axis **25**. The holes **74** align with one or more holes **74** that extend through the post **64**. A push knob or pin **66** can be inserted through the hole **74** of the post **64** and through the hole **74** of the riser **70**, thereby fixing the height of the adjustable riser **70**. In another example illustrated in FIG. **5**, a spring-biased pin **72** can be mounted on one of the post **64** or riser **70**, which may provide a pair of self-biased pins that extend through a pair of diametrically opposed holes **74** in the post **64**. In the example of FIG. **5**, insertion of the riser **70** into the post **64** and alignment of the hole **74** with the biased pin **72** can result in the biased pin **72** extending through the hole **74** of the riser **70**, thereby fixing the height of the riser **70**. To adjust the height of the riser **70**, the biased pin **72** can be forced to the interior of the riser **70**, such that the biased pin **72** is no longer extending through a wall of the riser **70**. Releasing the biased pin **72** at another hole **74** can thereby enable the user to axially adjust the riser **70** to a desired height, such as shown at riser **70'**.

**[0045]** In the example illustrated in FIG. **6** (e.g., similar to the configuration shown in FIG. **1**), the tension ring **65** can be attached to the distal end of post **64**. The riser **70** can be inserted into post **64** and tension ring **65** can be mounted at the opening of post **64**. Turning the tension ring **65** along a first rotational direction will relieve tension between the post **64** and the inserted riser **70**, which allows the height of riser **70** to be adjusted from a first position to the height of riser **70'** at a second position increase the diameter of the post **64**. Once riser **70'** is in the second position, the tension ring **65** can be turned in a second direction, and creates tension (e.g., friction fit) between the post **64** and the riser **70'**. Accordingly, the riser **70** can be set at a desired height with minimal effort. In another example, an additional tension ring and another riser can be attached to the distal end of riser **70**. The additional tension ring can be adjusted in a manner similar to tension ring **65** in order to adjust the height of the other riser. With multiple telescoping risers, a greater height can be achieved without significantly increasing the length of the post **64**.

**[0046]** In yet another example illustrated in FIG. **7**, riser **70** includes one or more vertically oriented channels **67** extending longitudinally through the riser to enable height adjustment between two or more positions. Channel **67** cooperates with a pin or other protuberance (not shown) extending radially inwardly from an interior sidewall surface of post **64**. The pin serves as a guide by which channel **67** can guide riser **70** to a variable height. Vertical channel **67** is joined by one or more horizontal channels (e.g., extending circumferentially an arc length about the riser) to hold the riser **70** at one or more heights. For example, when the guide pin is at a top most position in channel **67**, a top channel **68** can allow the riser **70** to be turned (e.g., a quarter turn, counterclockwise) to hold riser at a lower height and thereby ensure the riser **70** does not rise unintentionally. Further, when the guide pin is at the bottom most position in channel **67**, the riser **70**, in a position represented by riser **70'**, can be turned allowing a bottom channel **69** to slide with the guide pin. Thus, the location of the guide pin in the horizontal channel **69** can help hold the riser at its lower height and thereby ensure that the riser **70** does not fall unintentionally. Although only a pair of horizontal channels are demonstrated in the example of FIG. **7**, the vertical channel can include more than two horizontal channels to fix the height of the riser **70** at multiple levels (e.g., two horizontal channels for two fixed heights; three horizontal channels for three fixed heights, etc.). Even as the horizontal channels **68** and **69** are shown extending in a single direction from channel **67**, one or more horizontal channels may extend in an opposite direction, or extend in two directions from channel **67**. Additionally, a securing member **75** (e.g., a screw, bolt, pin, etc.) can be used to fix the position of the riser **70** with respect to the post **64**. For example, a threaded fastener corresponding to securing member **75** can be threaded into a mating threaded aperture (e.g., tightening a screw) and engage the riser to help lock the riser at a desired height. This can ensure that handling the tree and/or base will not cause an inadvertent change in the height of the riser **70**.

