



US 20080100186A1

(19) **United States**

(12) **Patent Application Publication**
Li

(10) **Pub. No.: US 2008/0100186 A1**

(43) **Pub. Date: May 1, 2008**

(54) **FRAME FOR A FLAT PANEL DISPLAY**

Publication Classification

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(51) **Int. Cl.**
A47B 81/00 (2006.01)

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(52) **U.S. Cl.** **312/223.2**

(57) **ABSTRACT**

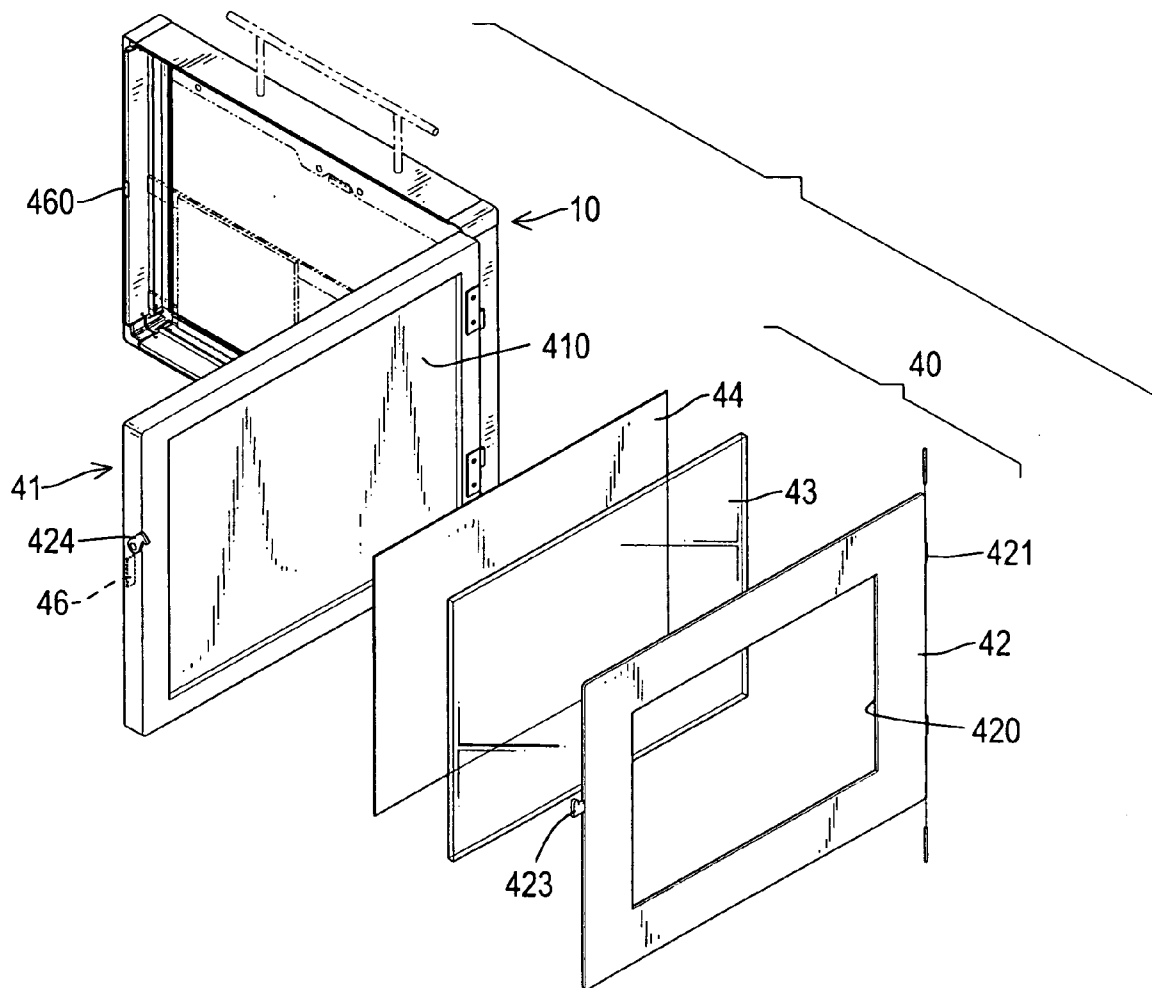
(21) Appl. No.: **11/821,892**

A frame for a flat panel display has four moldings and four bracket assemblies. The moldings are connected to each other to form a quadrangle and each molding has a fascia, two side edges and a mortise. The bracket assemblies are inserted into and connected securely to two adjacent moldings. Therefore, the moldings can be altered easily so the frame can be easily manufactured to fit around any dimension of flat screen panel. Furthermore, the bracket assemblies hold the moldings securely to prevent deformation.

