

Doc Code: TR.PROV
Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (04-07)
Approved for use through 06/30/2010 OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Provisional Application for Patent Cover Sheet

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Inventor(s)

Inventor 1

Remove

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All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

Add

Title of Invention	LOW PROFILE FOUR BAR LINKAGE MOUNTING DEVICE
Attorney Docket Number (if applicable)	

Correspondence Address

Direct all correspondence to (select one):

☐ The address corresponding to Customer Number ☒ Firm or Individual Name

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are:

Entity Status					
Applicant claims small entity status under 37 CFR 1.27					
☒ Yes, applicant qualifies for small entity status under 37 CFR 1.27 ☐ No					
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Please see 37 CFR 1.4(d) for the form of the signature.					
Signature				Date (YYYY-MM-DD)	2010-06-01
First Name	KURT	Last Name	MASSEY	Registration Number (If appropriate)	
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6-1-2010

Figure 1 shows the right side view of the preferred embodiment in the all the way out position.

Figure 2 shows an isometric view of the preferred embodiment in the same position as Figure 1.

Figure 3 shows the front view of the mount in the up position.

Figure 4 shows the front view of the mount in the down position.

Figure 5 shows the right side view of the mount in the up position, with the adjustable linkage, bars 4 and 32, as long as possible. Figures 1, 2, 3, and 4 have the same adjustable linkage setting.

Figure 6 shows the right side view of the mount in the up position, with the adjustable linkage, bars 4 and 32, as short as possible.

Figure 7 shows the right side view of the mount in the down position, with the adjustable linkage, bars 4 and 32, as long as possible, which is the same linkage setting as Figures 1, 2, 3, 4, and 5.

Figures 8 shows the right side view of the mount in the down position, with the adjustable linkage, bars 4 and 32, as short as possible, which is the same linkage setting as Figure 6.

The "Low Profile Four Bar Linkage Mounting Device" allows for objects to be stored in an up, low profile, hidden position, see Figures 3, 5, and 6. The mounted object can easily be moved from the up position to other positions along a circular path via a four bar drag-linkage setup, see Figure 1. The four bar linkage is made up of the fixed linkage 1, which connects to the main load bearing linkage 2 thru pivot 17, which connects to the object


6-1-2010

mounting linkage 3 thru pivot 19, which connects to the adjustable length linkage 4 and 32 thru pivot 11, which connects back to linkage 1 thru pivot 15.

A counterbalance system 8 is employed to allow for the controlled movement of the mounted object. The counterbalance system is adjustable 24 to vary the balancing force to allow for different size objects and user preferences. A locking knob allows the user to stop pivot 11 from pivoting, this allows the object to be locked in place in any possible position. The tilt setting knob 36 allows the user to change the length of linkage 4 and 32; this changes the angle of the mounted object in all positions, see Figures 5, 6, 7, and 8.

The linkages are set up in such a way so that in the up position pivot 11 goes past the center line drawn between pivots 15 and 19. This is called going over center and it locks the mount into the up position automatically, without the need to use the locking knob or any other means of locking. Any downward force on the mounted object in this position will not actuate the mount. A horizontal force applied towards the bottom of the mounted object will cause the mount to unlock.

The fixed side of the mount should be mounted to a structure sturdy enough to handle the load of the mount and any attached objects. The moving side of the mount is mounted to the object via arms 7 and 9. Arms 5 and 7 attach to the object to be mounted first and then they are hooked onto linkage 3 at the top. Bolts attach the arms to linkage 3 at the bottom for a secure connection.


6-1-2010

The mount is designed so that when it starts moving from the up position, the mounted object will move forward a lot before it starts to move down, this is so that the mounted object can be brought down and in front of an object below the mount that sticks out, such as a fireplace mantel. An optional feature that isn't shown is an adjustable lower hard stop to prevent the mount from hitting something below, or to get a repeatable viewing angle.

The four bar linkage is setup so that as the mounted object moves from the up to the down position, the mounted object tilts backward so that the front will be normal to someone looking at it from both the up and down positions automatically. An example of the usefulness of this is someone who mounts a flat screen TV to the preferred embodiment and adjusts the up position so that the screen is normal to a viewer when sitting on a nearby couch. As the mount moves to the down position, the TV screen will stay relatively normal to the viewer on the couch, without having to change the length of the adjustable linkage. This automatic tilting can be seen by comparing figures 1 to 5, to 7, and figures 6 to 8.


