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(54) **TILT MOUNT LIGHTING ASSEMBLY**

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(57) **ABSTRACT**

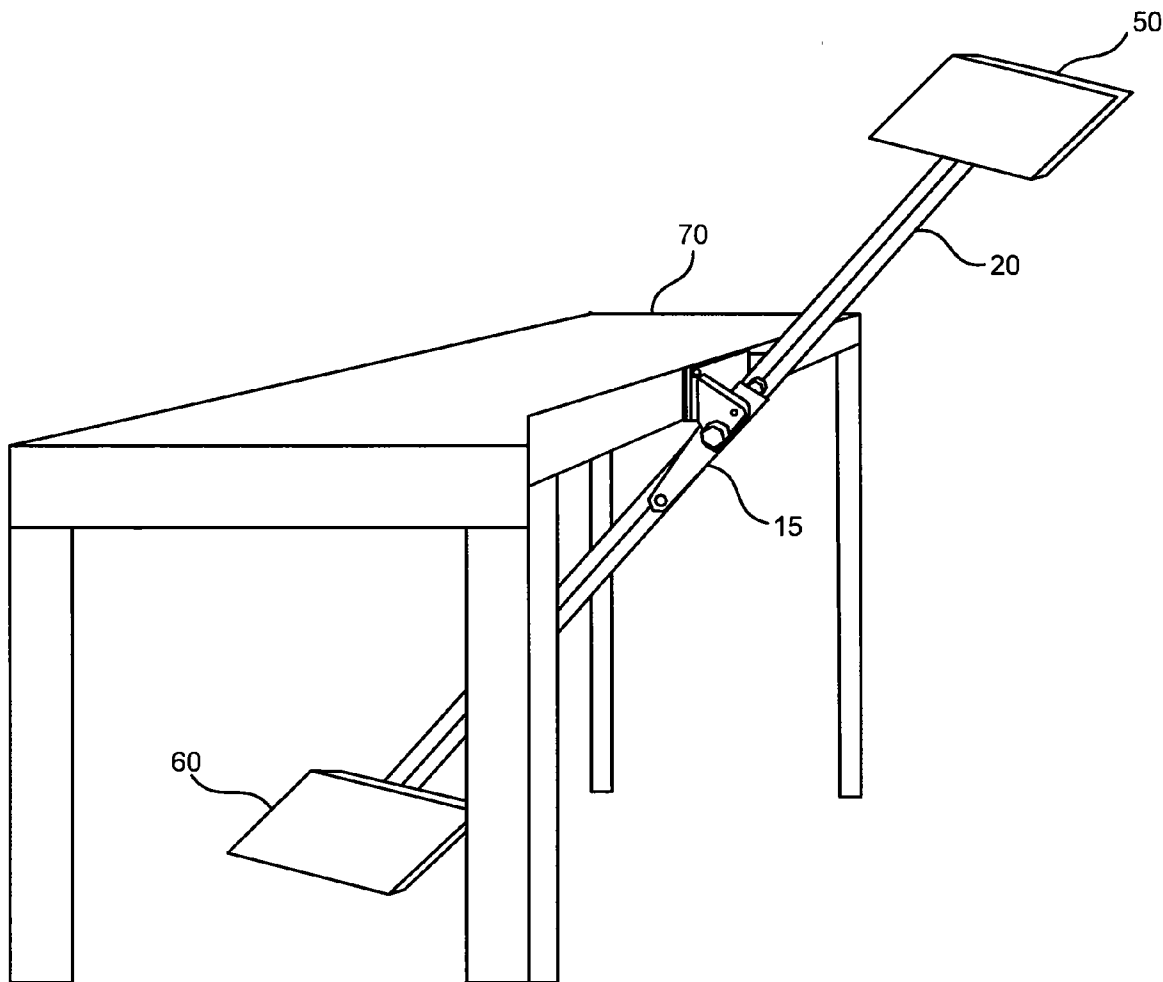
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A tilt mount lighting assembly comprises a bracket and a lighting mechanism secured to one end of an elongated frame. The bracket comprises a mounting device, one or more guide plates, a pivot mechanism and a locking device. The elongated frame is located between the guide plates and the pivot mechanism is inserted through the guide plates and elongated frame so as to provide an axis of rotation for the elongated frame. The bracket is configured such that, when the locking mechanism is removed, the elongated frame rotates.