(22) Filed: **Jun. 26, 2007**

(30) **Foreign Application Priority Data**

Oct. 25, 2006 (TW) 095218861



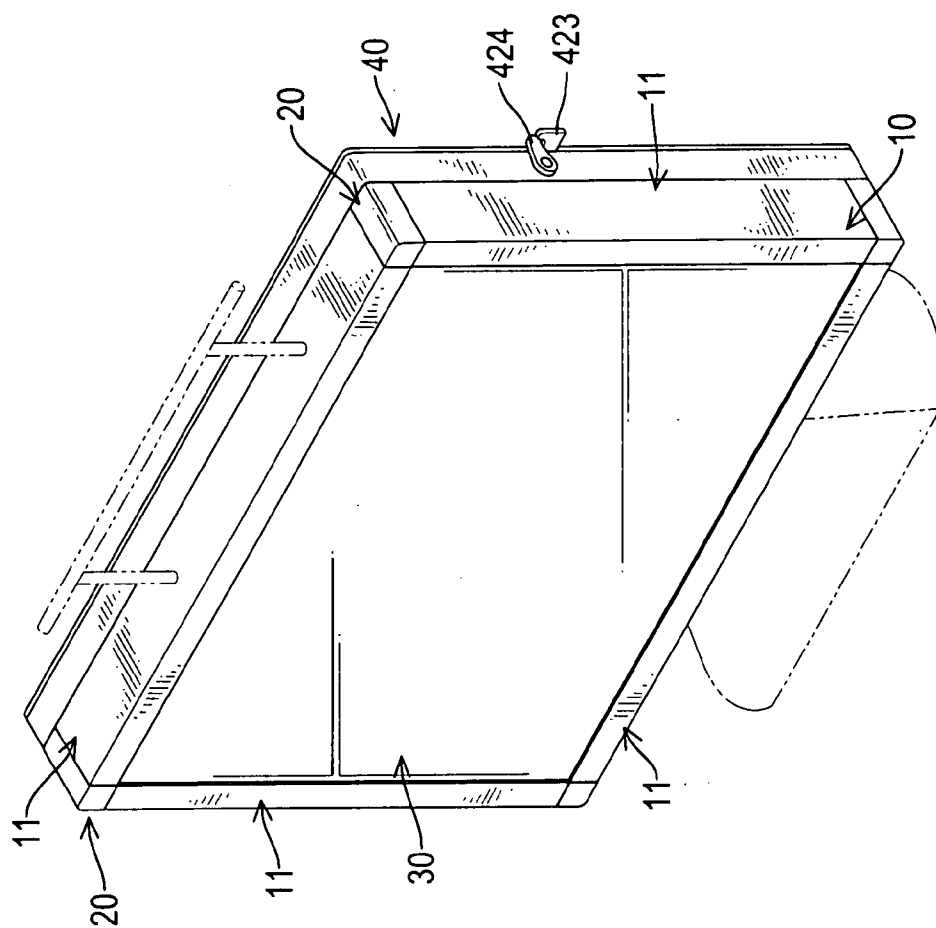


FIG.1

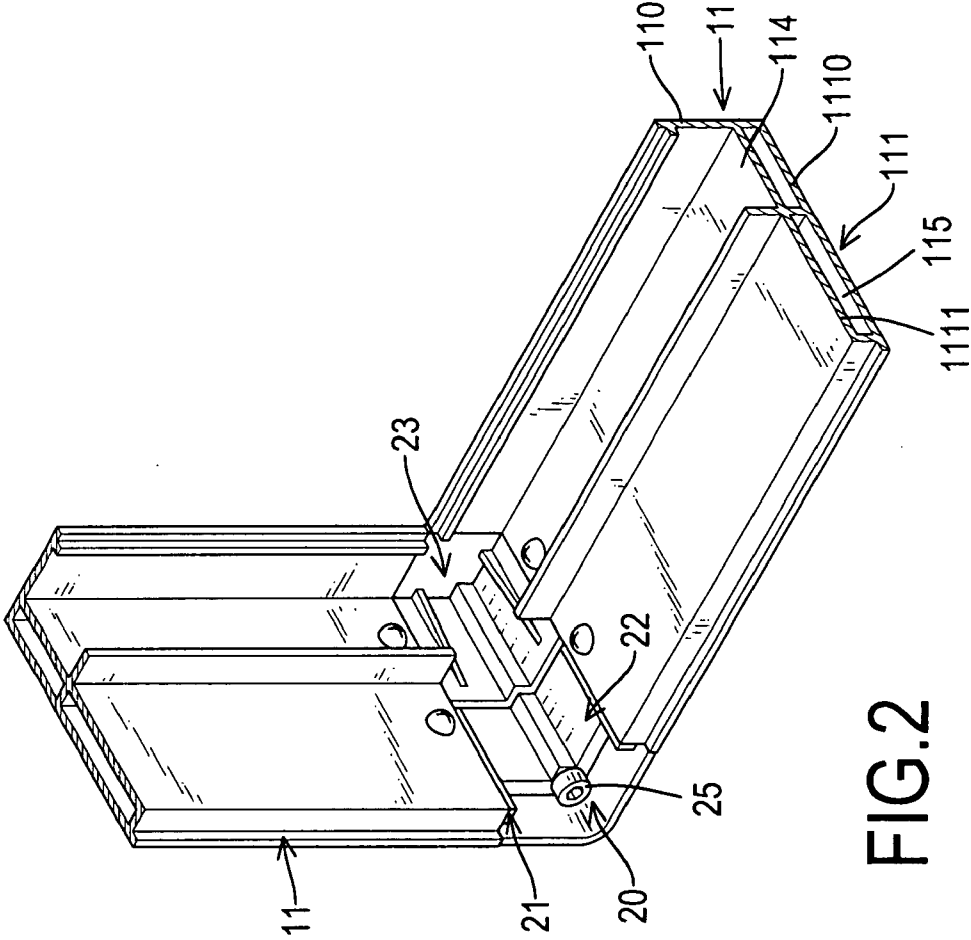


FIG.2

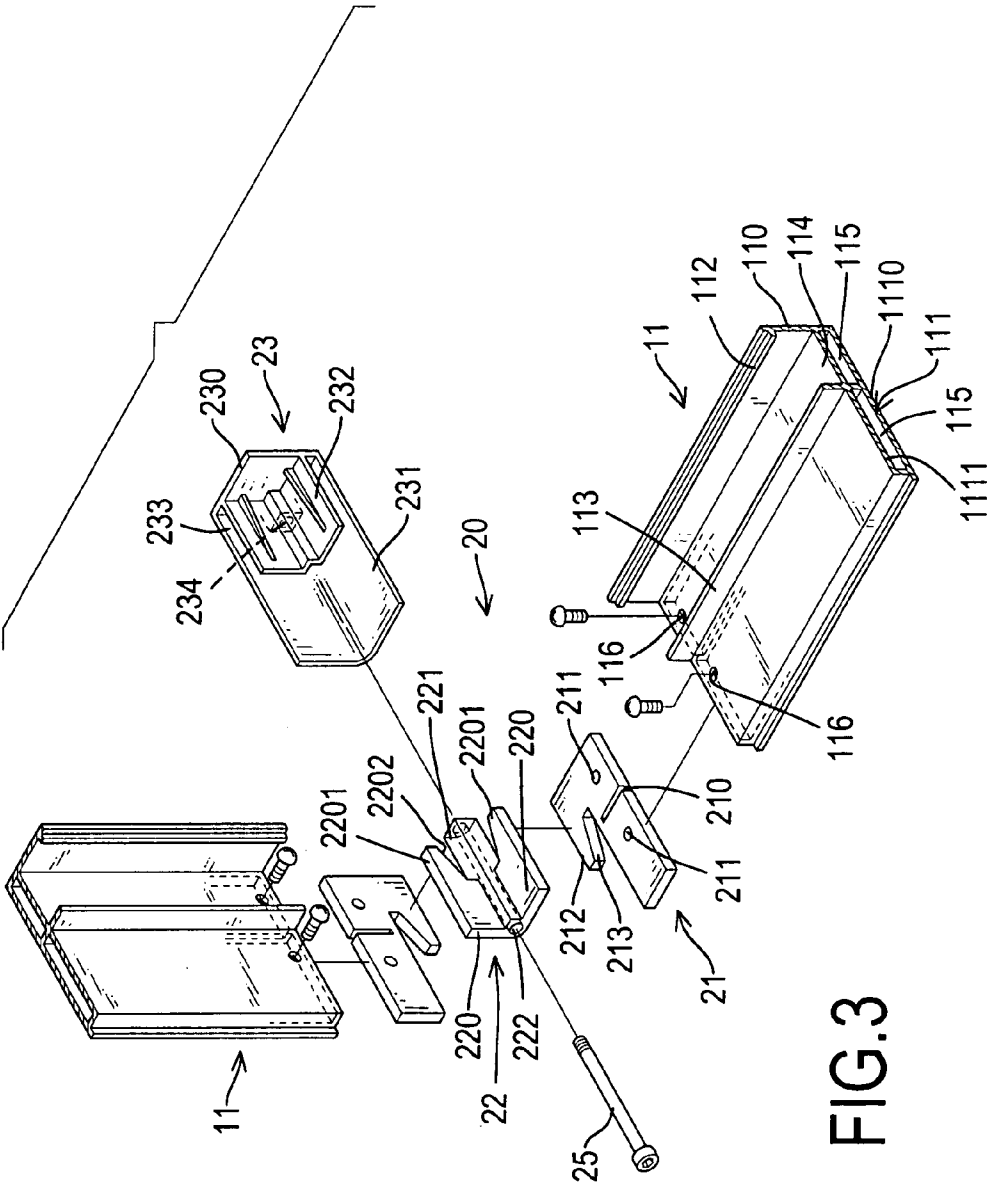


FIG.3

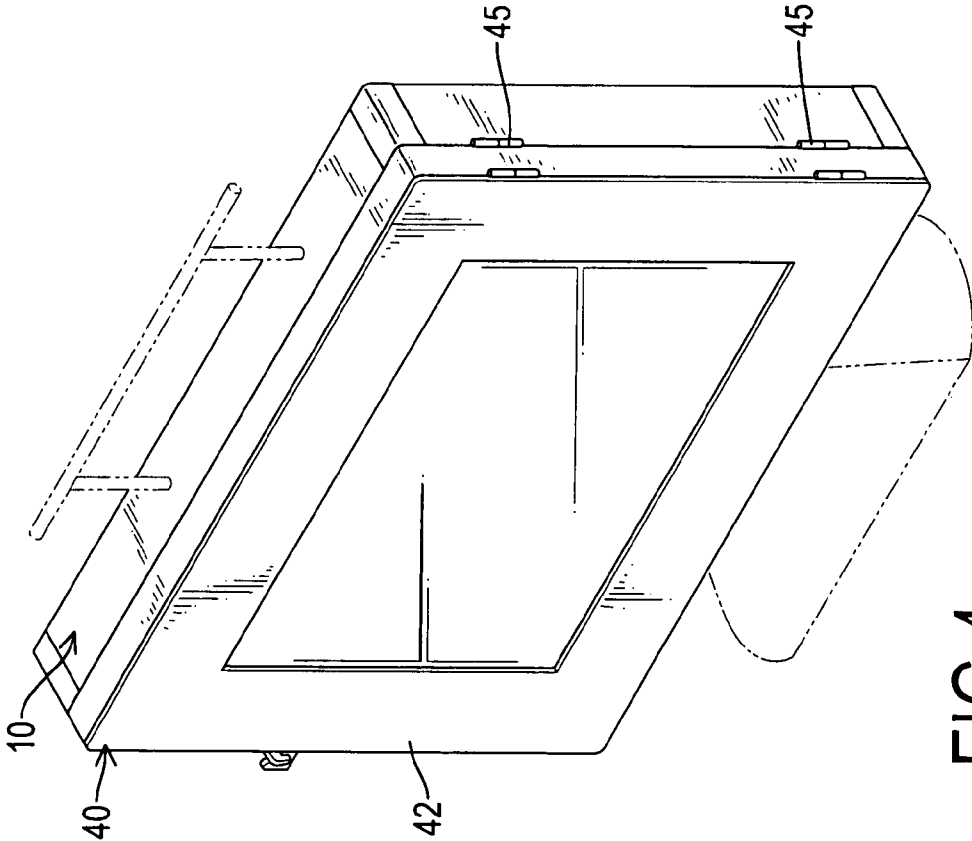


FIG.4

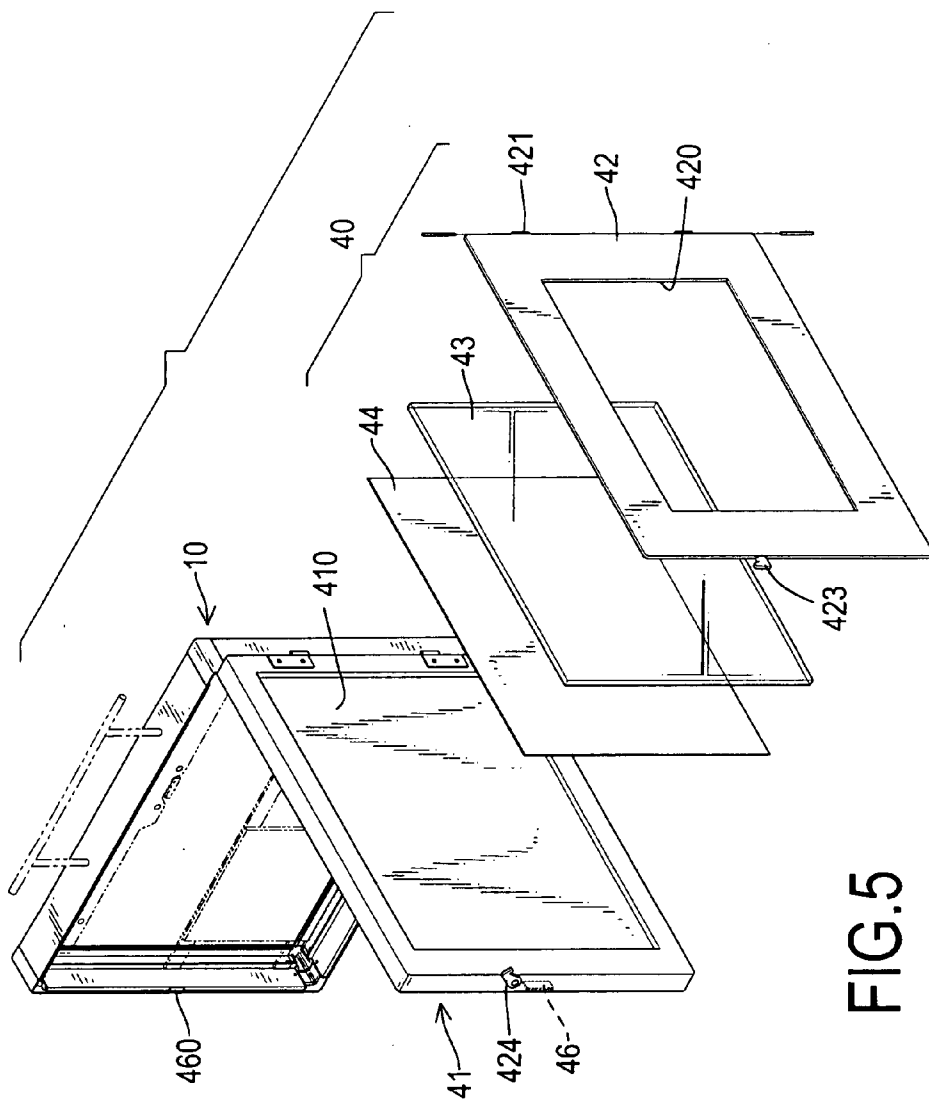


FIG.5

FRAME FOR A FLAT PANEL DISPLAY

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a frame, and more particularly relates to a frame for a flat panel display.

[0003] 2. Description of Related Art

[0004] A conventional flat screen panel is used in conjunction with computers, televisions, digital photo frames or such like and has a flat screen panel and a frame. The flat screen panel is rectangular and increases in size in two-inch increments from 11 inches across the diagonal. The conventional frame is mounted around the flat panel display, and made of plastic by jet molding. Therefore, each size of the flat screen panel requires a distinct mold to manufacture the corresponding frame which increases the cost of manufacture and prevents development of non-standard sizes, nor can the plastic frame cannot be recycled easily.