**[0047]** As mentioned, the adjustable riser **70** can have a hollow core to receive a trunk of the tree **10**. Alternatively, the riser **70** and/or the post **64** can have a solid core, such that a hollow core of the trunk of the tree **10** can fit over the solid core. The main trunk **40**, as shown in FIGS. **8** and **9**, is elongate in form extending axially from a first end **42** to a second end **44**. The ends **42**, **44** are typically circular in cross-sectional form and have a size slightly smaller than a size of a hollow core of post **64**. The cross-section of the post **64** and/or the ends **42**, **44** can also take a geometric shape other than circular, for example square, polygonal, triangular, etc. The ends **42**, **44** can also be sized to fit the post **64** and/or adjustable riser **70** as shown in FIGS. **1-7**. In this way, both the first end **42** and second end **44** can be attached to the riser **70** of the base **50**. In an example where the post and/or riser **70** include a solid protuberance, the ends **42**, **44** can be sized slightly larger than the post **64** and/or riser **70**, to fit over the solid portion. In some examples, one of the ends **42** or **44** can fit around the hollow core of the rise and the other **44** or **42** can be configured to fit within the hollow core.

**[0048]** Limbs **49** can be pivotably attached to the main trunk **40** between the first and second ends **42** and **44**. For example, the limbs **49** pivot in such a manner that they extend approximately horizontally when the main trunk is oriented with the second end **44** positioned substantially vertically above the first end **42** (FIGS. **8** and **9**). The limbs **49** extend closer to vertically when the first end **42** of the main trunk **40** is positioned over the second end **44** of the main trunk **40** (FIG. **10**). Branches can extend from the limbs **49** and lights and other fixtures can be provided on the branches with wiring for the lights supported by the main trunk **40**, for example, a cord or electrical contacts along the main trunk **40**.

**[0049]** Branches of the tree **10** can radiate from the limbs **49** in a pattern which mimics at least some natural tree or otherwise has a desirable form. Needles can also extend from the branches and limbs. The needles can be actual natural needles such as pine needles, but can also be synthetic structures, such as attached by wire or adhesive to the branches. It is also conceivable that needles can be directly attached to the limbs. The branches can have a generally planar form such as might exist on a noble fir, or might have a more bushy cylindrical form which might be provided on many different types of pines. Needles can also be long or short depending on the design characteristics desired for the tree **10**.

**[0050]** The tree can also include a treetop **80**, which can include a treetop trunk portion that is removably attached to the second end **44** of the main trunk **40** when the tree **10** is deployed in the display condition (FIGS. **8** and **9**). In some example embodiments, depending on the height of the tree **10**, one or more intermediate tree portions can be axially interposed between the main trunk **40** and the tree top **80**. In the examples of FIGS. **8** and **9**, the treetop can attach to the first end **42** of the main trunk **40** when the tree **10** has been inverted and is in its storage condition (FIG. **10**). A trunk locking mechanism can also be provided to hold an end of the trunk within the adjustable riser **70**. The locking mechanism can include elements similar to the connectors described with respect to FIGS. **4-7**, or alternative or additional mechanisms suitable to secure the trunk **40** to the riser **70**.

**[0051]** With reference to FIGS. **8-10**, the adjustability of the tree **10** will be described. In this example, the base **50** includes outer arms with wheels **55** at first ends thereof and with pivoting feet at second ends thereof opposite the first ends. With base **50**, the tree **10** can be tilted about arrow "D" (FIG. **10**) up onto the wheels **55** and then rolled about, in either the deployed or the collapsed condition.

**[0052]** As a further example, the main trunk **40** defines a portion of the collapsible ornamental tree **10** which supports limbs **49** and other decorative features of the tree **10**. Thus, when the main trunk **40** is inverted (in the direction of arrow "C" of FIGS. **8** and **9**), such that the first end **42** is positioned above the second end **44**, the branches **49** collapse vertically to provide the storage condition of the tree **10**, such as shown in FIG. **10**. The main trunk **40** is elongate in form and rigid. The main trunk **40** can have various different heights, but it is desirable that the main trunk **40** maintain sufficiently low weight that it can be carried by an individual when grasped by the user's hand and held away from the body far enough to be inverted.

**[0053]** As one example, in the deployed condition (e.g., FIGS. **8** and **9**) the first end **42** of the main trunk **40** is fit within the hollow core of the post **64**. The height of the riser **70** can be adjusted in the direction represented by arrow "A," such as according to any of the approaches disclosed herein. For example, the adjustable riser **70** is shown in FIG. **8** at a first height, indicated as H, whereas adjustable riser **70'** is shown in FIG. **9**, raising the tree **10** to a different height indicated as H'. To convert from the deployed configuration (FIG. **8** or **9**) to the storage configuration (FIG. **10**), a user removes the main trunk **40** from the hollow core **29** of the post **64** of the base **50** and inverts the main trunk so that the first end **42** and second end **44** are swapped.