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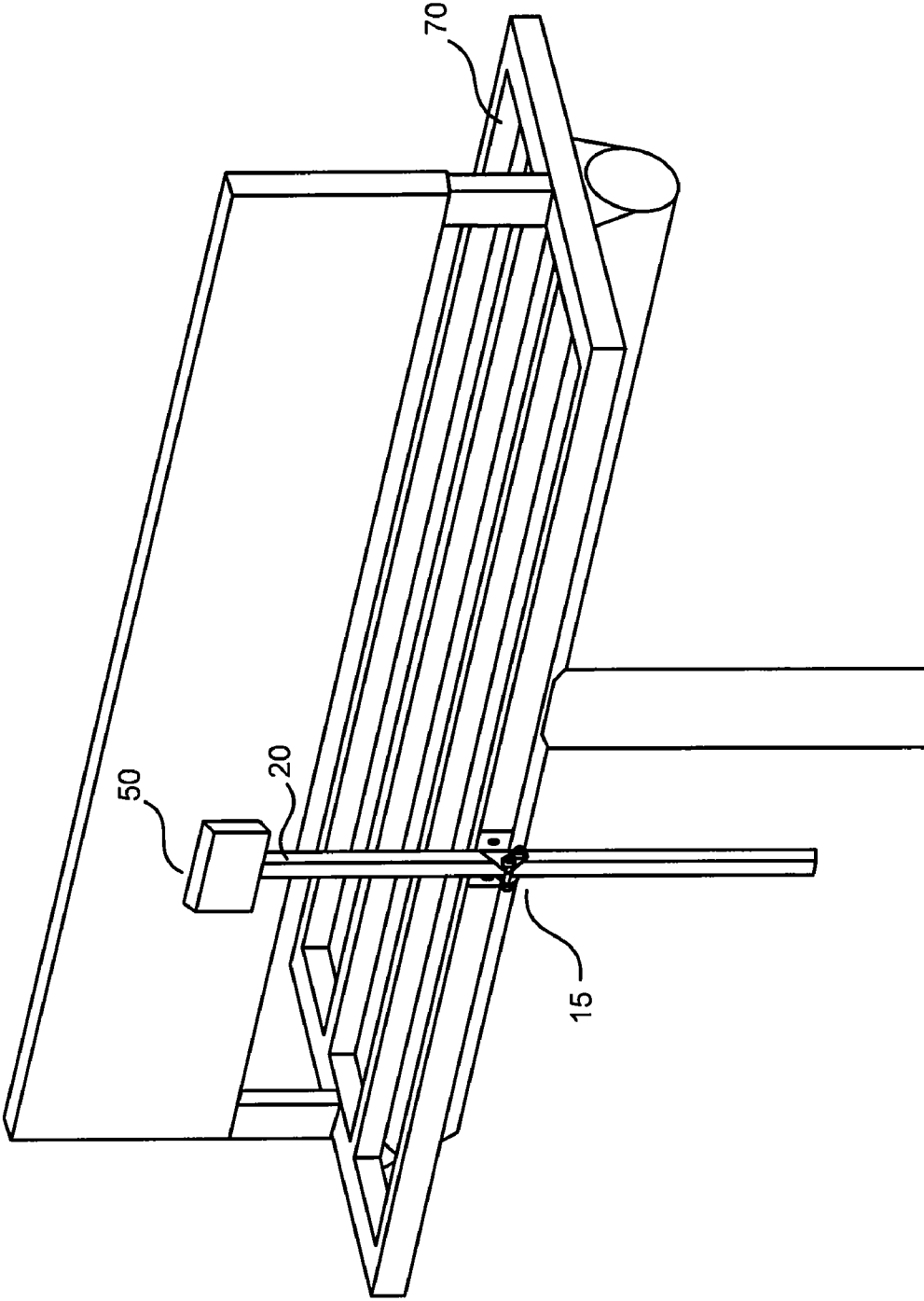


