



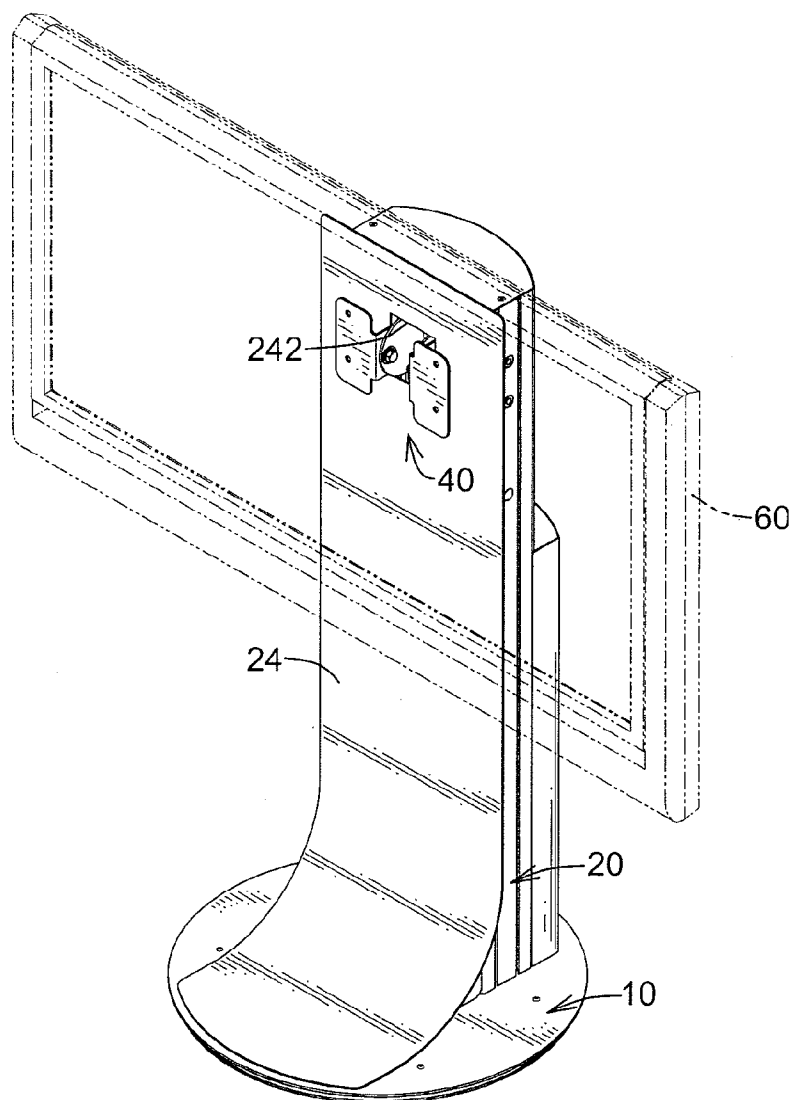
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(19) **United States**(12) **Patent Application Publication**
HUNG(10) **Pub. No.: US 2009/0173702 A1**(43) **Pub. Date: Jul. 9, 2009**(54) **ELECTRICALLY CONTROLLED PITCH
ADJUSTABLE FLAT PANEL DISPLAY
BRACKET****Publication Classification**(51) **Int. Cl.**
A47F 7/00 (2006.01)(52) **U.S. Cl.** **211/26**(75) **Inventor:** **Chin-Jui HUNG**, Taichung Hsien
(TW)

Correspondence Address:

PATENTTM.US**P. O. BOX 82788****PORTLAND, OR 97282-0788 (US)**(73) **Assignee:** **MODERNSOLID INDUSTRIAL
CO., LTD.**, Taichung Hsien (TW)(21) **Appl. No.:** **11/969,733**(22) **Filed:** **Jan. 4, 2008**(57) **ABSTRACT**

An electrically controlled pitch adjustable flat panel display bracket has a base, a frame, a driving device and at least one display rack. The frame is attached securely to the base. The driving device has a driving device body and an extending arm. The display rack is pivotally mounted inside the frame, protrudes out of the frame for attaching a flat panel display (FPD) and is pivotally mounted on the extending arm. The driving device body may be actuated by a remote control to extend and retract the extending arm to adjust a pitch of the FPD conveniently.



