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MONITOR STAND WITH FOLDING MOUNTING BRACKETS

Abstract

A monitor stand with folding mounting brackets is provided. The monitor stand comprises a first mounting bracket for coupling to a first monitor and a second mounting bracket for coupling to a second monitor. A first arm of the monitor stand is coupled to the first mounting bracket via a first hinge and a second arm of the monitor stand is coupled to the second mounting bracket via a second hinge.

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Background/Summary

TECHNICAL FIELD
[0001] The present invention relates generally to a monitor stand and more particularly to a

monitor stand with folding mounting brackets having a reduced shipping size.

BACKGROUND OF THE INVENTION

[0002] Monitors are often mounted on monitor stands to enable the monitors to be positioned at a desired height, distance, and angle for viewing by a user. The assembly of monitors stands is a very cumbersome and time-consuming process, particularly in a business environment where potentially hundreds or thousands of users require monitors. To address this problem, manufacturers often ship monitor stands pre-assembled. However, conventional pre-assembled monitor stands are large and bulky. Thus, the shipment of such conventional pre-assembled monitor stands requires large shipping boxes, which results in high shipping costs and a large carbon footprint. As technology has advanced and monitor costs have decreased, larger monitor and multiple monitor configurations have become increasingly popular, requiring larger monitor stands and further increasing the cost and carbon footprint of shipment.

SUMMARY

[0003] In accordance with one or more embodiments, a monitor stand with folding mounting brackets is provided. The folding mounting brackets enable the shipment of the monitor stand using a relatively smaller shipping box as compared to conventional monitor stands, thus reducing the cost and carbon footprint of shipment.

[0004] In one embodiment, the monitor stand further comprises a central hinge coupled to the first arm and the second arm, a column coupled to the central hinge, and a base coupled to the column.

[0005] In one embodiment, the monitor stand comprises a first mounting bracket for coupling to a first monitor and a second mounting bracket for coupling to a second monitor. A first arm of the monitor stand is coupled to the first mounting bracket via a first hinge and a second arm of the monitor stand is coupled to the second mounting bracket via a second hinge.

[0006] In one embodiment, the first mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the first monitor and the second mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the second monitor. The first mounting bracket and the second mounting bracket each comprise opposing square faces connected by four rectangular edge faces. Each of the four rectangular edge faces comprise at least one of the one or more interfaces.

[0007] In one embodiment, one of the four rectangular edge faces of the first mounting bracket comprises a first notch disposed between protruding portions. The first notch is configured to fit an interlocking portion of the first arm. One of the four rectangular edge faces of the second mounting bracket comprises a second notch disposed between protruding portions. The second notch configured to fit an interlocking portion of the second arm.

[0008] In one embodiment, the first mounting bracket is coupled to the first arm by a first pin extending at least in part through the interlocking portion of the first arm and the protruding portions of the first mounting bracket to form the first hinge and the second mounting bracket is coupled to the second arm by a second pin extending at least in part through the interlocking portion of the second arm and the protruding portions of the second mounting bracket to form the second hinge.

[0009] In one embodiment, the first arm and the second arm are in a horizontal configuration and the first mounting bracket and the second mounting bracket are respectively externally rotated via the first hinge and the second hinge to an unfolded position for mounting the first monitor and the second monitor in a side-by-side configuration.

[0010] In one embodiment, the first arm and the second arm are in a vertical configuration and the first mounting bracket and the second mounting bracket are respectively internally rotated via the first hinge and the second hinge to a folded position for mounting the first monitor and the second monitor in a top-bottom configuration.