Figure 1

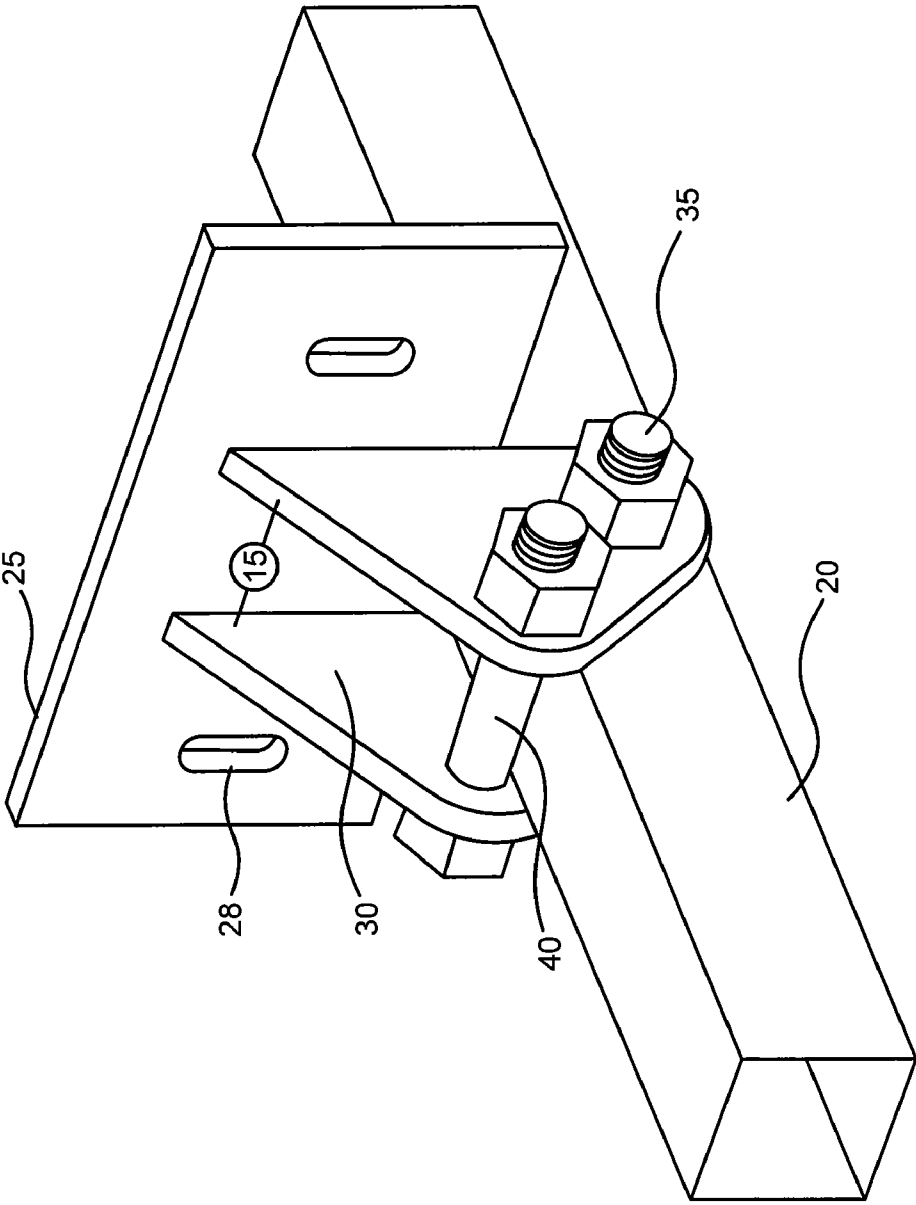


Figure 2

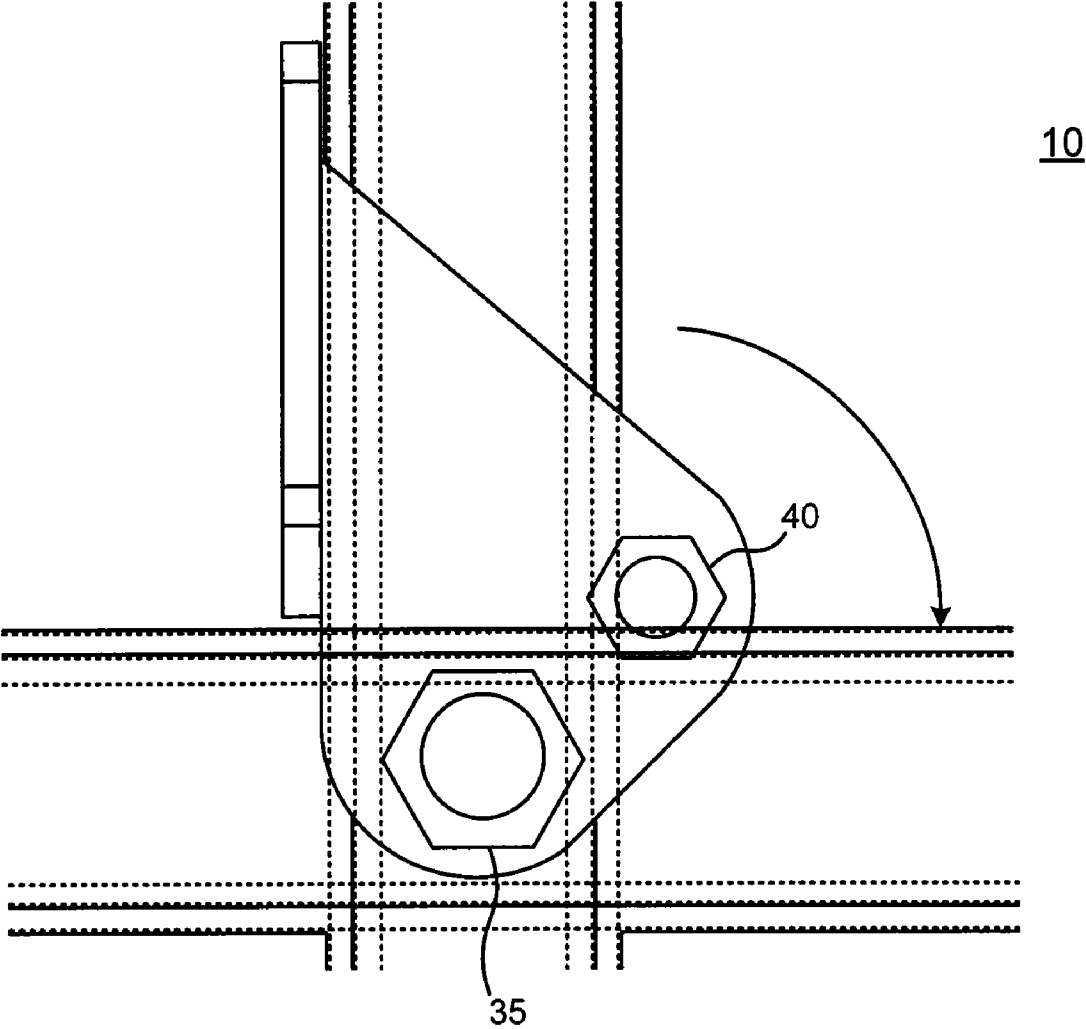


Figure 3

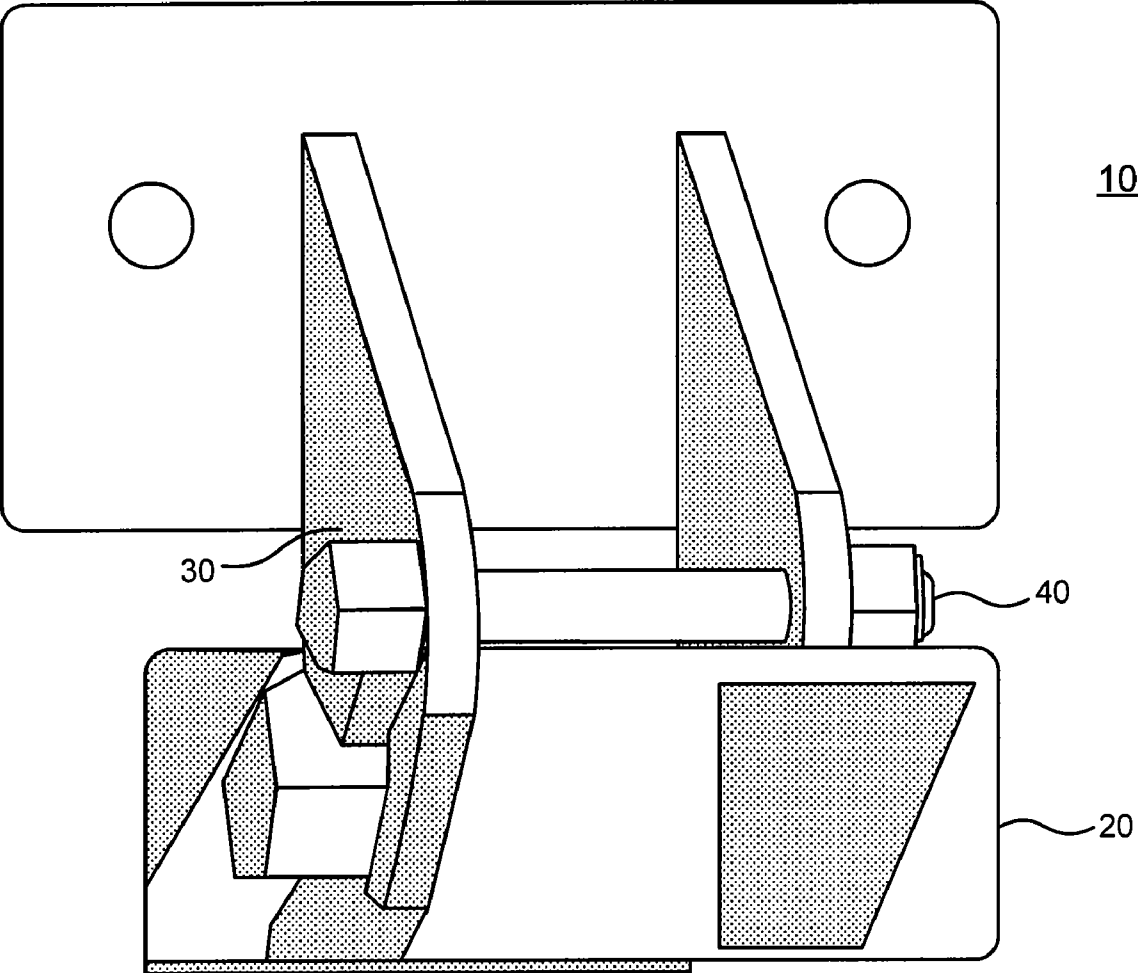


Figure 4

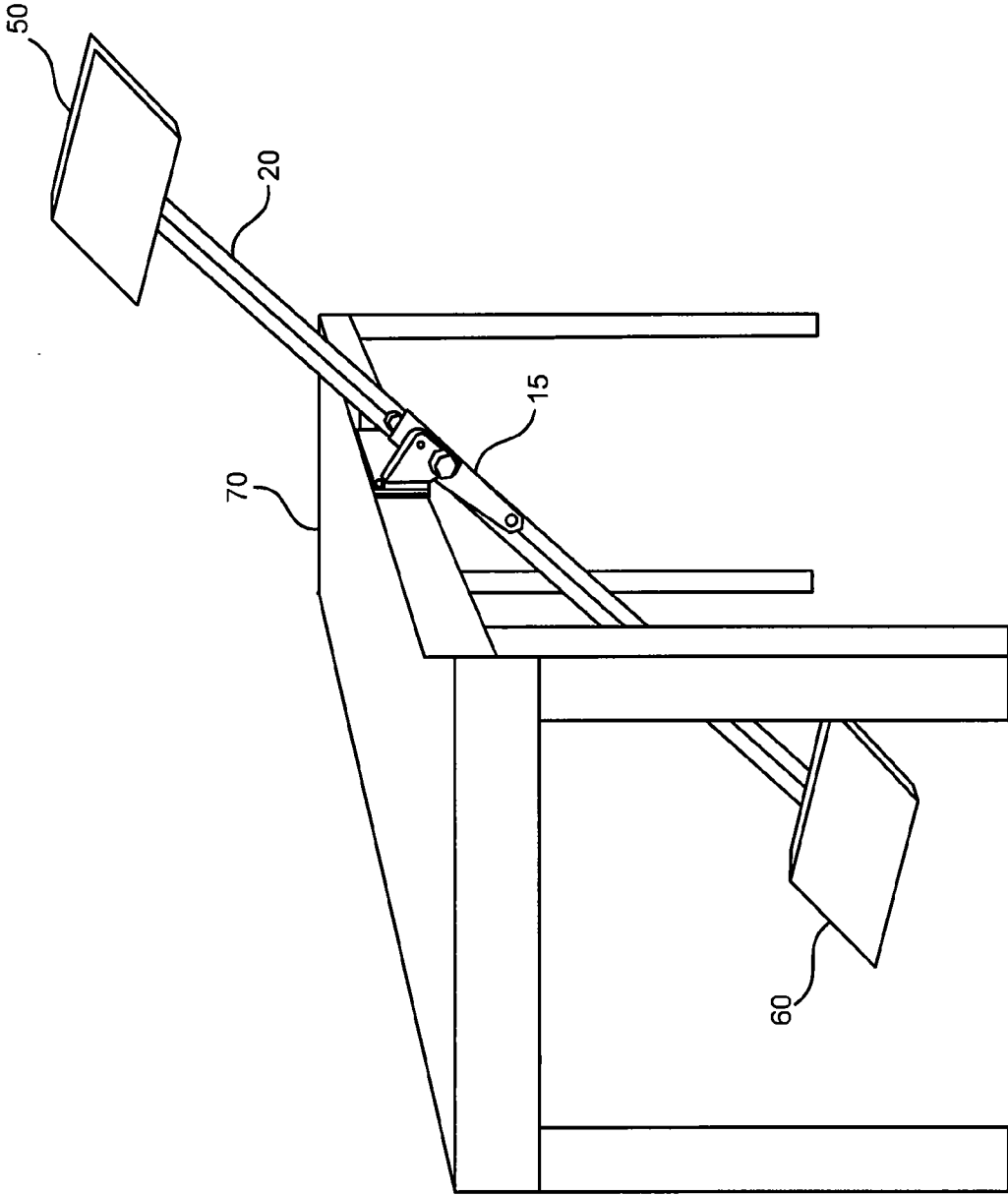


Figure 5

TILT MOUNT LIGHTING ASSEMBLY

FIELD OF THE INVENTION

[0001] This invention relates to systems and methods for facilitating maintenance of lighting mechanisms for displays, such as billboards.

BACKGROUND OF THE INVENTION

[0002] The use of billboards, signs and other displays to convey messages to the public is generally well known. Typically, such displays are mounted high in the air to increase visibility to passers-by. As such, displays may have a platform located in the front to allow workers to change ads and perform maintenance and a ladder to allow a worker to climb up to the platform.

[0003] It is also known to provide billboards and other displays with lighting mechanisms to increase night time visibility of the advertisement. The lighting mechanisms are generally fixed to the front of the display to permit light to shine onto the advertisement.