6-1-2010

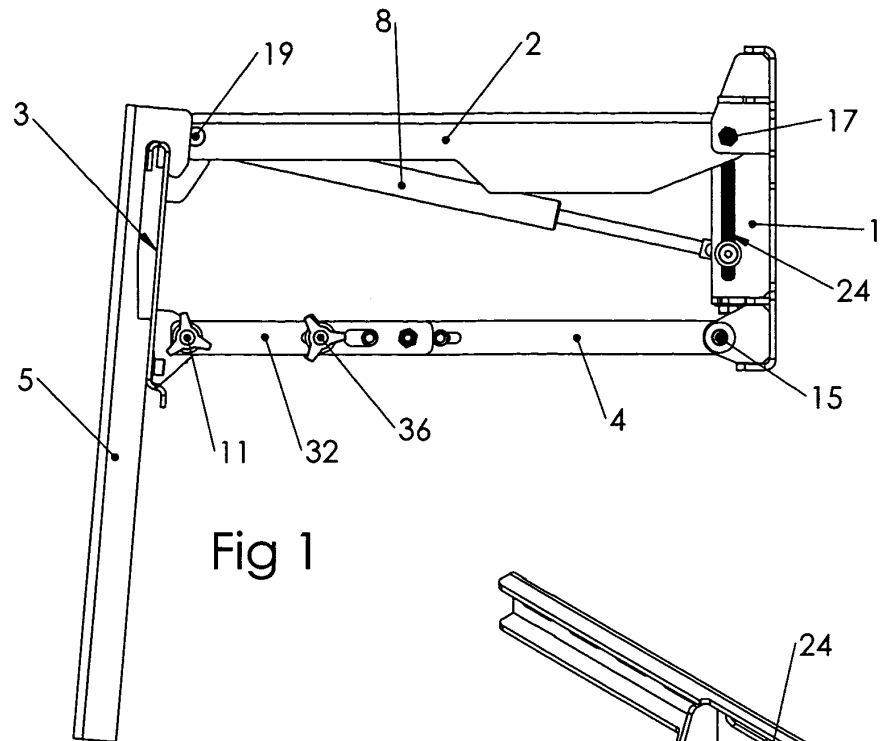


Fig 1

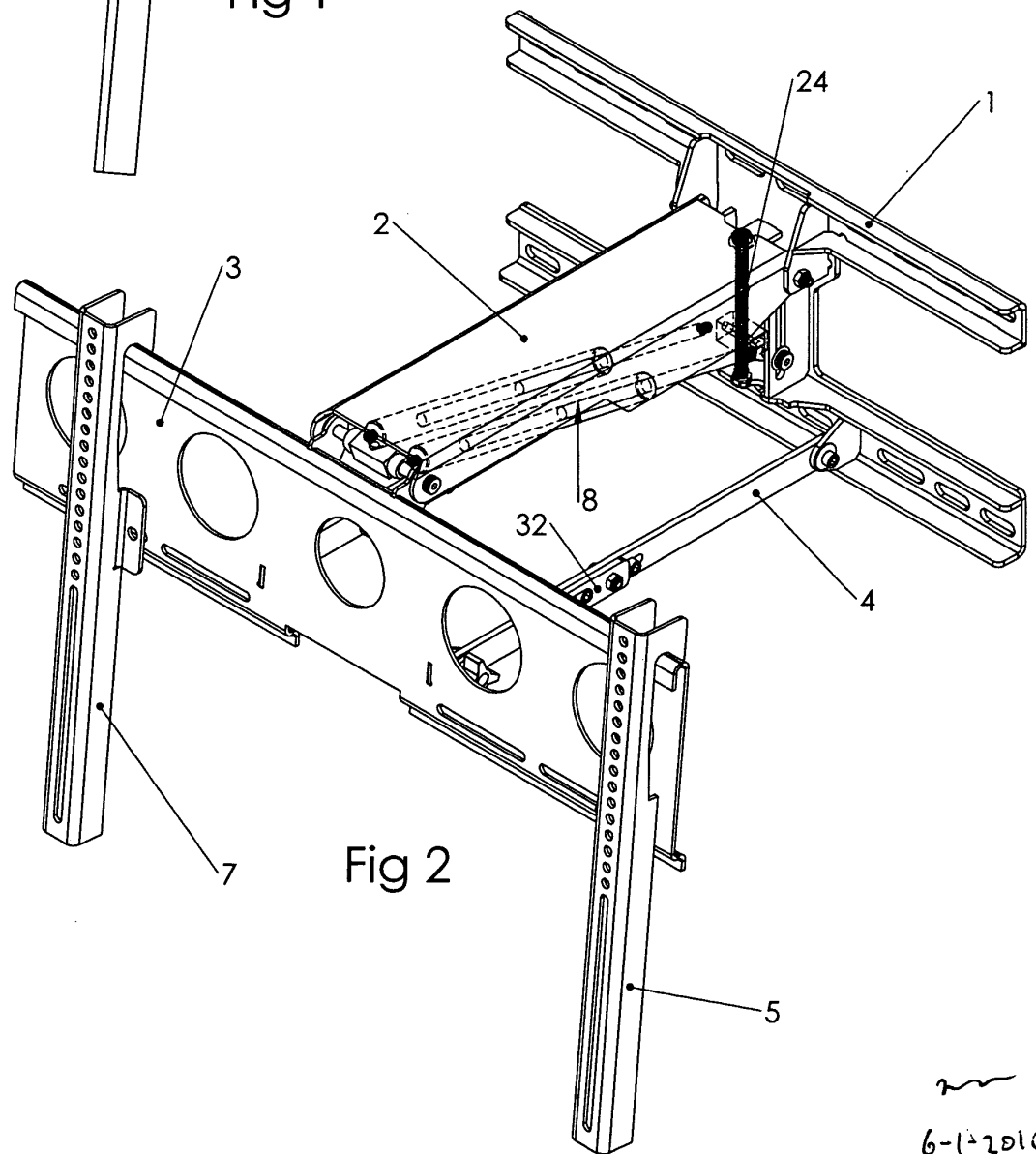