[0011] In accordance with one or more embodiments, a monitor stand with folding mounting brackets is provided. The monitor stand comprises a first mounting bracket coupled to a first

monitor and a second mounting bracket coupled to a second monitor. A first arm of the monitor stand is coupled to the first mounting bracket via a first hinge and a second arm of the monitor stand is coupled to the second mounting bracket via a second hinge.
[0012] In accordance with one or more embodiments, a mounting bracket of a monitor stand is provided. The mounting bracket comprises opposing faces connected by four edge faces. The opposing faces may be opposing square faces and the edge faces may be rectangular edge faces. A notch is disposed between protruding portions in one of the edge faces. The notch is configured to fit an interlocking portion of an arm of the monitor stand. A pin extends at least in part through the interlocking portion and the protruding portions to form a hinge.
[0013] In one embodiment, the mounting bracket further comprises one or more interfaces disposed in each of the edge faces for interlocking with one or more corresponding interfaces of a monitor.
[0014] In one embodiment, the arm is coupled to a central hinge, the central hinge is coupled to a column, and the column is coupled to a base.
[0015] These and other advantages of the invention will be apparent to those of ordinary skill in the art by reference to the following detailed description and the accompanying drawings.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0016] FIG. **1** shows a monitor stand having monitors mounted thereon, the monitor stand having monitor arms in a horizontal configuration and mounting brackets in an unfolded state, in accordance with one or more embodiments;
[0017] FIG. **2** shows a monitor stand without monitors mounted thereon, the monitor stand having monitor arms in a horizontal configuration and mounting brackets in an unfolded state, in accordance with one or more embodiments;
[0018] FIG. **3** shows a mounting bracket of a monitor stand, in accordance with one or more embodiments;
[0019] FIG. **4** shows monitor being mounted on a monitor stand via a mounting bracket, in accordance with one or more embodiments;
[0020] FIG. **5** shows a monitor stand in a folded state with monitor arms in a horizontal configuration, in accordance with one or more embodiments;
[0021] FIG. **6** shows a monitor stand having monitors mounted thereon, the monitor stand having monitor arms in a vertical configuration and mounting brackets in a folded state, in accordance with one or more embodiments;
[0022] FIG. **7** shows a monitor stand having monitors mounted thereon, the monitor stand having monitor arms in a vertical configuration and mounting brackets in a folded state, in accordance with one or more embodiments;
[0023] FIG. **8** shows monitor stand packaged for shipping without monitors, in accordance with one or more embodiments; and
[0024] FIG. **9** shows monitor stand packaged for shipping with monitors, in accordance with one or more embodiments.
DETAILED DESCRIPTION
[0025] Embodiments described herein generally relate to a monitor stand with folding mounting brackets. The folding mounting brackets enable the shipment of the monitor stand using a smaller shipping box as compared to conventional monitor stands, and thus reducing the cost and carbon footprint of shipment. Further, the monitors mounted on the folding mounting brackets maintain the same distance between each other regardless of whether the monitor stand is in a horizontal configuration or a vertical configuration. Embodiments described herein will be described with reference to the drawings, in which like reference numerals represent the same or similar elements.

[0026] FIGS. **1** and **2** show a monitor stand **100** having monitor arms **108**-A and **108**-B (collectively referred to as monitor arms **108**) in a horizontal configuration and mounting brackets **110**-A and **110**-B (collectively referred to as mounting brackets **110**) in an unfolded state, in accordance with one or more embodiments. FIG. **1** shows monitor stand **100** having monitors **114**-A and **114**-B (collectively referred to as monitors **114**) mounted thereon. FIG. **2** shows monitor stand **100** without monitors **114** mounted thereon. Monitors **114** may be any display device for displaying content, such as, e.g., text, images, video, etc. Examples of monitors **114** include computer monitors, televisions, or any other suitable display device.

[0027] As shown in FIGS. **1** and **2**, monitors **114** are respectively mounted to monitor arms **108** via mounting brackets **110**. Monitor arms **108** are in a horizontal configuration for mounting monitors **114** in a side-by-side configuration. While monitor stand **100** is shown in FIGS. **1** and **2** as having two monitor arms **108** for supporting two monitors **114**, it should be understood that monitor stand **100** may have any number of monitor arms **108** for supporting any number of monitors **114**. Monitor arms **108** are coupled to central tilt hinge **106** for rotating monitors **114** about longitudinal axis **122** (shown in FIG. **2**). Central tilt hinge **106** is coupled to column **104**, which is shown as a vertical column in FIGS. **1** and **2**. However, column **104** may comprise any arm coupled to central tilt hinge **105** for supporting arms **108**. Column **104** is coupled to base **102** for supporting the load of monitors **114**. In the embodiments shown in FIGS. **1** and **2**, base **102** is a desktop base configured to sit on top of a desk or other surface. However, it should be understood that base **102** may be any other suitable base for supporting monitors **114**, such as, e.g., a clamp, a grommet, a wall mount, etc.