[0004] One disadvantage of such conventional systems is that, in the event a light bulb burns out and requires replacement, or other light maintenance is required, a worker must climb the ladder to the platform to reach the lighting mechanism, which may be dangerous and time consuming. Furthermore, even if a worker can reach the platform of the display, the lighting mechanism may still be too far away from the platform to reach, requiring a worker to maneuver in an unsafe manner to perform maintenance.

[0005] As such, what is needed in the art is a system and method of tilting a lighting mechanism to a position that workers can easily reach to perform maintenance.

SUMMARY OF THE INVENTION

[0006] While the way that the present invention overcomes the disadvantages of the known art will be discussed in greater detail below, in general, the present invention is generally any structure capable of swinging a lighting mechanism to facilitate maintenance. Maintenance includes any manipulation of the lighting mechanism such as replacement of light bulbs, removal or replacement of the luminaire, and the like.

[0007] In accordance with various exemplary embodiments of the present invention, a tilt mount lighting assembly is provided. The tilt mount lighting assembly may comprise a bracket configured to be secured to a display, an elongated frame and a lighting mechanism.

[0008] In accordance with an exemplary embodiment, the bracket of the present invention comprises two spaced apart guides, a pivot bolt, a locking bolt and a mounting device. The elongated frame is configured to fit between the two spaced apart guides, and the pivot bolt may be inserted through the spaced apart guides and the elongated frame to provide an axis of rotation. The locking bolt is configured to be removably inserted through the spaced apart guides to lock the elongated frame in either position.

[0009] In accordance with an exemplary embodiment, when the locking bolt is removed from the spaced apart guides, the elongated frame pivots toward the display and raises the lighting mechanism, thereby allowing a worker standing on a platform to perform maintenance on the

lighting mechanism. The locking bolt may then be reinserted into the spaced apart guides to lock the elongated frame in the position for maintenance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The foregoing and further and more specific objects and advantages of the instant invention will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment thereof taken in conjunction with the drawings, in which:

[0011] FIG. 1 depicts a perspective view of a tilt mount lighting assembly secured to a platform;

[0012] FIG. 2 depicts a perspective view of a tilt mount lighting assembly locked in an lowered position;

[0013] FIG. 3 depicts a another view of a tilt mount lighting assembly locked in various positions;

[0014] FIG. 4 depicts a perspective view of a tilt mount lighting assembly locked in the downward position; and

[0015] FIG. 5 depicts a perspective view of a tilt mount lighting assembly of the present invention having a counterweight.