Fig 2

6-1-2010

Fig 3

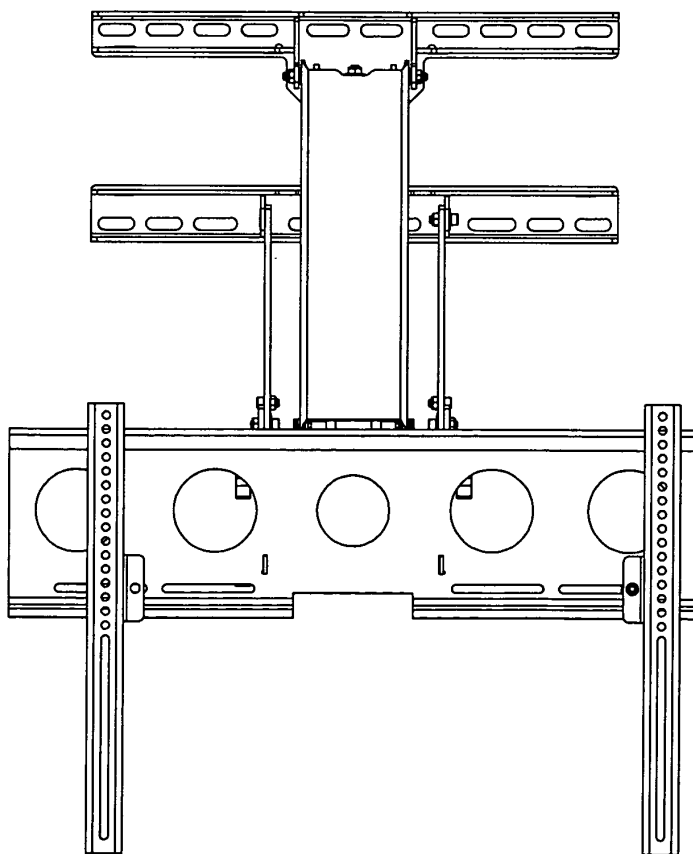
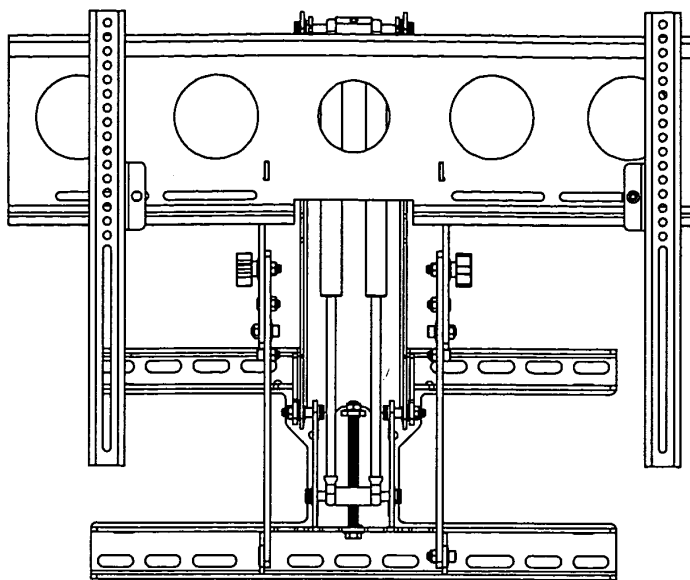