[0005] Another conventional frame is extruded aluminum and has four moldings, multiple tenon plates and multiple fasteners. The moldings are connected to each other to form a rectangle and each molding has an external surface. The tenon plates are mounted on the external surfaces of the moldings by fasteners.

[0006] However, the conventional aluminum frame has the following shortcomings.

[0007] 1. The tenon plates cannot be mounted securely on the external surface of the moldings causing the conventional aluminum outer frame to deform easily.

[0008] 2. The tenon plates are designed specifically for each corresponding size of molding. Therefore, frames for flat screen panels of different dimensions are expensive to produce.

[0009] 3. Components of the conventional frame are hard to assemble.

[0010] Therefore, the present invention provides a frame to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0011] The main objective of the present invention is to provide a frame for a flat panel display.

[0012] The frame for a flat panel display has four moldings and four bracket assemblies. The moldings are connected to each other to form a quadrangle and each molding has a fascia, two side edges and a mortise. The bracket assemblies are inserted into and connected securely to two adjacent moldings. Therefore, the moldings can be altered easily so the frame can be easily manufactured to fit around any dimension of flat screen panel. Furthermore, the bracket assemblies hold the moldings securely to prevent deformation.

[0013] 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

[0014] FIG. 1 is a front perspective view of a frame for a flat panel display in accordance with the present invention;

[0015] FIG. 2 is an enlarged rear perspective view of the frame in FIG. 1;

[0016] FIG. 3 is an enlarged exploded rear perspective view of the frame in FIG.

[0017] FIG. 4 is a perspective rear view of the frame in FIG. 1; and

[0018] FIG. 5 is a partially exploded rear perspective view of the frame in FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] With reference to FIG. 1, a frame (10) for a flat panel display (30) in accordance with the present invention comprises four moldings (11), four bracket assemblies (20) and an optional static frame (40).

[0020] With further reference to FIGS. 2 and 3, The moldings (11) correspond to and are connected to each other to form a frame and each molding (11) may be aluminum and L-shaped in cross section and has a front edge, a rear, two sides, a fascia (110), two side edges (111), an inner surface, two free ends, an optional ridge (113), an optional chamber (114), at least one mortise (115), multiple optional connecting holes (116) and may comprise a latch (460).

[0021] The fascia (110) is formed on and protrudes from the front edge of the molding (11) and has a distal end and an optional rib (112). The rib (112) is formed on the distal end of the fascia (110).

[0022] The side edges (111) is formed on the rear of the molding (11) perpendicularly to the fascia (110) and may have an outer side edge (1110) and an inner side edge (1111). The outer side edge (1110) is formed perpendicular with the fascia (110). The inner side edge (1111) is formed perpendicular with the fascia (110) and parallel to the outer side edge (1110).

[0023] The ridge (113) is formed on and protrudes from the inner surface of the molding (11).

[0024] The chamber (114) is defined in the molding (11) between the ridge (113), the side edges (1111) and the fascia (110), and corresponds to the chamber in both adjacent moldings (10) and is mounted around the flat panel display (30).