DETAILED DESCRIPTION

[0016] The description that follows is not intended to limit the scope, applicability, or configuration of the invention in any way; rather, it is intended to provide a convenient illustration for implementing various embodiments of the invention. As will become apparent, various changes may be made in the function and arrangement of the elements described in these embodiments without departing from the scope of the invention. It should be appreciated that the description herein may be adapted to be employed having differently shaped brackets, elongated frames and lighting mechanisms and the like and still fall within the scope of the present invention. Thus, the detailed description herein is presented for the purpose of illustration only and not of limitation.

[0017] That being said, in accordance with an exemplary embodiment of the present invention, a tilt mount lighting assembly is provided. A tilt mount lighting assembly in accordance with various embodiments of the present invention is any structure capable of raising a lighting mechanism to facilitate maintenance. As such, in accordance with an exemplary embodiment of the present invention, and with reference to FIG. 1, tilt mount lighting assembly 10 may comprise a bracket 15, an elongated frame 20, and a lighting mechanism 50.

[0018] The bracket of the present invention generally may be any structure capable of rotating a lighting mechanism to a lowered position. In the exemplary embodiment shown in FIG. 2, bracket 15 includes a mounting device 25, guide plates 30, a pivot mechanism 35, and a locking device 40.

[0019] A mounting device of the present invention is any structure capable of securely fixing the bracket of the present invention to a desired surface. In accordance with the exemplary embodiment shown in FIG. 2, mounting device 25 comprises a flat plate having one or more apertures 28 for receiving a connection means such as bolts, screws, and/or the like. However, it will be appreciated by one skilled in the art that the mounting device may be any size or shape suitable for securely fixing the bracket to a desired surface.

[0020] A desired surface in accordance with the present invention is any surface capable of supporting the weight of

the bracket, elongated frame and lighting mechanism. For example, the desired surface may be a surface of a display, or a surface of a platform in front of a display. As discussed above, the mounting device may be secured to a desired surface using any known or hereinafter devised connection means.

[0021] A guide plate of the present invention is any structure capable of providing support and stability to the elongated frame of a lighting mechanism. As shown in FIG. 2, bracket 15 comprises two guide plates 30 secured perpendicularly to mounting device 25. The guide plates 30 are spaced apart sufficiently so as to allow elongated frame 20 to fit between. Guide plates 30 as shown in FIG. 1 are substantially triangular in shape. However, it will be appreciated by one skilled in the art that guide plates 30 may be of any suitable shape, for example, rectangular, and still fall within the scope of the present invention.

[0022] Moreover, as will be discussed in more detail below, in accordance with an exemplary embodiment, guide plates 30 further comprise symmetrical openings to permit insertion of a pivot mechanism 35 and a locking device 40.

[0023] The pivot mechanism of the present invention is any structure capable of providing an axis of rotation for the elongated frame. For example, in accordance with an exemplary embodiment shown in FIG. 2, pivot mechanism 35 comprises a bolt inserted through apertures of the guide plates 30 and through the elongated frame 20 located between the guide plates 30. However, one of skill in the art will appreciate that any structure capable of providing an axis of rotation, such as a dowel, a pin, a screw, and/or the like, may be used.

[0024] The locking device of the present invention may be any structure capable of locking an elongated frame in an upward or downward position. For example, FIG. 1 shows a locking device 40 comprising a bolt inserted through apertures of guide plates 30, and held in place by a nut to secure elongated frame 20 in an upward position. However, it will be appreciated by one skilled in the art that locking device 40 can be a dowel, a pin, a screw and/or the like and still fall within the scope of the present invention.

[0025] As shown in the exemplary embodiment in FIG. 3, when it is desired that the lighting mechanism be located in the upward position to provide, for example, maintenance and/or replacement of the lighting mechanism, locking device 40 is removed and the elongated frame 20 rotates up toward the display about the axis of rotation provided by pivot mechanism 35. As is shown in FIG. 4, locking device 40 may then be reinserted through guide plates 30 to lock elongated frame 20 in the upward position.

[0026] In accordance with an exemplary embodiment shown in FIG. 3, when locking device 40 is removed, elongated frame 20 rotates from a substantially vertical position approximately 90 degrees to a substantially horizontal position. Preferably, locking device 40 is only operable when frame 20 is in its full vertical or full horizontal position. However, it will be appreciated by one skilled in the art, in accordance with various embodiments, elongated frame 20 may be rotated to any degree of declination and still fall within the scope of the present invention.