Fig 4

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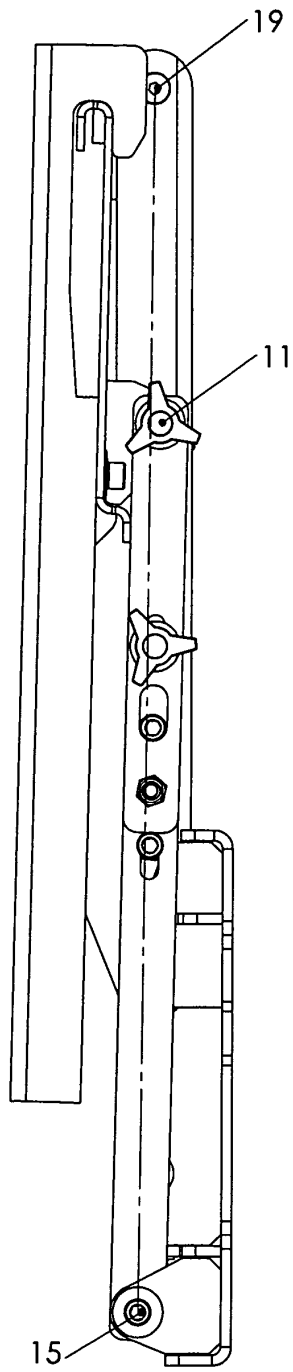