**[0054]** By way of further example, FIGS. **11A-11C** illustrate examples of using the adjustable base **50** to convert between display and storage conditions for tree **10**. In the example of FIG. **11A**, the wheels **55** and feet **53** of the base **50** are resting on the underlying surface **58**. The feet **53** can remain fixed on the underlying surface while the opposite portion **57** of the base **50** is rotated about the axis extending through the pintles **54** in the direction demonstrated by arrow "F." This rotation can be performed while the tree is attached to the post **64**, and the rotation can continue until the limbs of the tree **10** contact the ground (e.g., rotating an angle of about **90** degrees), such as shown in FIG. **11**B. For instance, the body or trunk of the tree **10** can be gripped by the user to rotate the tree accordingly.

**[0055]** Additionally, by employing the tension ring **65** or other means disclosed herein for adjusting the riser (see, e.g., FIGS. **2-5**), the riser **70** can be raised or lowered to a desired height **70'**. The height adjustment can be performed while the base fully rests on the underlying surface (e.g., as in FIG. **11**A) or, in other examples, after the base has been rotated to the orientation shown in FIG. **11**B. Alternatively or additionally, the height of the riser **70** can be adjusted while the tree **10** is attached to the base **50** or when no tree is attached to the base.

**[0056]** As shown in FIG. **11**B, the base **50** can be oriented such that the riser **70'** is substantially parallel with the underlying surface **58**, corresponding to a reclined position. The trunk of tree **10** can be attached to the riser **70'** and extend from the riser in the direction of the central axis **25**. By orienting the base **50** on feet **53** with the riser **70'** oriented generally horizontally in its reclined position, a user need not lift the full weight of the tree **10** over the base to attach it to the riser **70'**. Additionally, while the tree **10** is in its reclined position, a user can also attach the treetop **80** as well as any intermediate tree portions to the main trunk **40**. Thus, by positioning the base in the reclined position (FIG. **11**B) attachment of the tree **10** to the base **50** is facilitated.

**[0057]** For example, from the reclined position, a user can disconnect the trunk from the base **50** and reattach an opposite end of the trunk to switch between storage and display configurations. That is, while the base **50** is in its reclined position (e.g., as in FIG. **11**B), a user can easily invert the main trunk and attach the second end **44** to switch from the display condition to the storage condition. Alternatively, the user can invert the main trunk to attach the first end **42** with the riser to switch the storage condition to the display condition. Having attached the trunk **40** of tree **10** to the base **50**, the base and tree can be rotated back in the direction of arrow "G" (FIG. **11**B) to reposition the tree **10** to its normal vertically oriented display condition, as shown in FIG. **11**C. Alternatively, if the second end **44** has been attached to the riser **70** of base **50**, the base and tree can be rotated back in the direction of arrow "G" (FIG. **11**B) to reposition the tree **10** to its storage condition, such as shown in FIG. **10**. The feet **53** thus provide stability and facilitate rotation from the substantially horizontal orientation (FIG. **11**B) to the substantially vertical orientation of the tree **10** (FIG. **10** or FIG. **11**C). As mentioned, while the tree is erect on its base **50**, the tree assembly may be tilted onto its wheels **55** and moved to a desired position (e.g., for display or storage).

**[0058]** While the foregoing examples have been described in the context of removing and attaching an artificial tree to the base, in other examples, a real tree (live or dead) can be attached to the riser while the base is in the reclined position. For example, the riser include an opening to receive a lower trunk of a tree and can include a locking mechanism to lock the trunk with respect to the riser. A user can then rotate the base and the tree attached thereto in the direction "G" to the vertical display condition, similar to FIG. **11**C.

**[0059]** In view of the foregoing structural and functional features described above, examples method will be better appreciated with reference to FIGS. **12** and **13**. While, for purposes of simplicity of explanation, the example methods of FIGS. **12** and **13** are shown and described as executing serially, it is to be understood and appreciated that the present examples are not limited by the illustrated order, as some actions could in other examples occur in different orders from that shown and described herein.