[0027] In accordance with an aspect of the present invention, the bracket is made of steel. However, those skilled in the art will appreciate that the bracket may be constructed of

any suitable material such as, for example, die cast aluminum, plastic, and the like and still fall within the scope of the present invention.

[0028] In accordance with an exemplary embodiment of the present invention, the elongated frame may comprise any structure that is suitable for attachment of a lighting mechanism.

[0029] For example, as shown in FIG. 2, elongated frame 20 may comprise a square tube made of steel. It will be appreciated by one skilled in the art that the elongated frame may be any size, length and/or shape, and may be made out of any suitable material, such as aluminum, and still fall within the scope of the present invention.

[0030] As shown in the exemplary embodiment in FIG. 2, elongated frame 20 may be substantially hollow so as to permit the electrical components of the lighting mechanism to be stored within, thereby protecting the components from the elements. However, it will be appreciated that elongated frame 20 may be substantially solid, and the electrical components of the lighting mechanism may be attached to the external surface of the elongated frame using any conventional or hereinafter devised attachment means.

[0031] In accordance with an exemplary embodiment of the present invention as shown in FIG. 2, elongated frame 20 extends beyond the end of pivoting mechanism 35 such that, when locking device 40 is released, the elongated frame 20 rotates away from display until the end of the elongated frame 20 that extends beyond the pivoting mechanism 35 contacts the mounting surface, for example, the underside of a platform, thereby stopping the rotation.

[0032] In accordance with an exemplary embodiment, when maintenance on the lighting mechanism is needed, a user may pull the elongated frame upwards, rotating the elongated frame about the pivot mechanism to the upward position and reinsert the locking device through the guide plates, thereby locking the elongated frame in the upward position.

[0033] A lighting mechanism of the present invention comprises any structure capable of emitting light toward a display. Lighting mechanism may include any type of lighting technology, for example, incandescent, fluorescent, halogen, or compact fluorescent bulbs of any known shape, color and size. It will be appreciated by one skilled in the art that the electrical components of the lighting mechanism may comprise any known or hereinafter devised structures, including any filament and wiring.

[0034] In accordance with an exemplary embodiment, the present invention comprises a counterweight. A counterweight is any structure capable of counterbalancing the weight of the lighting mechanism, thereby easing the rotation of the lighting assembly. For example, as shown in FIG. 5, counterweight 60 comprises a rectangular weight that is secured to the end of the elongated frame 20 opposing the lighting mechanism 50. In accordance with another exemplary embodiment, the elongated frame is heavier on one end to function as a counterweight. However it will be appreciated by one skilled in the art that any structure of any size and shape that is capable of easing the rotation of the lighting assembly by offsetting the weight of the lighting mechanism may be used.

[0035] In accordance with an exemplary embodiment of the present invention, a lighting mechanism is attached to one end of the elongated frame. However, it will be appreciated that the lighting mechanism may be secured anywhere

along the length of the elongated frame and still fall within the scope of the present invention.

[0036] It is to be understood that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

1. A tilt mount lighting assembly comprising:

a bracket configured to be secured to the surface of a display, said bracket comprising two spaced apart guides, a pivot bolt and a locking bolt;

a lighting mechanism; and

an elongated frame having an end secured to said lighting mechanism;

wherein said elongated frame is configured to be inserted between said two spaced apart guides, and said pivot bolt is configured to be inserted through said spaced apart guides and said elongated frame to provide an axis of rotation, and said locking bolt is configured to be removably inserted through said

spaced apart guides to lock said elongated frame in one of an upward position or downward position.

2. A tilt mount assembly of claim 1, further comprising a counterweight.

3. A tilt mount lighting assembly of claim 1, wherein said elongated frame is substantially hollow.

4. A tilt mount lighting assembly of claim 1, wherein said bracket is secured to said surface of a display using a connection means selected from a group consisting of a bolt and a screw.

5. A bracket for lowering a lighting mechanism secured to an elongated frame comprising:

a first guide and a second guide wherein said first guide is spaced apart from said second guide;

a pivot bolt; and

a locking bolt;

wherein said pivot bolt is inserted through said first guide, the elongated frame of a lighting mechanism, and said second guide to provide an axis of rotation, and said locking bolt is configured to be removably inserted through said first guide and said second guide to lock said elongated frame in position.

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