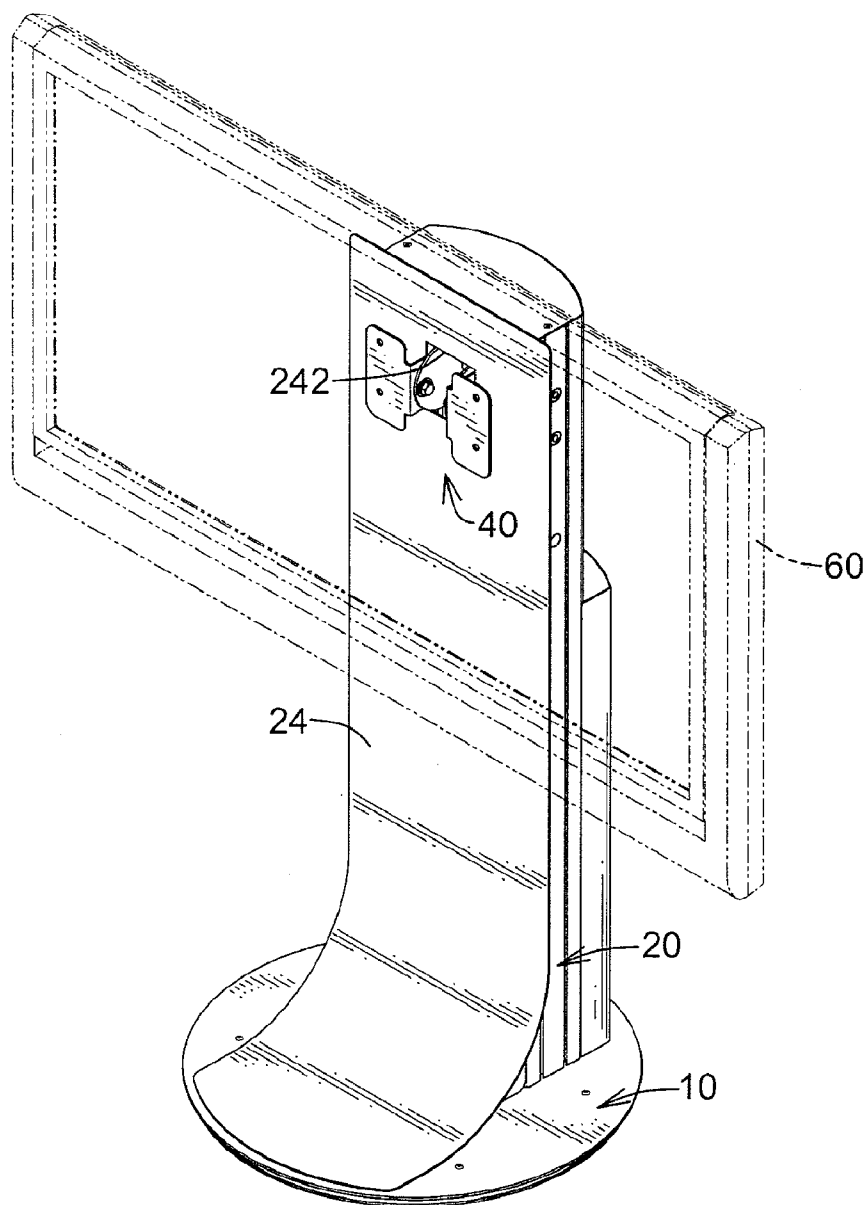


FIG. 1

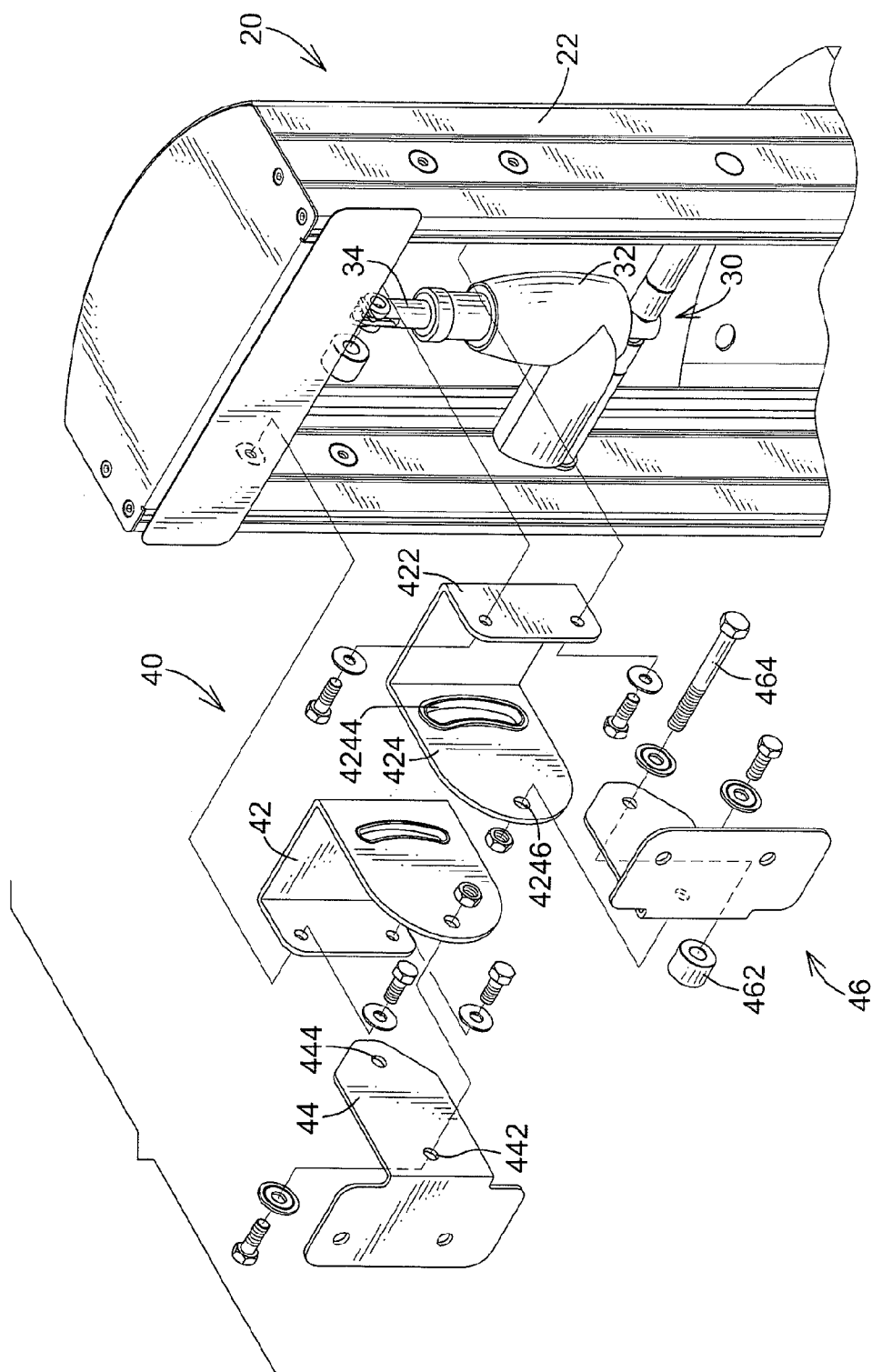


FIG. 2

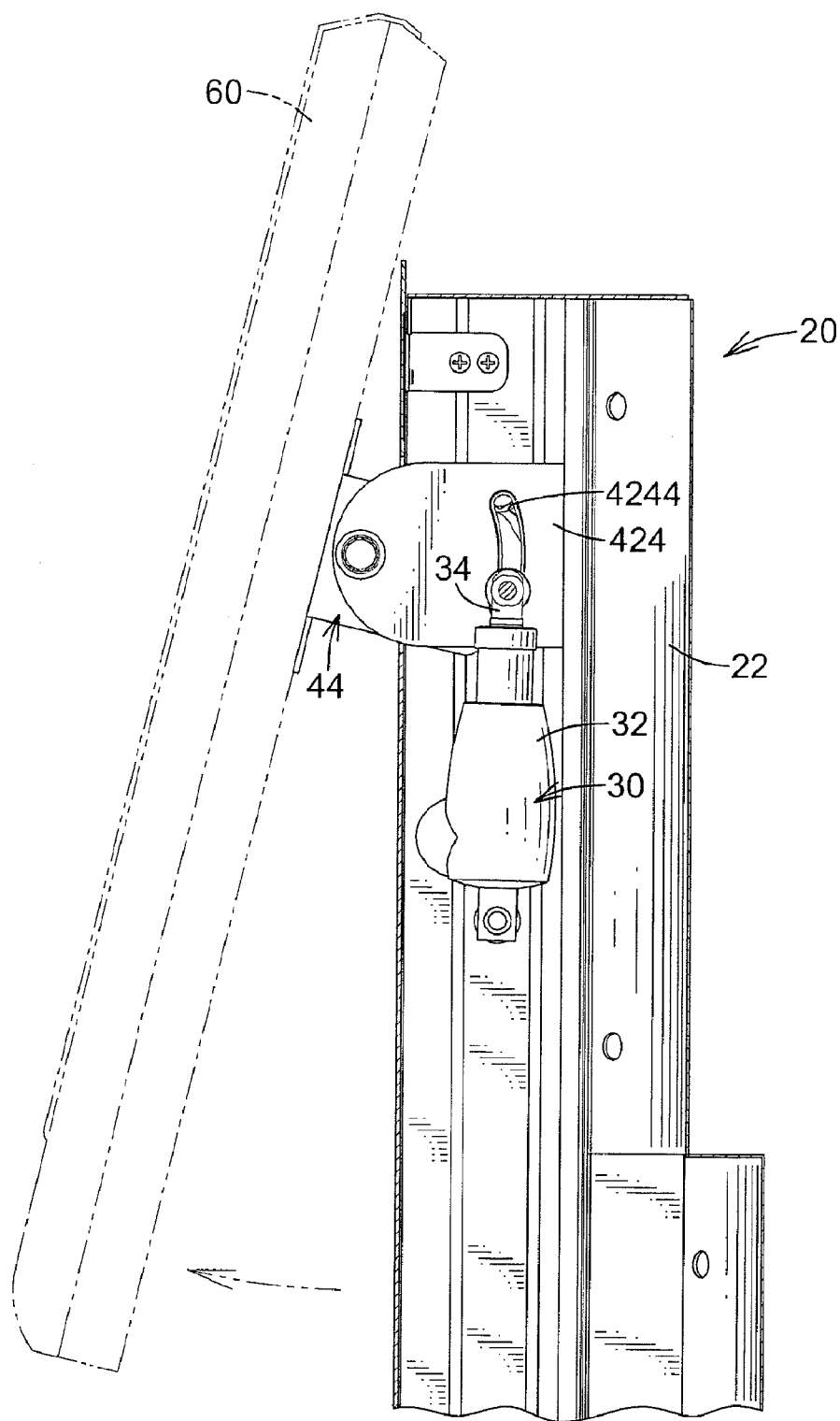


FIG. 3

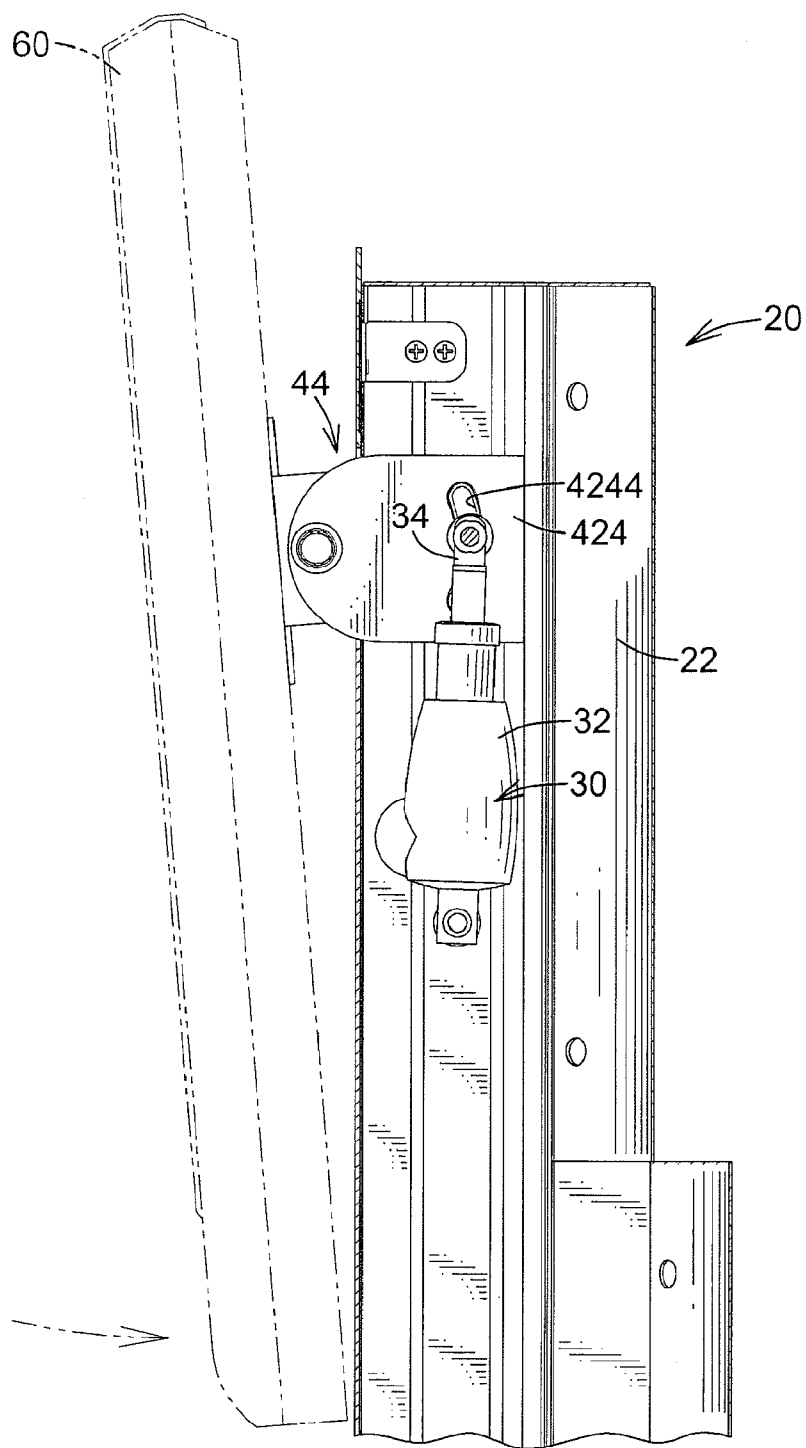


FIG. 4

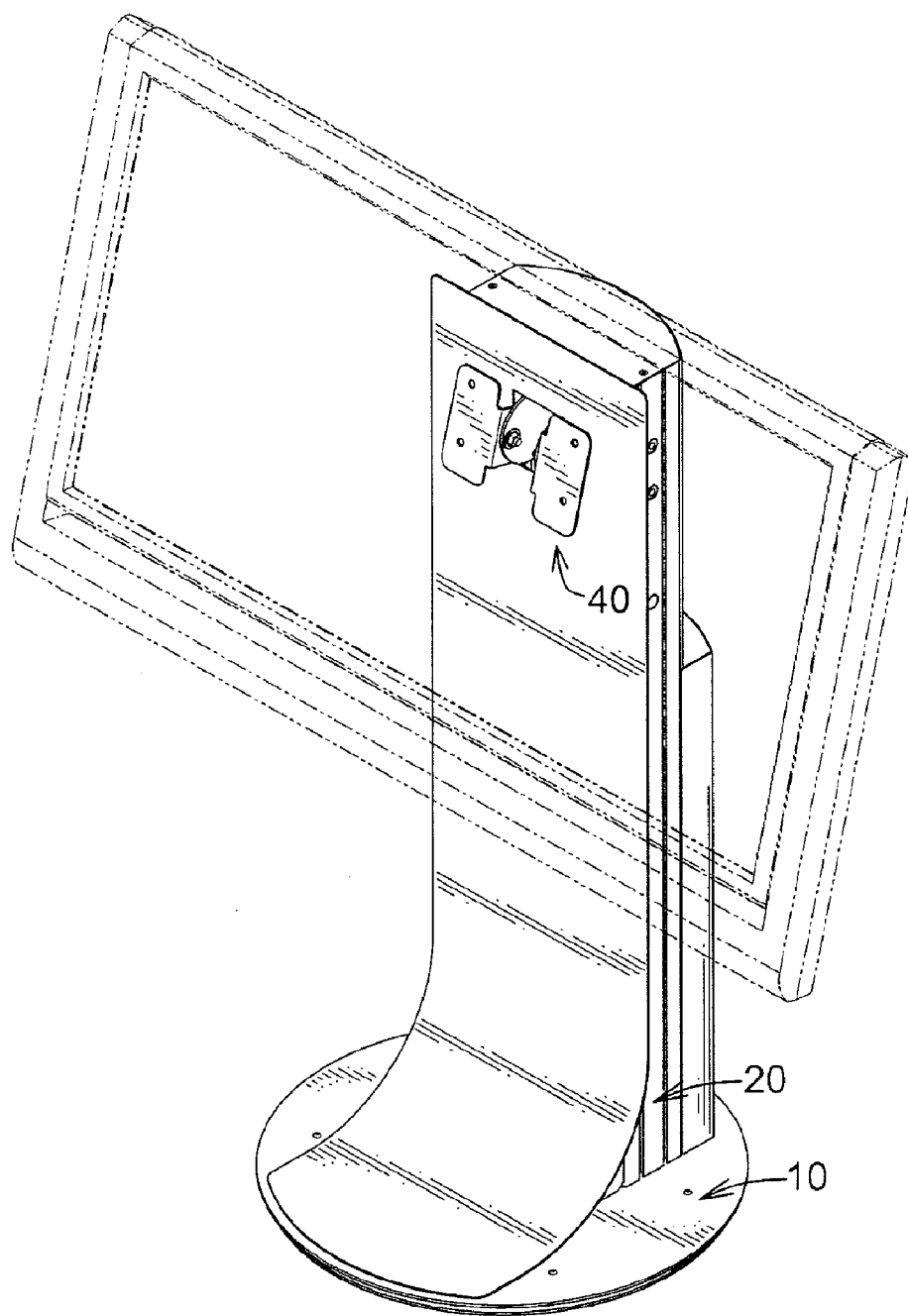


FIG. 5

ELECTRICALLY CONTROLLED PITCH ADJUSTABLE FLAT PANEL DISPLAY BRACKET

BACKGROUND OF THE INVENTION

[0001] 1. Field of Invention

[0002] The present invention relates to a flat panel display bracket, and more particularly to an adjustable pitch flat panel display bracket.

[0003] 2. Description of the Related Art

[0004] Flat Panel Displays (FPD) are thin and lightweight. Normally, the FPD is hung on a wall or placed in a television cabinet in a living room. However, because the FPD is hung or attached to a surface, changing a pitch of the FPD is not achieved easily.

[0005] The present invention provides an electrically controlled pitch adjustable flat panel display bracket to obviate or mitigate the shortcomings of the conventional setting methods of the FPD.

SUMMARY OF THE INVENTION

[0006] The primary objective of the present invention is to provide an electrically controlled pitch adjustable flat panel display bracket allowing a flat panel display (FPD) to adjust a pitch of the FPD conveniently.

