United States Patent [19]

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[11] **3,771,246**

[45] **Nov. 13, 1973**

[54] **PICTURE DISPLAY DEVICE**

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[22] Filed: **Sept. 27, 1971**

[21] Appl. No.: **183,883**

[52] **U.S. Cl.** **40/152.1**

[51] **Int. Cl.** **G09f 1/12**

[58] **Field of Search** 40/152, 152.1, 10, 40/125, 156, 154

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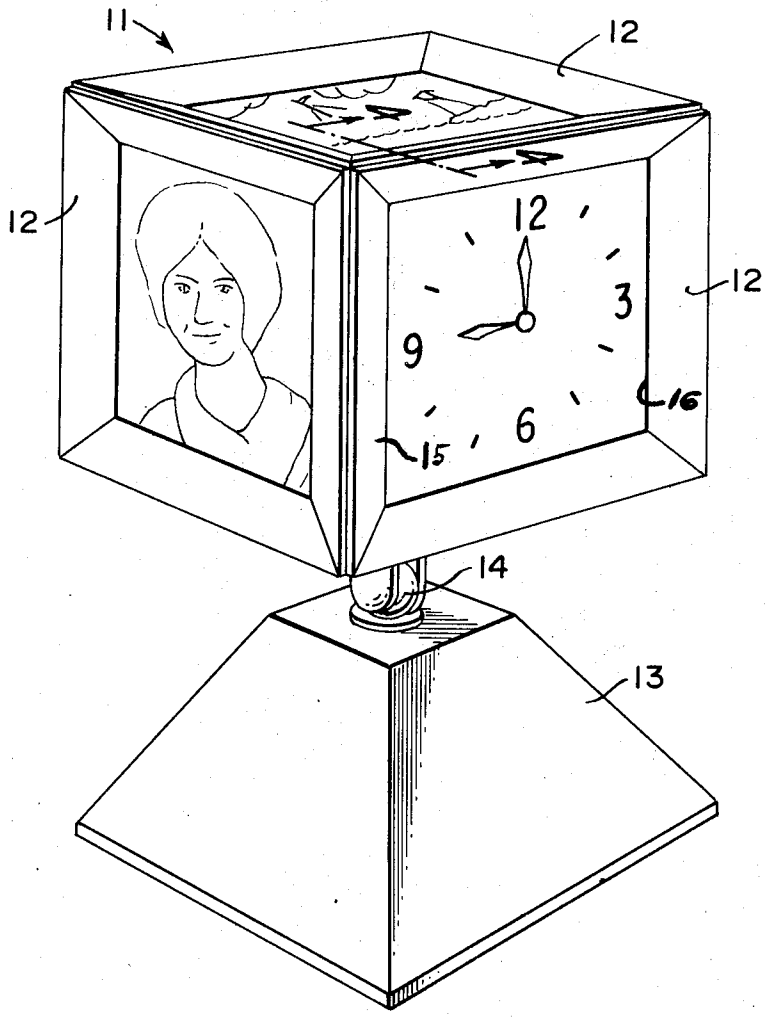
[57] **ABSTRACT**

A modular display device adapted to stand individually on a flat surface or hang on a wall, and alternatively to cooperatively fit with five identical devices to form a three dimensional display device in cube form. Such a cube may include a suitable stand and some of the sides of the cube may be put to uses other than for displaying a picture. Several of the devices may be secured together by a connector to form flat combinations for display or educational toy purposes.