[0025] The mortise (115) is formed in the side edge (111), may be formed through the whole molding or two mortises (115) respectively in each end of the molding (11) between the side edges (111), and may be divided into two by the ridge (113).

[0026] The connecting holes (116) are formed through the inner surface of the molding (11) near the free ends beside the ridge (113) and communicate with the at least one mortise (115) in the side edges (111).

[0027] The molding latch (460) is mounted on the side edge (111) of one of the moldings (11) and may be magnetic.

[0028] The bracket assemblies (20) are connected securely to the moldings (11) and each bracket assembly (20) has a corner cover (23) and a tenon assembly.

[0029] The corner cover (23) may be formed with the tenon assembly to improve aesthetic qualities of the frame (10) and is mounted between two adjacent moldings (11) and has a front (230), an outer cover (231), an optional inner ridge (232) and an optional mounting recess (233).

[0030] The front (230) is a quadrangle and has an inner surface, four edges and an optional fastener mount (234).

[0031] The outer cover (231) is formed on and protrudes from two adjacent edges that do not abut the fascias (110) of two corresponding moldings (11).

[0032] The fastener mount (234) is formed on and protrudes from the inner surface adjacent to the two adjacent edges with the outer cover (231). The inner ridge (232) is

formed on and protrudes from the front (230) parallel through the outer cover (231). The mounting recess (233) is defined in the corner cover (23) between the outer cover (231), the inner ridge (232) and the front (230). Each tenon assembly is inserted into the mortises (115) and connected securely by fasteners to the side edges (111) of two adjacent moldings (11) from the connecting holes (116) and mounted securely in the corner cover (23). Each tenon assembly may be further mounted in the mounting recess (233) of the corresponding corner cover (23).

[0033] The tenon assembly may further comprise two tenon plates (21) and a connector (22). The tenon plates (21) are mounted in the corner cover (23), may be in the mounting recess (233) of the corner cover (23) and have an inserting side, a connecting side, an optional slot (210), multiple optional connecting holes (211), an optional hanger (212) and an optional incline plane (213).

[0034] The slot (210) is formed in the inserting side of the tenon plate (21) corresponding to the ridge (113) of the molding (11).

[0035] The connecting holes (211) are formed through the inserting side of the tenon plate (21) beside the slot (210) and communicate with the connecting holes (116) in a corresponding inner side edge (1111). The hanger (212) is formed on and protrudes from the connecting side of the tenon plate (21) opposite to the at least one mortise (115). The incline plane (213) is defined in the hanger (212).

[0036] The connector (22) has two engaging plates (220) formed perpendicularly to each other, a connecting post (221), a through hole (222) and a fastener (25). The connecting post (221) is formed with the engaging plates (220). The through hole (222) is formed axial through the connecting post (221) and corresponding to the fastener mount (234). Each engaging plate (220) has a hanger (2201) and an incline plane (2202). The hanger (2201) is formed on the engaging plate (220) and corresponds to and engages the hanger (212) of the tenon plate (21). The incline plane (2202) is defined in the hanger (2201) and corresponding to and engaging the incline plane (213) of the tenon plate (21).

[0037] In this embodiment, two tenon plates (21) are mounted in corresponding edges of the molding (11) and between the corner cover (23) and the connector (22). The connector (22) holds the tenon plates (21) in place to prevent deformation.

[0038] The fastener (25) is mounted through the tenon assembly, may be in the through hole (222) of the connector (22) and is attached securely to the fastener mount (234) of the corner cover (23) to securely connect the moldings (11).

[0039] In a second embodiment, each bracket assembly (20) may only has two tenon plates (21). The tenon plates (21) can be formed with each other as L-shaped. Then, The tenon plates (21) are respectively connected to the side edges (111) of two corresponding molding (11).

[0040] In a third embodiment, two tenon plates (21) can be formed securely with the corner cover (23) without using the connector (22) by welding or other connecting methods.

[0041] With reference to FIGS. 1, 4 and 5, the static frame (40) is mounted pivotally on the rear of the moldings (11) and has a base (41), a mat (42), an optional protecting pane (43) and may be implemented with an advert (44) such as a photo, a hologram, a handbill, a flier, a banner or such like.

[0042] The base (41) is connected pivotally to one of the moldings (11) and has a pivot side, a locking side, an inner

surface, an outer surface, multiple hinges (45), a molding latch (46), a window latch (424) and a recess (410).

[0043] The pivot side of the base (41) is connected pivotally to the side edge (111) of the corresponding molding (11). The locking side of the base (41) is defined opposite to the pivot side. The hinges (45) are mounted on the pivot side of the base (41) and are connected to the side edge (111) of the corresponding molding (11). Therefore, the base (41) can pivot relative to the moldings (11).

[0044] The molding latch (46) may be magnetic and is mounted securely on the inner surface of the base (41) near the locking side and corresponds to the molding latch (460) mounted on the side edge (111) of the molding (11). The window latch (424) may be a hook and is mounted on the same side as the molding latch (46). The recess (410) is formed on the outer surface of the base (41).

