mounting body to be tilted relative to the arm assembly. A friction adjustment mechanism may be attached to the pivotal attachment to permit a user to adjust an amount of friction induced by tilting of the monitor, which may increase or decrease the amount of force needed to tilt the held object. Adjustment of the friction that is induced by such tilting may also help ensure that an object held by the support apparatus may be maintained in a desired tilted position.

In one embodiment, the support apparatus includes an arm assembly that has a first arm member, a mounting body for a display or a light that is rotatably attached to the first arm member of the arm assembly via a rotatable attachment located between the mounting body and the first arm member, and a friction adjustment mechanism. The rotatable attachment may include an axle about which the mounting body moves when rotating via the rotatable attachment. The friction adjustment mechanism is positioned between the mounting body and the arm assembly. Actuation of the friction adjustment mechanism to move friction inducing elements closer to rotatable elements attached to the axle of the rotatable attachment so that more friction occurs when the mounting body is rotated via the rotatable attachment adjusts an amount of friction applied during tilting of the mounting body via the rotatable attachment.

~~In another embodiment~~According to an aspect, the support apparatus includes a mounting body for a display device such as a liquid crystal display, tablet device, monitor, or television. The support apparatus also includes an arm assembly that includes a first arm member that defines a cavity, an axle receiving body attached to the mounting body, and an axle that extends through the axle receiving body and into the cavity of the first arm member. The axle has a hole. The support apparatus also includes a friction adjustment mechanism that includes a plurality of rotatable elements positioned in the cavity that are attached to the axle so that the rotatable elements rotate when the axle rotates and a plurality of friction inducing elements positioned in the cavity that

We claim:

~~1. A support apparatus comprising:~~

~~an arm assembly, the arm assembly having a first arm member;~~

~~a mounting body for a display or light rotatably attached to the first arm member of the arm assembly via a rotatable attachment located between the mounting body and the first arm member, the rotatable attachment comprising an axle the mounting body moves about when rotating; and~~

~~a friction adjustment mechanism, the friction adjustment mechanism positioned between the mounting body and the arm assembly, actuation of the friction adjustment mechanism moving friction inducing elements closer to rotatable elements attached to the axle of the rotatable attachment such that more friction occurs when the mounting body is rotated via the rotatable attachment to adjust an amount of friction applied during tilting of the mounting body via the rotatable attachment.~~

~~2~~1. A support apparatus comprising:

an arm assembly having a first arm member, the first arm member defining a cavity;

a mounting body for a display device;

an axle receiving body attached to the mounting body;

an axle that extends through the axle receiving body and into the cavity of the first arm member, the axle having a hole;

a friction adjustment mechanism comprising:

a plurality of rotatable elements positioned in the cavity that are attached to the axle such that the rotatable elements rotate when the axle rotates,

a plurality of friction inducing elements positioned in the cavity, each of the friction inducing elements attached to the first arm member, each of the friction inducing elements having an inner opening, through which the axle extends, the inner opening of each of the friction inducing elements being sized so that the axle is rotatable when extending through the inner opening,

the friction inducing elements being positioned adjacent to the rotatable elements such that at least one of the rotatable elements rubs against or engages at least one of the friction inducing elements when the axle rotates, and

a rotatable member extending into the hole of the axle, the rotatable member rotatable in a first direction to move further into the hole and rotatable in a second direction that is opposite the first direction to move out of the hole, movement of the rotatable member in the first direction causing the friction inducing elements to be further compressed against the rotatable elements to increase an amount of friction caused by rotation of the axle.

~~3~~2. The support apparatus of claim ~~2~~ 1 further comprising a mechanical tool releasably attached to the mounting body, the mechanical tool positionable to engage the rotatable member to drive rotational movement of the rotatable member for adjusting the amount of friction induced between the rotatable elements and the friction inducing elements caused by rotation of the axle; and

wherein the friction adjustment mechanism is also comprised of a body portion positioned adjacent to the first arm member such that the first arm member is between the axle receiving body and the body portion, the rotatable member extending through the body portion of the friction adjustment mechanism for extending into the hole of the axle.

43. The support apparatus of claim ~~2~~ 1 wherein the friction inducing elements each have at least one aperture that is sized to mate with at least one protuberance of the first arm member that extends into the cavity or is positioned adjacent the cavity.