**[0060]** FIG. **12** depicts a method for adjusting the height of the tree (e.g., real or artificial tree) **10**. At **300**, a ground support portion of a base unit, such as base **50** of FIG. **1**, is placed onto an underlying surface. As described with respect to FIG. **1**, the base unit **50** can include an adjustable riser **70** attached to and extending upwardly from the ground support to terminate in a distal end portion **48**. The distal end portion **48** of the riser **70** is configured to support an elongated trunk **40** of a tree **10** having spaced apart first and second ends **42**, **44**. At **310**, one of the first end or the second end **42**, **44** of the trunk **40** is connected to the distal end portion **48** of the adjustable riser **70**. This connection can be implemented according to one of the approaches disclosed herein, including FIG. **13**, for example. At **320**, the height of the adjustable riser **70** is adjusted to adjust a height of branches and the tree **10** relative to the underlying surface where the base unit **50** is placed. As disclosed herein, the height adjustment at **320** can be implemented manually, mechanically or electromechanically assisted.

**[0061]** FIG. **13** depicts an example of method that can be implemented to configure the tree to one of its storage or display conditions. This can be part of an initial installation when no tree is currently attached to the base or when changing between display and storage conditions for the tree. At **400**, the base unit is placed onto an underlying surface. The base may contain with a tree or at least a main trunk portion mounted to the base and extending outwardly from the base. Alternatively, at **400**, the base may be without any tree portion mounted therein.

**[0062]** At **410**, the base unit **50** is positioned to its reclined position. For example, base unit **50** can be tilted up onto feet **53** of outer portion **52** of the base **50** without wheels **55**, thereby resisting rolling and orienting the adjustable riser **70** substantially horizontally (e.g., to its reclined position). At **420**, an end **42** or **44** of the tree trunk **40** of the tree **10** is mounted to the adjustable riser **70**. For example, the end **42** can be mounted to the riser when configuring the tree in its display condition. Alternatively, the end **44** can be mounted to the riser when configuring the tree in its storage condition.

**[0063]** At **430**, the base is positioned back onto the underlying surface to its display or storage condition. For example, the base **50** is tilted in the opposite direction from the tilting at **410**, such that the adjustable riser **70** is oriented substantially vertically with respect to the underlying surface. Thus, both the feet **53** and wheels **55** of the base unit **50** are in contact with the underlying surface **58**. Additionally, at any stage of the method of FIG. **13**, the method of FIG. **12** can be implemented to adjust the height of the riser. Moreover, the base may be titled on wheels to facilitate transport of the tree to a desired location for display or storage, as disclosed herein.

**[0064]** Various different modifications can be made to the example without departing from the scope and spirit of this disclosure. When structures are identified as to perform a function, the identification is intended to include all structures which can perform the function specified. When structures are identified as being coupled together, such language should be interpreted broadly to include the structures being coupled directly together or coupled together through intervening structures. Such coupling could be permanent or temporary and either in a rigid fashion or in a fashion which allows pivoting, sliding or other relative motion while still providing some form of attachment, unless specifically restricted.

**[0065]** What have been described above are examples. It is, of course, not possible to describe every conceivable combination of structures, components, or methods, but one of ordinary skill in the art will recognize that many further combinations and permutations are possible. Accordingly, this disclosure is intended to embrace all such alterations, modifications, and variations that fall within the scope of this application, including the appended claims. Where the disclosure or claims recite "a," "an," "a first," or "another" element, or the equivalent thereof, it should be interpreted to include one or more than one such element, neither requiring nor excluding two or more such elements. As used herein, the term "includes" means includes but not limited to, and the term "including" means including but not limited to. The term "based on" means based at least in part on.

What is claimed is:

**1**. An ornamental tree, comprising:

a base unit comprising:

a ground support adapted to rest upon an underlying surface; and

an adjustable riser extending outwardly from the ground support along a longitudinal axis to terminate in a distal end portion, the adjustable riser comprising an adjustment component adapted to adjust a height of the distal end portion of the adjustable riser along the longitudinal axis with respect to the ground support between a first height and a second height;

a trunk of elongate form extending between a first end and a second end, both the first end and the second end adapted to be supported separately when attached to the distal end portion of the adjustable riser; and

a plurality of limbs attached to the trunk and moveable between a first position and a second position.

wherein, when the first end of the trunk is connected to the distal end portion of the adjustable riser, the limbs are in the first position so as to be closer to horizontal than the second position, and

wherein, when the second end of the trunk is connected to the distal end portion of the adjustable riser, the limbs are in the second position so as to be closer to vertical than the first position.

**2**. The tree of claim **1**, wherein the adjustment component comprises one of a motor, a pneumatic component, and a turn crank configured to adjust the height of the adjustable riser.

**3**. The tree of claim **1**, further comprising a controller for controlling at least one of the height of the adjustable riser and lights disposed on the tree.