17 Claims, 7 Drawing Figures



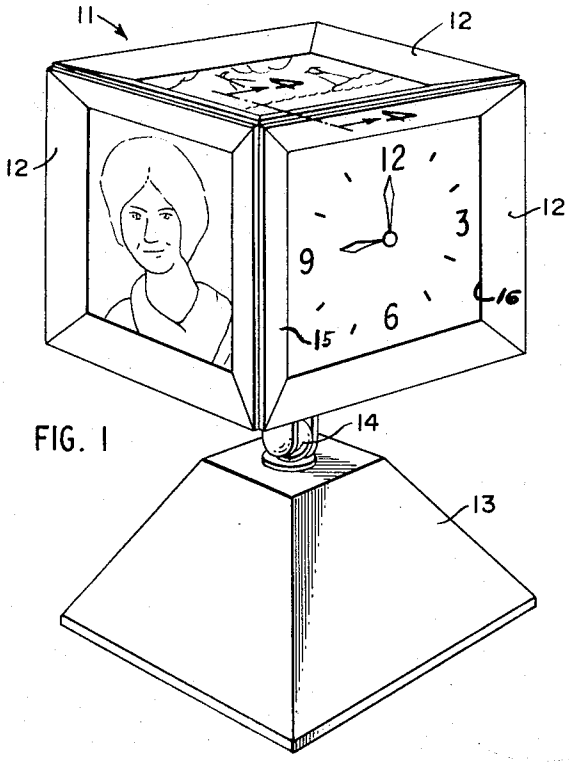
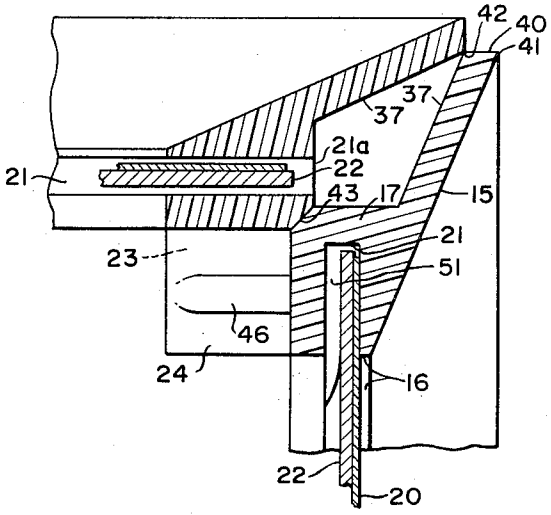