~~5~~4. The support apparatus of claim ~~4~~ 3 wherein the at least one protuberance of the first arm member comprises a plurality of protuberances and the at least one aperture of each of the friction inducing elements is comprised of a plurality of apertures, and wherein movement of the rotatable member in the first direction causes the friction inducing elements to move along the protuberances.

~~6~~5. The support apparatus of claim ~~2~~ 1 wherein at least one of the friction inducing elements is positioned between different rotatable elements.

~~7~~6. The support apparatus of claim ~~2~~ 1 wherein the rotatable elements comprise a first rotatable element, a second rotatable element and a third rotatable element and wherein the friction inducing elements comprise a first friction inducing element, a second friction inducing element and a third friction inducing element and wherein the first friction inducing element is positioned between the first and second rotatable elements and the second friction inducing element is positioned between the second and third rotatable elements and the third friction inducing element is positioned next to the third rotatable element on a side of the third rotatable

element that is opposite a side of the third rotatable element along which the second friction inducing element is positioned.

~~8~~7. The support apparatus of claim ~~2~~ 1 wherein the rotatable member is a bolt or a screw.

~~9~~8. The support apparatus of claim ~~2~~ 1 wherein the axle has a middle portion located between a first end and a second end opposite the first end, the middle portion having a polygonal cross section.

~~10~~9. The support apparatus of claim ~~2~~ 1 wherein the friction adjustment mechanism is also comprised of a body portion positioned adjacent to the first arm member such that the first arm member is between the axle receiving body and the body portion, the rotatable member extending through the body portion of the friction adjustment mechanism for extending into the hole of the axle, the body portion of the friction adjustment mechanism moving when the rotatable member rotates in the first direction.

~~11~~10. The support apparatus of claim ~~10~~ 9 wherein the body portion of the friction adjustment mechanism is attached to the mounting body.

~~12~~11. The support apparatus of claim ~~2~~ 1 wherein the mounting body is comprised of a peripheral frame rotatably attached to an inner portion and wherein the axle receiving body is attached to mounting body by being attached to the inner portion of the mounting body.

~~13~~12. The support apparatus of claim ~~2~~ 1 wherein the mounting body is sized and configured to hold or retain a monitor, liquid crystal display, a display device, or a television.

~~14~~13. The support apparatus of claim ~~2~~ 1 further comprising a post, the arm assembly being attached to the post.

~~15~~14. The support apparatus of claim ~~14~~ 13 further comprising a collar moveably attached to the post such that the collar is moveable along the post and wherein the arm assembly is positioned on or attached to the collar such that movement of the collar along the post vertically adjusts a position of the arm assembly.

~~16~~15. The support apparatus of claim ~~2~~ 1 wherein the axle has a first end, a second end opposite the first end and a middle portion between the first end and the second end and wherein the second end of the axle is adjacent the axle receiving body, and the middle portion is positioned in the cavity of the first arm member.

~~17~~16. The support apparatus of claim ~~16~~ 15 wherein the first end of the axle is also in the cavity of the first arm member.

~~18~~17. The support apparatus of claim ~~2~~ 1 wherein the arm assembly is comprised of a second arm member pivotally attached to the first arm member.

~~19~~18. The support apparatus of claim ~~2~~ 1 further comprising a positionable body moveably attached to an inner portion of the mounting body, the positionable body engaging a lip of a peripheral frame portion of the mounting body that is rotatable about the inner portion of the mounting body, the positionable body being adjustably positionable to at least one of increase and decrease an amount of force needed to rotate the peripheral frame portion of the mounting body about the inner portion of the mounting body.

~~20~~19. The support apparatus of claim ~~19~~ 18 wherein the rotatable member is a first rotatable member and the support apparatus further comprising:

a mechanical tool releasably attached to the mounting body, the mechanical tool positionable to engage the first rotatable member to drive rotational movement of the rotatable member for adjusting an amount of friction induced between the rotatable elements and the friction inducing elements caused by rotation of the axle; and

a second rotatable member that passes through an opening of the positionable body, the second rotatable member being moveable into and out of a channel defined within one of the inner portion of the mounting body and a member receiving body attached to the inner portion of the mounting body, the mechanical tool positionable to engage the second rotatable member to drive rotational movement of the second rotatable member to adjust a position of the positionable body to at least one of increase and decrease the amount of force needed to rotate the peripheral frame portion of the mounting body about the inner portion of the mounting body.

~~21~~20. The support apparatus of claim ~~2~~ 1 wherein each of the rotatable elements is a washer and the friction inducing elements are each comprised of an annular body or a washer.