Fig 5

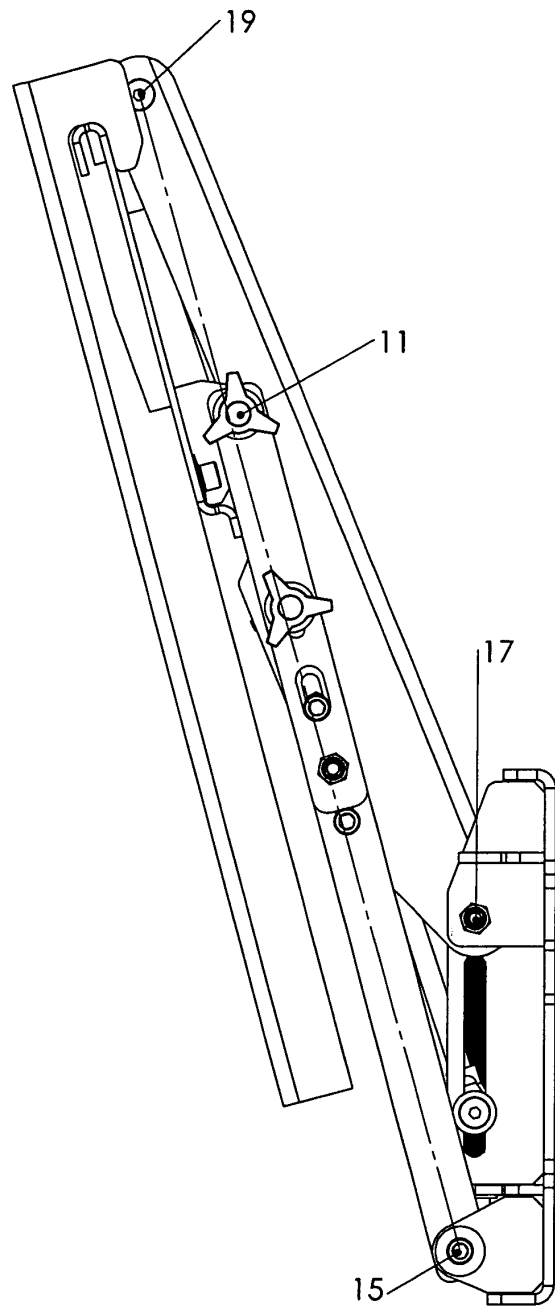


Fig 6

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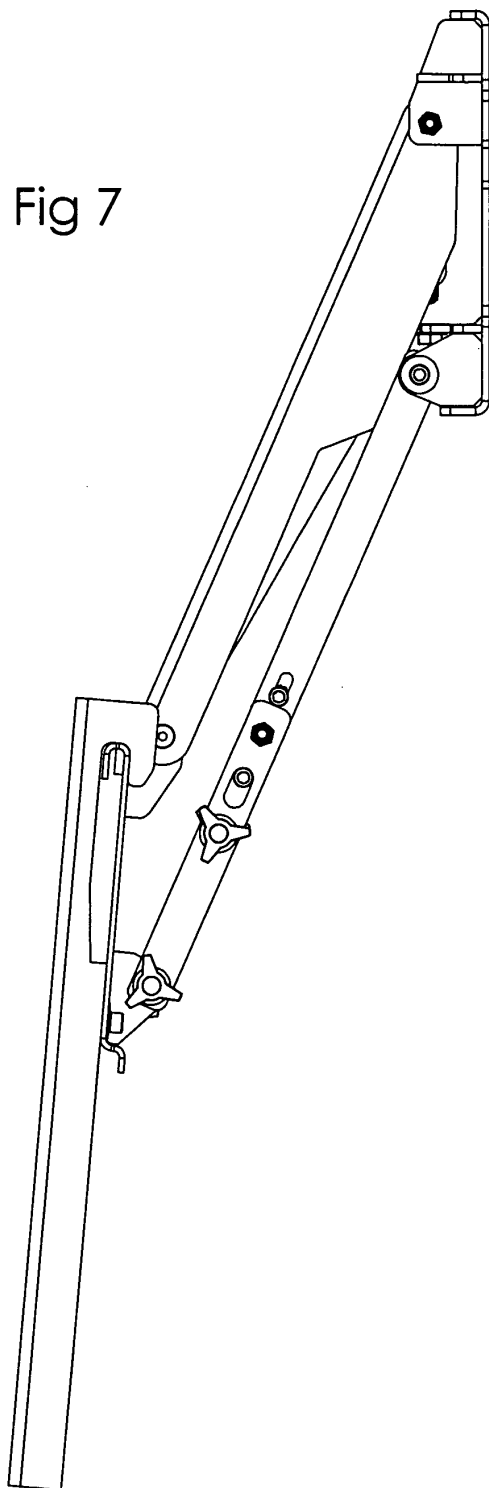


Fig 7

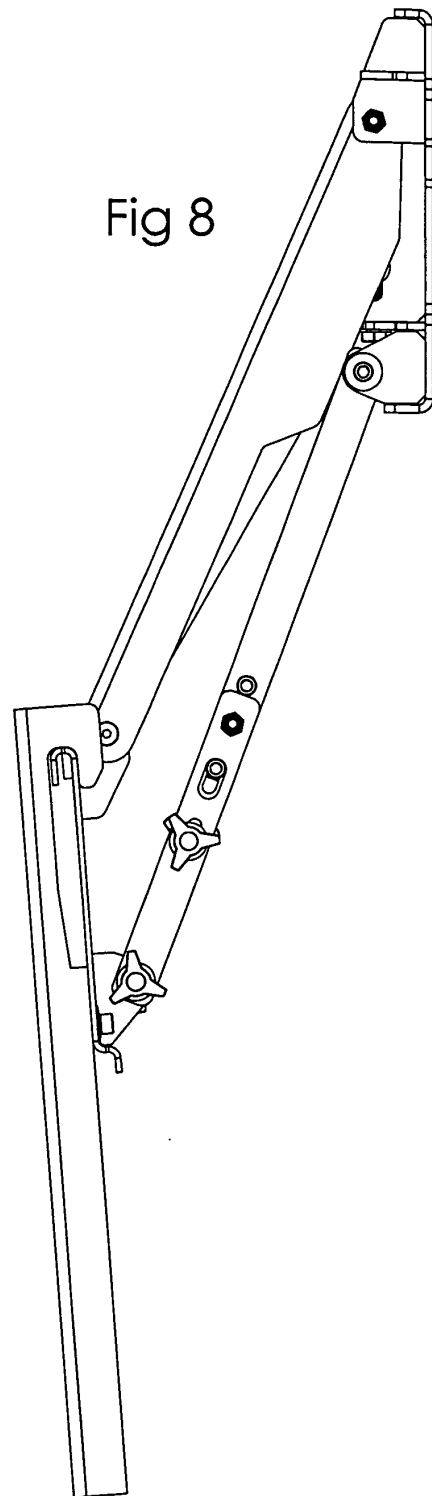


Fig 8

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