[0028] Mounting brackets **110** are coupled to monitor arms **108** via tilt hinges **112**-A and **112**-B (collectively referred to as tilt hinges **112**) respectively. As shown in FIG. **2**, tilt hinges **112** respectively couple to mounting brackets **110** at or near edge faces **124**-A and **124**-B (collectively referred to as edges **124**) of mounting brackets **110** to respectively enable rotation of mounting brackets **110** about single rotational axes **126**-A and **126**-B (collectively referred to as axes **126**) of tilt hinges **112**. The rotation of mounting brackets **110** enables tilt of monitors **114** about axes **126** as desired by a user for viewing monitors **114**, as well as folding and unfolding mounting brackets **110** for, e.g., shipping monitor stand **100**. In one embodiment, mounting brackets **110** are unfolded by externally rotating mounting brackets **110** about axes **126** such that mounting brackets **110** are rotated away from a longitudinal median plane of monitor stand **100**, as shown in FIGS. **1** and **2**. In another embodiment, mounting brackets **110** are folded by internally rotating mounting brackets **110** about axes **126** such that mounting brackets **110** are rotated towards a longitudinal median plane of monitor stand **100**, as shown in FIGS. **5-7** which are discussed in further detail below.

[0029] FIG. **3** shows mounting bracket **110**-A of monitor stand **100**, in accordance with one or more embodiments. It should be understood that the description of mounting bracket **110**-A is equally applicable to mounting bracket **110**-B. Mounting bracket **110**-A is shaped substantially as a square cuboid having two opposing square faces **130** (only one face **130** is visible in FIG. **3**) connected by four substantially rectangular edge faces **132** (only two edge faces **132** are visible in FIG. **3**). Edge face **124**-A of the edge faces **132** comprises a notch **134** disposed between protruding portions **136** of mounting bracket **110**-A. An interlocking portion (not shown) of monitor arm **108**-A is configured to fit into notch **134** and one or more pins (not shown) are configured to extend at least in part through the interlock portion of monitor arm **108**-A and protruding portions **136** to form tilt hinge **112**-A, thereby coupling mounting bracket **110**-A to monitor arm **108**-A.

[0030] Monitor **114**-A is mounted on mounting bracket **110**-A via female interfaces **118** disposed on edge faces **132** of mounting brackets **110**-A. In one embodiment, for example where monitor arms **108** of monitor stand **100** are configured to rotate between a horizontal configuration (as shown in FIGS. **1**, **2**, and **5**) and a vertical configuration (as shown in FIGS. **6** and **7**), mounting bracket **110**-A comprises one or more female interfaces **118** on all four edge faces **132** of mounting

bracket **110**-A to enable monitor **114**-A to be mounted when monitor arms **108** are in the horizontal configuration and the vertical configuration. Monitor **114**-A is mounted on mounting bracket **110**-A as described below with respect to FIG. **4**.

[0031] FIG. **4** shows monitor **114**-A being mounted on monitor stand **100** via mounting bracket **110**-A, in accordance with one or more embodiments. As shown in FIG. **4**, monitor **114**-A comprises retractable male interfaces **120** on the top and bottom of recess **128** of the rear of monitor **114**-A. In operation, monitor **114**-A is secured to mounting bracket **110**-A for mounting on monitor stand **100** by inserting mounting bracket **110**-A into recess **128**, causing retractable male interfaces **120** to retract and interlock with corresponding female interfaces **118** on edge faces **132** of mounting bracket **110**-A. Mounting bracket **110**-A may be removed from recess **128** for unmounting from monitor stand **100** by depressing button **116**-A to cause retractable male interfaces **120** to retract and removing mounting bracket **110**-A from recess **128**. Monitor **114**-B may be secured to and removed (via button **116**-B) from mounting bracket **118**-B in a similar manner as described with respect to monitor **114**-A and mounting bracket **110**-A.