[0007] The electrically controlled pitch adjustable flat panel display bracket has a base, a frame, a driving device and at least one display rack. The frame is attached securely to the base. The driving device has a driving device body and an extending arm. The display rack is pivotally mounted inside the frame, protrudes out of the frame for attaching a flat panel display (FPD) and is pivotally mounted on the extending arm. The driving device body may be actuated by a remote control to extend and retract the extending arm to adjust a pitch of the FPD.

[0008] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a perspective view of an electrically controlled pitch adjustable flat panel display bracket in accordance with the present invention;

[0010] FIG. 2 is an enlarged, exploded perspective view of a display rack of the electrically controlled pitch adjustable flat panel display bracket in FIG. 1;

[0011] FIG. 3 is an enlarged, operational side view in partial section of the electrically controlled pitch adjustable flat panel display bracket in FIG. 1, a pitch of a mounted flat panel display being shown in phantom lines and being positively adjusted;

[0012] FIG. 4 is the enlarged, operational perspective view in partial section of the electrically controlled pitch adjustable flat panel display bracket in FIG. 1, the pitch of the mounted flat panel display being shown in phantom lines and being negatively adjusted; and

[0013] FIG. 5 is a perspective view of the electrically controlled pitch adjustable flat panel display bracket in FIG. 1, showing the flat panel display with a positive pitch being shown in phantom lines.

DETAILED DESCRIPTION OF THE INVENTION

[0014] With reference to FIGS. 1 and 2, an electrically controlled pitch adjustable flat panel display bracket in accordance with the present invention comprises an optional base (10), a frame (20), a driving device (30) and at least one display rack (40).

[0015] The base (10) comprises at least one disc, may be rotatable and has a top surface.

[0016] The frame (20) is mounted on any flat surface and may be attached securely to the top surface of the base (10) and has a body (22) and an optional cover (24). The body (22) is tubular and has a proximal end, a distal end, a front surface, an inner surface and an opening. The proximal end may be mounted securely on the top surface of the base (10). The opening is formed on the front surface of the body (22).

[0017] The cover (24) corresponds to the opening of the body (22), detachably covers the opening of the body (22) and has a rack opening (242).

[0018] The driving device (30) has a controllably changeable length, is mounted on the inner surface of the body (22), is electronically controlled to change the length, may be a motor-controlled robot, an electronic cylinder or the like and has a driving device body (32) and an extending arm (34).

[0019] The driving device body (32) is securely mounted on the inner surface of the body (22). The extending arm (34) is telescopically mounted on the driving device body (32), has a distal end and is electronically controlled to move the distal end away and toward the driving device body (32). When the driving device (30) is the motor-controlled robot, the driving device body (32) is a motor being electronically controlled to actuate the extending arm (34) to move toward or away from the motor.

[0020] Each display rack (40) is pivotally mounted on the inner surface of the body (22), protrudes out of the frame (20) and may protrude through the rack opening (242) of the cover (24), is pivotally mounted on the distal end of the extending arm (34) and may have a rack bracket (42), a pivot rack (44) and a pivotal mounting assembly (46).

[0021] The rack bracket (42) has a fastening surface (422) and a pivotal surface (424). The fastening surface (422) is securely mounted on the inner surface of the body (22). The pivotal surface (424) is connected parallelly to the fastening surface (422) and has a guide slot (4244) and a fulcrum hole (4246). The guide slot (4244) may be arced and is formed through the fastening surface (422). The fulcrum hole (4246) is formed through the fastening surface (422) adjacent to the guide slot (4244).

[0022] The pivot rack (44) has a proximal surface, a distal surface, a fulcrum hole (442) and a guide hole (444).

[0023] The proximal surface is pivotally mounted on the pivotal surface (424) of the rack bracket (42).

[0024] The distal surface is perpendicular to the proximal surface and protrudes out of the frame (20) through the rack opening (242) for mounting a flat panel display (FPD) (60).

[0025] The fulcrum hole (442) is formed through the proximal surface of the pivot rack (44) close to the distal surface and is pivotally mounted to the fulcrum hole (4246).

[0026] The guide hole (444) is formed through the proximal surface of the pivot rack (44) adjacent to the fulcrum hole (442) of the pivot rack (44).

[0027] The pivotal mounting assembly (46) has a hub assembly (462) and a bolt (464).