FIG. 1

FIG. 4



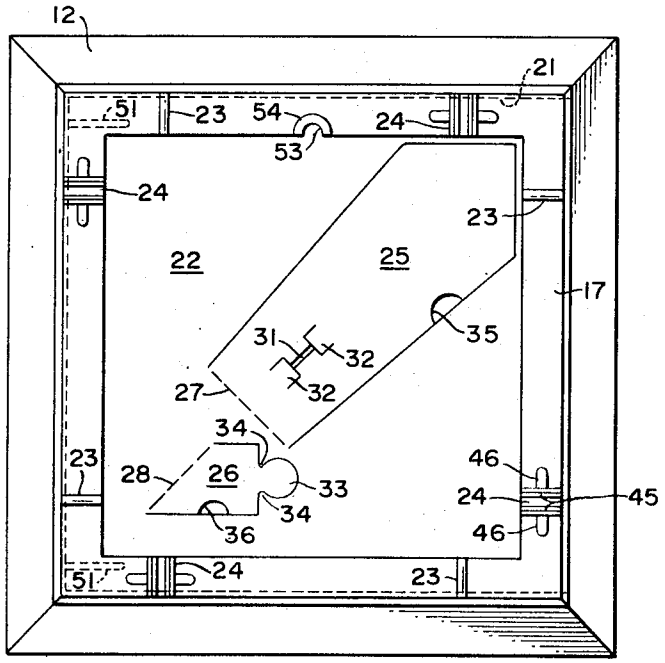


FIG. 2

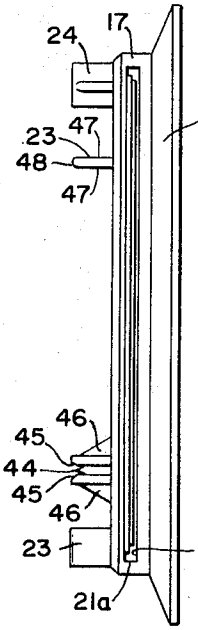


FIG. 3

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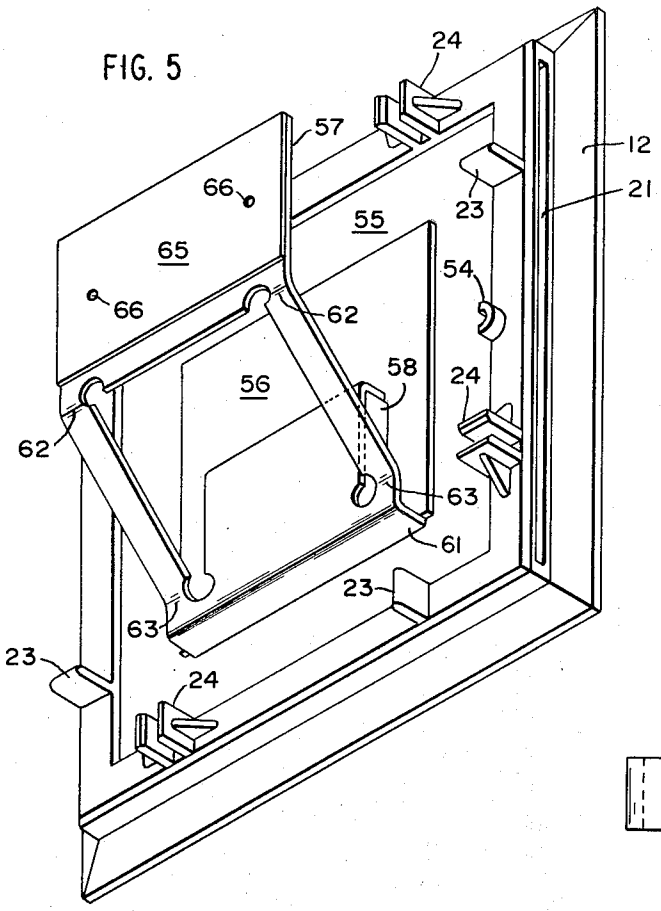
FIG. 5



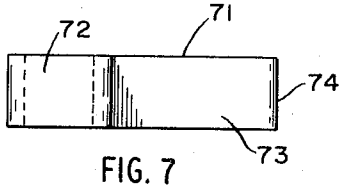
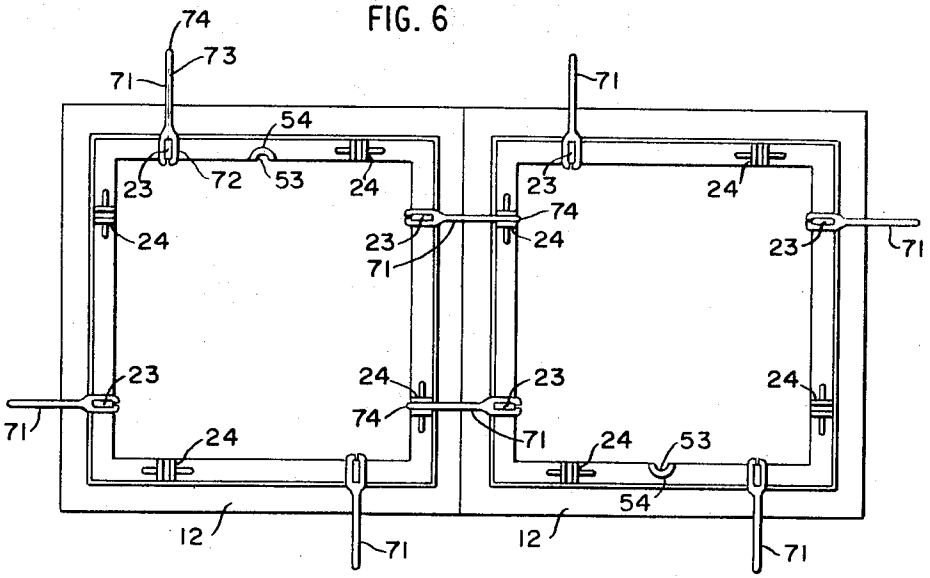


FIG. 7

FIG. 6



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PICTURE DISPLAY DEVICE

FIELD OF THE INVENTION

This invention relates in general to picture display means and more particularly concerns a novel inexpensive device which, when coupled with five other identical devices, forms a cube for multiple direction display of several pictures. Alternatively, several of the display devices may be secured together in flat abutting relationship to make combination shapes or larger cubes or rectangular structures.

DISCUSSION OF THE PRIOR ART

Although most picture display devices are adapted to hold one picture at a time and face in one direction, some devices have been made which display several pictures, each facing a different direction. Some of these display means are formed generally of clear plastic sides having a central core so that pictures may be placed between the core and inside surface of the plastic sides. There are a number of ways of fitting together the necessary elements to complete a cube of this type having five or six display sides. Some of these devices have one side serving as the base, that side having no other function. Generally, these prior art devices are not comprised of several identical sides which are capable of independently displaying a single picture or photograph, and they therefore can be used only in the specific single manner intended, that is, as a multiple sided display device.