[0032] It should be understood that while female interfaces **118** and retractable male interfaces **120** are respectively described as being female interfaces and male interfaces, the present invention is not so limited. Such female interfaces may be male interfaces and vice versa. Further, such female and male interfaces may be any suitable interface for coupling mounting brackets **110** to monitors **114** and are not limited to male/female interfaces. Such female and male interfaces may be implemented in any suitable configuration (e.g., layout, shape, etc.) and is not limited to the configuration shown in the figures.

[0033] FIG. **5** shows monitor stand **100** having monitor arms **108** in a horizontal configuration and mounting brackets **110** in a folded state, in accordance with one or more embodiments. Monitor stand **100** having monitor arms **108** in a horizontal configuration and mounting brackets **110** in a folded state has relatively smaller dimensions as compared to conventional monitor stands, thereby reducing costs and the carbon footprint for shipping monitor stand **100**.

[0034] FIGS. **6** and **7** show a monitor stand **100** having monitor arms **108** in a vertical configuration and mounting brackets **110** in a folded state, in accordance with one or more embodiments. FIG. **6** shows monitor stand **100** having monitors **114** mounted thereon via mounting brackets **110**. FIG. **7** shows monitor stand **100** without monitors mounted thereon. Monitor arms **108** rotate 90 degrees to orient between the horizontal configuration (as shown in, e.g., FIGS. **1**, **2**, and **5**) and the vertical configuration (as shown in, e.g., FIGS. **6** and **7**). Monitor arms **108** in the vertical configuration and mounting brackets **110** in the folded state enable monitors **114** to be mounted in a top-bottom configuration. Monitor stand **100** having monitor arms **108** in a vertical configuration and mounting brackets **110** in a folded state also has relatively smaller dimensions as compared to conventional monitor stands, thereby reducing costs and the carbon footprint for shipping monitor stand **100**.

[0035] FIG. **8** shows monitor stand **100** packaged for shipping without monitors **114**, in accordance with one or more embodiments. Monitor stand **100** is packaged with inner packaging **802** and outer packaging **804**. As illustratively shown in FIG. **8**, outer packaging **804** has dimensions of 600×350×350 mm (millimeters) (23.75×13.75×13.75 inches) for shipping monitor stand **100**.

[0036] FIG. **9** shows monitor stand **100** packaged for shipping with monitors **114**, in accordance with one or more embodiments. Monitor stand **100** is packaged together with monitors **114** with inner packaging **902** and outer packaging **904**. As illustratively shown in FIG. **9**, outer packaging **904** has dimensions of 600×370×460 mm (23.75×14.75×18.25 inches) for shipping monitor stand **100** with monitors **114**.

[0037] The foregoing Detailed Description is to be understood as being in every respect illustrative and exemplary, but not restrictive, and the scope of the invention disclosed herein is not to be determined from the Detailed Description, but rather from the claims as interpreted according to the full breadth permitted by the patent laws. It is to be understood that the embodiments shown

and described herein are only illustrative of the principles of the present invention and that various modifications may be implemented by those skilled in the art without departing from the scope and spirit of the invention. Those skilled in the art could implement various other feature combinations without departing from the scope and spirit of the invention.