[0045] The mat (42) is connected pivotally to the base (41) and has a pivot side, a locking side, multiple hinges (421), a window latch (423) and a window (420). The pivot side of the mat (42) is connected pivotally to the pivot side of the base (41). The locking side of the mat (42) is defined opposite to the pivot side. The hinges (421) are mounted on the pivot side of the mat (42) and are connected to the pivot side of the base (41). Therefore, the mat (42) can pivot relative to the base (41). The window latch (423) is mounted on the locking side of the mat (42) and corresponds to the window latch (424) of the base (41). In a preferred embodiment, the window latches (423, 424) are corresponding hooks. The window (420) is formed through the mat (42) and communicates with the recess (410) in the base (41).

[0046] The protecting pane (43) is a plane of translucent or transparent material that transmits light, and is mounted in the recess (410) of the base (41).

[0047] Therefore, an advert (44) can be mounted changeably behind the protecting pane (43) in the recess (410) of the base (41).

[0048] The frame (10) for a flat panel display (30) has the following advantages.

[0049] 1. The frame (10) can be easily adapted to any dimensions of flat panel display (30) without manufacturing molds by cutting the moldings (11) to different sizes.

[0050] 2. The moldings (11) are connected securely with each other by the tenon assemblies so preventing the frame (10) from undesired deformations.

[0051] 3. Construction of the frame (10) is simple.

[0052] 4. The flat screen panel (30) is mounted in the chamber formed by the moldings (11) so can be simply mounted securely.

[0053] 5. The static frame (40) is mounted on the rear of the moldings (11) to allow an advert (44) to be placed simply and interchangeably in the frame.

[0054] 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 features of the invention, the disclosure is illustrative only. Changes may be made in the details, 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. A frame for a flat panel display comprising
 - four moldings having a same cross-section and corresponding to and being connected to each other to form a framework to mount around the flat panel display and each molding having
 - a front edge;
 - a rear;
 - two sides;
 - a fascia being formed on and protruded from the front of the molding and having a distal end;
 - two side edges being formed on the rear of the molding perpendicularly to the fascia and having
 - an outer side edge being formed perpendicular with the fascia; and
 - an inner side edge being formed perpendicular with the fascia and parallel to the outer side edge and having
 - two free ends; and
 - an inner surface; and
 - at least one mortise being formed in the side edge between the inner side edge and the outer side edge; and
 - four bracket assemblies being connected securely to the moldings and each bracket assembly having
 - a corner cover improving aesthetic qualities of the frame and being abutting with two adjacent moldings; and
 - a tenon assembly having two tenon plates being inserted into the mortises in corresponding adjacent moldings and connected securely to the side edges of the corresponding adjacent moldings and mounted securely in the corner cover.
 2. The frame for a flat panel display as claimed in claim 1, wherein
 - each fascia further has a rib being formed on the distal end;
 - each molding further has
 - a ridge being formed on and protruding from the inner surface of the molding; and
 - a chamber being defined in the molding between the ridge, the side edges and the fascia and corresponding to the chambers in both adjacent moldings and being adapted for mounted around the flat panel display; and
 - each mortise further is divided into two by the ridge.
 3. The frame for a flat panel display as claimed in claim 1, wherein
 - each bracket assembly further has
 - a connector being connected securely to the tenon plates of the bracket assembly and having
 - two engaging plates being formed perpendicularly to each other and engaging with the tenon plates of the bracket assembly; and
 - a connecting post being formed with the engaging plates; and
 - the corner cover of each bracket assembly further has
 - a front being a quadrangle and having
 - an inner surface; and
 - four edges and two adjacent edges of the edges being abutted with the fascias of two corresponding moldings;
 - an outer cover being formed on and protruded from the other adjacent edges of the front, being mounted around the connector and abutted with the side edges of the corresponding moldings;
 4. The frame for a flat panel display as claimed in claim 2, wherein
 - each bracket assembly further has
 - a connector being connected securely to the tenon plates and having
 - two engaging plates being formed perpendicularly to each and engaging with the tenon plates of the bracket assembly; and
 - a connecting post being formed with the engaging plates; and
 - the corner cover of each bracket assembly further has
 - a front being a quadrangle and having
 - an inner surface; and
 - four edges and two adjacent edges of the edges being abutted with the fascias of two corresponding moldings;
 - an outer cover being formed on and protruded from the other adjacent edges of the front, being mounted around the connector and abutted with the side edges of the corresponding moldings;
 - an inner ridge being formed on and protruded from the inner surface of the front parallel to the outer cover and abutted with the connecting post, the engaging plates and the tenon plates of the bracket assembly; and
 - an mounting recess being defined in the corner cover between the outer cover, the front ridge and the inner ridge and the connecting post, the engaging plates and the tenon plates of the bracket assembly being inserted into the mounting recess and abutted with the outer cover and the inner ridge.
 5. The frame for a flat panel display as claimed in claim 3, wherein
 - each molding further has multiple connecting holes being formed through the inner surface of the molding near the free ends beside the ridge and communicating with the at least one mortise in the side edges;
 - each tenon plate has
 - an inserting side;
 - a connecting side;
 - a slot being formed in the inserting side of the tenon plate corresponding to the ridge of a corresponding molding between the inner side edge and the outer side edge;
 - multiple connecting holes being formed through the inserting side of the tenon plate beside the slot and communicating with the connecting holes in a corresponding inner side edge;
 - a hanger being formed on and protruding from the connecting side of the tenon plate; and
 - an incline plane being defined in the hanger;