[0028] The hub assembly (462) is mounted on the distal end of the extending arm (34).

[0029] The bolt (464) is mounted through each guide hole (444) and guide slot (4244) and the hub assembly (462) and the distal end of the extending arm (34) to guide and limit movement of the distal end of the extending arm (34) when the driving device body (32) is controlled to move the extending arm (34) and therefore change pitch of the pivot rack (44) relative to the rack bracket (42).

[0030] With further reference to FIGS. 3, 4 and 5, a remote control or control panel may be used to actuate the driving device body (32) to extend or retract the extending arm (34).

[0031] Two display racks (40) may be symmetrically mounted on the inner surface of the body (22) and are pivotally mounted on the distal end of the extending arm (34).

[0032] At zero pitch, the distal end of the extending arm (34) is level with each guide hole (444) so the distal surface of the pivot rack (44) is also level with the distal end of the extending arm (44).

[0033] When the extending arm (34) is retracted, the pivot rack (44) is rotated around the fulcrum hole (4246) of the rack bracket (42) causing the distal surface of the pivot rack (44) to be raised above the distal end of the extending arm (34), or a pitch of the FPD (60) is positively adjusted.

[0034] When the extending arm (34) is extended, the pivot rack (44) is rotated around the fulcrum hole (4246) of the rack bracket (42) causing the distal surface of the pivot rack (44) to be lowered above the distal end of the extending arm (34), or the pitch of the FPD is negatively adjusted.

[0035] 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. 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.

What is claimed is:

1. An electrically controlled pitch adjustable flat panel display bracket comprising:

- a frame having
 - a body being tubular and having
 - a proximal end being attached to the flat surfaces;
 - a distal end;
 - a front surface;
 - an inner surface; and
 - an opening being formed on the front surface of the body;
- a driving device having a controllably changeable length, being mounted on the inner surface of the body, being electronically controlled to change the length and having
 - a driving device body being securely mounted on the inner surface of the body; and
 - an extending arm being telescopically mounted on the driving device body and having a distal end and being electronically controlled to move the distal end away and toward the driving device body; and
- at least one display rack and each one of the at least one display rack being pivotally mounted on the inner sur-

face of the body, protruding out of the frame and being pivotally mounted on the distal end of the extending arm.

2. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 1, wherein

the frame further has a cover corresponding to the opening of the body, detachably covering the opening of the body and having a rack opening; and

the at least one display rack protrudes out of the rack opening and each one of the at least one display rack has a rack bracket having

- a fastening surface being securely mounted on the inner surface of the body; and
- a pivotal surface being connected parallelly to the fastening surface and having
 - a guide slot being formed through the fastening surface; and
 - a fulcrum hole being formed through the fastening surface adjacent to the guide slot; and

a pivot rack having

- a proximal surface being pivotally mounted on the pivotal surface of the rack bracket;
- a distal surface being perpendicular to the proximal surface and protruding out of the frame through the rack opening;
- a fulcrum hole being formed through the proximal surface close to the distal surface and being pivotally mounted to the fulcrum hole; and
- a guide hole being formed through the proximal surface of the pivot rack adjacent to the fulcrum hole of the pivot rack; and

the at least one display rack further has a pivotal mounting assembly having

- a hub assembly being mounted on the distal end of the extending arm; and
- a bolt being mounted through each guide hole and guide slot and the hub assembly and the distal end of the extending arm to guide and limit movement of the distal end of the extending arm.

3. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 2 further having a base being comprising at least one disc and having a top surface and the frame being attached securely to the top surface of the base.

4. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 2, wherein the electrically controlled pitch adjustable flat panel display bracket has two display racks being symmetrically mounted on the inner surface of the body and being pivotally mounted on the distal end of the extending arm.

5. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 3, wherein the electrically controlled pitch adjustable flat panel display bracket has two display racks being symmetrically mounted on the inner surface of the body and being pivotally mounted on the distal end of the extending arm.

6. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 4, wherein the guide slot is arced.

7. The electrically controlled pitch adjustable flat panel display bracket as claimed in claim 5, wherein the guide slot is arced.