**4**. The tree of claim **3**, wherein the controller is one of a wired controller and a wireless controller.

**5**. The tree of claim **1**, wherein the adjustment component adjusts the height of the distal end portion of the adjustable riser relative to the ground support in response to a user input.

**6**. The tree of claim **1**, further comprising a post attached to and extending upwardly from the ground support and a connector at a distal end of the post, the post having a hollow core, the adjustable riser being insertable into the hollow core of the post, the connector configured to fix the height of the adjustable riser with respect to the post in response to actuating the connector.

**7**. The tree of claim **6**, wherein the post includes a plurality of holes, and wherein the connector includes a spring biased pin to mate with one of the plurality of holes to set the height of the adjustable riser.

**8**. The tree of claim **6**, wherein the post includes an opening, and wherein the connector includes a tension ring at the opening to secure the adjustable riser with respect to the post.

**9**. The tree of claim **1**, further comprising a treetop that is removable with respect to the trunk, the treetop including a top trunk and a plurality of limbs extending laterally from the top trunk, the top trunk having a proximal end adapted to be removably connected with the second end of the trunk.

**10**. The tree of claim **1**, wherein the ground support further comprises at least two wheels, the ground support including at least another part that does not include any wheel, such that the tree can roll when tilted up onto the wheels and resist rolling when resting on both the wheels and the part of the ground support that is without wheels.

**11**. The tree of claim **10**, wherein the part of the ground support that does not include any wheels further comprises feet that are rotatably connected to the ground support and adapted to maintain contact with the underlying surface when tilted up onto the feet.

**12**. The tree of claim **1**, wherein, when the first end of the trunk is connected to the distal end portion of the adjustable riser, the limbs are in the first position so as to be closer to horizontal than the second position, and

wherein, when the second end of the trunk is connected to the distal end portion of the adjustable riser, the limbs are in the second position so as to be closer to vertical than the first position.

**13**. A method of using the tree of claim **1**, the method comprising:

placing the ground support onto the underlying surface;

mounting one of the first end and the second end of the trunk to the distal end portion of the adjustable riser; and

adjusting the height of the distal end portion of the adjustable riser to adjust a height of the tree relative to the underlying surface where the ground support is placed.

**14**. The method of claim **13**, wherein adjusting the height of the distal end portion of the adjustable riser occurs prior to mounting one of the first end and the second end of the trunk to the distal end portion of the adjustable riser.

**15**. The method of claim **13**, wherein adjusting the height of the distal end portion of the adjustable riser occurs after mounting one of the first end and the second end of the trunk to the distal end portion of the adjustable riser.

**16**. The method of claim **13**, further comprising:

tilting the base unit from a normal support position to a reclined position such that the base unit is substantially transverse to the underlying surface and the adjustable riser extends substantially parallel with the underlying surface;

attaching one of the first end of the trunk and the second end of the trunk to the distal end portion of the adjustable riser; and

tilting the base unit from the reclined position back to the normal support position on the underlying surface.

**17**. The method of claim **16**, wherein the ground support further comprises a first portion that includes at least two wheels and a second portion that does not include any wheels, each of the first portion and the second portion contacting the underlying surface in the normal support position, the method further comprising:

tilting the base unit in a direction opposite the wheels onto the second portion and into the reclined position.

**18**. The method of claim **17**, wherein the second portion of the ground support includes feet pivotally attached to a bracket of the ground support, each of the feet having a contact surface that maintains contact with the underlying surface during the tilting.

**19**. The method of claim **13**, wherein the ground support further comprises a first portion that includes at least two wheels and a second portion that does not include any wheels, each of the first portion and the second portion contacting the underlying surface in a normal support position, the method further comprising:

tilting the base unit in a first direction onto the at least two wheels; and

rolling the base unit from one location to another location while tilted on the wheels.

**20**. The method of claim **13**, further comprising:

connecting the first end of the trunk to the distal end portion of the adjustable riser, such that the limbs are in the first position so as to be closer to horizontal than the second position, corresponding to a display condition of the tree;

removing the first end of the trunk from the distal end portion of the adjustable riser;

connecting the second end of the trunk to the distal end portion of the adjustable riser, such that the limbs are in the second position so as to be closer to vertical than the first position, corresponding to a storage condition for the tree; and

adjusting the height of the adjustable riser such that ends of the limbs are spaced a distance from the underlying surface to accommodate limbs while in the storage condition.

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