Claims

1. A monitor stand comprising: a first mounting bracket for coupling to a first monitor; a second mounting bracket for coupling to a second monitor; a first arm coupled to the first mounting bracket via a first hinge; and a second arm coupled to the second mounting bracket via a second hinge.
2. The monitor stand of claim 1, further comprising: a central hinge coupled to the first arm and the second arm; a column coupled to the central hinge; and a base coupled to the column.
3. The monitor stand of claim 1, wherein: the first mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the first monitor; and the second mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the second monitor.
4. The monitor stand of claim 3, wherein the first mounting bracket and the second mounting bracket each comprise opposing square faces connected by four rectangular edge faces, each of the four rectangular edge faces comprising at least one of the one or more interfaces.
5. The monitor stand of claim 4, wherein: one of the four rectangular edge faces of the first mounting bracket comprises a first notch disposed between protruding portions, the first notch configured to fit an interlocking portion of the first arm; and one of the four rectangular edge faces of the second mounting bracket comprises a second notch disposed between protruding portions, the second notch configured to fit an interlocking portion of the second arm.
6. The monitor stand of claim 5, wherein: the first mounting bracket is coupled to the first arm by a first pin extending at least in part through the interlocking portion of the first arm and the protruding portions of the first mounting bracket to form the first hinge; and the second mounting bracket is coupled to the second arm by a second pin extending at least in part through the interlocking portion of the second arm and the protruding portions of the second mounting bracket to form the second hinge.
7. The monitor stand of claim 1, wherein the first arm and the second arm are in a horizontal configuration and the first mounting bracket and the second mounting bracket are respectively externally rotated via the first hinge and the second hinge to an unfolded position for mounting the first monitor and the second monitor in a side-by-side configuration.
8. The monitor stand of claim 1, wherein the first arm and the second arm are in a vertical configuration and the first mounting bracket and the second mounting bracket are respectively internally rotated via the first hinge and the second hinge to a folded position for mounting the first monitor and the second monitor in a top-bottom configuration.
9. A monitor stand comprising: a first mounting bracket coupled to a first monitor; a second mounting bracket coupled to a second monitor; a first arm coupled to the first mounting bracket via a first hinge; and a second arm coupled to the second mounting bracket via a second hinge.
10. The monitor stand of claim 9, further comprising: a central hinge coupled to the first arm and the second arm; a column coupled to the central hinge; and a base coupled to the column.
11. The monitor stand of claim 9, wherein: the first mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the first monitor; and the second mounting bracket comprises one or more interfaces for interlocking with one or more corresponding interfaces of the second monitor.
12. The monitor stand of claim 11, wherein the first mounting bracket and the second mounting bracket each comprise opposing square faces connected by four rectangular edge faces, each of the

four rectangular edge faces comprising at least one of the one or more interfaces.

13. The monitor stand of claim 12, wherein: one of the four rectangular edge faces of the first mounting bracket comprises a first notch disposed between protruding portions, the first notch configured to fit an interlocking portion of the first arm; and one of the four rectangular edge faces of the second mounting bracket comprises a second notch disposed between protruding portions, the second notch configured to fit an interlocking portion of the second arm.

14. The monitor stand of claim 13, wherein: the first mounting bracket is coupled to the first arm by a first pin extending at least in part through the interlocking portion of the first arm and the protruding portions of the first mounting bracket to form the first hinge; and the second mounting bracket is coupled to the second arm by a second pin extending at least in part through the interlocking portion of the second arm and the protruding portions of the second mounting bracket to form the second hinge.

15. The monitor stand of claim 9, wherein the first arm and the second arm are in a horizontal configuration and the first mounting bracket and the second mounting bracket are respectively externally rotated via the first hinge and the second hinge to an unfolded position for mounting the first monitor and the second monitor in a side-by-side configuration.

16. The monitor stand of claim 9, wherein the first arm and the second arm are in a vertical configuration and the first mounting bracket and the second mounting bracket are respectively internally rotated via the first hinge and the second hinge to a folded position for mounting the first monitor and the second monitor in a top-bottom configuration.

17. A mounting bracket for mounting a monitor on a monitor stand, the mounting bracket comprising: opposing faces connected by four edge faces; a notch disposed between protruding portions in one of the edge faces, the notch configured to fit an interlocking portion of an arm of the monitor stand; and a pin extending at least in part through the interlocking portion and the protruding portions to form a hinge.

18. The mounting bracket of claim 17, wherein the opposing faces comprise two opposing square faces and the edge faces comprise rectangular edge faces.

19. The mounting bracket of claim 17, further comprising: one or more interfaces disposed in each of the edge faces for interlocking with one or more corresponding interfaces of the monitor.

20. The mounting bracket of claim 17, wherein the arm is coupled to a central hinge, the central hinge is coupled to a column, and the column is coupled to a base.