- each engaging plate further has
 a hanger being formed on the engaging plate and corresponding to and engaging with the hanger in a corresponding tenon plate; and
 an incline plane being defined in the hanger and corresponding to and engaging the incline plane in the corresponding tenon plate.
6. The frame for a flat panel display as claimed in claim 5, wherein
 the front further has a fastener mount being formed on and protruded from the inner surface adjacent to the two adjacent edges with the outer cover;
 the connector further has
 a through hole being formed axial through the connecting post; and
 a fastener being mounted in the through hole of the connector and being attached securely to the fastener mount of the front to securely connect the moldings.
7. The frame for a flat panel display as claimed in claim 1, wherein the frame further has a static frame being mounted pivotally on the rears of the moldings and having
 a base being connected pivotally to one of the moldings and having
 a pivot side being connected pivotally to the side edge of the corresponding molding;
 a locking side being defined oppositely to the pivot side; an inner surface being faced to the rear of the flat panel display and abutted with the rears of the moldings; and
 an outer surface; and
 a mat being connected pivotally to the base and having
 a pivotal side being connected pivotally to the pivot side of the base oppositely to the molding;
 a locking side being defined oppositely to the pivot side and facing to the locking side of the base; and
 a window being formed through the mat and communicating with outer surface of the base.
8. The frame for a flat panel display as claimed in claim 7, wherein the base of the static frame further has
 multiple hinges being mounted on the pivot side of the base and being connected to the side edge of the corresponding molding; and
 two latches and one of the latches being mounted securely on the inner surface of the base near the locking side and the other latch being mounted on the side edge of a corresponding molding that faces with the latch and can connect to the latch on the base.
9. The frame for a flat panel display as claimed in claim 8, wherein
 the base of the static frame further has a recess being formed on the outer surface of the base; and
 the static frame further has
 a handbill being mounted in the recess and facing to the window of the mat; and
 a protecting pane being a plane of translucent material that transmits light, and being mounted in the recess between the handbill and the window of the mat.
10. The frame for a flat panel display as claimed in claim 7, wherein the mat further has
 multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and
 two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.
11. The frame for a flat panel display as claimed in claim 8, wherein the mat further has
 multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and
 two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.
12. The frame for a flat panel display as claimed in claim 9, wherein the mat further has
 multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and
 two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.
13. The frame for a flat panel display as claimed in claim 5, wherein the frame further has a static frame being mounted pivotally on the rears of the moldings and having
 a base being connected pivotally to one of the moldings and having
 a pivot side being connected pivotally to the side edge of the corresponding molding;
 a locking side being defined oppositely to the pivot side; an inner surface being faced to the rear of the flat panel display and abutted with the rears of the moldings; and
 an outer surface; and
 a mat being connected pivotally to the base and having
 a pivotal side being connected pivotally to the pivot side of the base oppositely to the molding;
 a locking side being defined oppositely to the pivot side and facing to the locking side of the base; and
 a window being formed through the mat and communicating with recess of the base.
14. The frame for a flat panel display as claimed in claim 13, wherein the base of the static frame further has
 multiple hinges being mounted on the pivot side of the base and being connected to the side edge of the corresponding molding; and
 two latches and one of the latches being mounted securely on the inner surface of the base near the locking side and the other latch being mounted on the side edge of a corresponding molding that faces with the latch and can connect to the latch on the base.
15. The frame for a flat panel display as claimed in claim 14, wherein
 the base of the static frame further has a recess being formed on the outer surface of the base; and
 the static frame further has
 a handbill being mounted in the recess and facing to the window of the mat; and
 a protecting pane being a plane of translucent material that transmits light, and being mounted in the recess between the handbill and the window of the mat.
16. The frame for a flat panel display as claimed in claim 13, wherein the mat further has
 multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and

two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.

17. The frame for a flat panel display as claimed in claim **14**, wherein the mat further has multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.

18. The frame for a flat panel display as claimed in claim **15**, wherein the mat further has

multiple hinges being mounted on the pivot side of the mat and being connected to the pivot side of the base; and two window latches and one of the window latches being formed on and protruded from the locking side of the mat and the other window latch being connected rotatably to the locking side of the base and can connect to the window latch on the mat.

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