SUMMARY OF THE INVENTION

Broadly speaking, this invention comprises a unitary display device having a frame member with a central front opening and a slot parallel to the opening and extending through one side of the frame for purposes of inserting and holding a backing member and a picture or photograph for display through the opening. The backing member may be provided with preformed fold-out members to permit the frame to stand on a flat surface independently of other identical frame members. The frame is provided with an appropriate centered cutout to facilitate hanging of the frame. The frame is also formed with male and female locking members on the rear surface which are adapted to mate with respective female or male members of another identical frame to place these frames in 90° relative relationship. Thus two or more such frames may be fitted together to form a two sided display device and up to six such frame members may be fitted together to form a cube. Of course any number of the frames between two and six may also be fitted together to form a partial cube which is also a useful and attractive display means.

It is contemplated that the picture display device of this invention will likely be distributed by a photo finishing business or distributed at the same time that rolls of film are sold. In this way one would be encouraged to accumulate a sufficient number of frames to form a cube. Alternatively, a suitable base or stand such as the swivel device shown and described hereinbelow may be formed with one side of the cube attached thereto, to be sold as the sixth side of the cube when one has accumulated five of the individual display devices. Thus, for a very small investment, one would have an attractive multi-sided picture display device mounted on an eye pleasing base and swivel so that it may be rotated or tilted as desired.

With the addition of connector elements to the modular frame, several frames may be secured together in flat adjacent relationship for displaying pictures or creating groups of pictures or letters as used for an educational toy. Furthermore, groups of the thus connected flat combinations may be combined to form cubes or rectangular structures.

BRIEF DESCRIPTION OF THE DRAWING

The advantages, features and objects of this invention will become more fully apparent from the following detailed description when taken in conjunction with the accompanying drawing in which:

FIG. **1** is a perspective view of a display cube constructed from individual modular frames formed in accordance with this invention;

FIG. **2** is a rear plan view of the picture display device of this invention;

FIG. **3** is a side view of the picture frame of FIG. **2**;

FIG. **4** is an enlarged partial sectional view taken through cutting plane **4—4** of FIG. **1** showing how two of the frames of FIGS. **2** and **3** fit together;

FIG. **5** is a rear perspective view of an alternative embodiment of the invention using a magnetic device for mounting the modular frame to a wall;

FIG. **6** is a rear plan view of two of the modular frames interconnected in flat adjacent relationship by a connector; and

FIG. **7** is a side view of one of the connectors shown in use in FIG. **6.**

The composite display device shown in FIG. **1** is a cube **11** formed of six modular frame members **12** mounted to base **13** by means of a conventional swivel connection **14.** As will be explained in detail hereinbelow, each of the frame members **12** of the cube **11** is identically constructed having interconnecting means which permit the cube to be taken apart and put together at will.

With reference now to FIGS. **2–4,** frame **12** is shown having beveled forward facing sides **15** surrounding and framing opening **16** which comprises most of the face thereof. The body portion **17** of frame **12** extends rearwardly from beveled sides **15** and has a slot **21** therein substantially larger than and surrounding opening **16** through the face of the frame. This slot **21** is parallel to the front of the frame and opens out onto one side of the frame behind face **15** at **21***a*. Backing member **22** and a suitable picture **20** may be inserted through this slot for proper display of the picture through opening **16** framed by beveled faces **15.** Extending rearwardly from body **17** are male tab elements **23** and female tab elements **24.** These elements will be described and their function explained in greater detail below.

Picture backing member **22** has a dual function and is substantially coextensive with slot **21.** It provides means for holding the picture flat and firmly in place within slot **21.** It also provides means for standing the frame on a flat surface in the embodiment presently being described. In an alternative embodiment backing member **22** provides means for hanging frame **12** on a wall. This member is formed with cutout stand **25** and locking member **26** respectively hinged at score lines **27** and **28.** Stand member **25** is formed with a slot **31** having flexible flaps **32** on either side thereof. Locking member **26** is formed with tab **33** connected thereto at indentations **34.** Cutouts **35** and **36** are provided in

members 25 and 26 respectively so that these members may be easily engaged by one's fingernail or other thin object and lifted outwardly and rearwardly from frame 12. Slot 31 is slightly shorter than the maximum width of tab 33 so that when the tab is inserted in the slot, flaps 32 flex slightly to permit its complete entry and then return to their normal position to engage indentations 34. By thus folding members 25 and 26 rearwardly from picture backing member 22 and interlocking them, frame 12 may be stood on a flat surface on either of two edges of the frame. Depending upon the orientation of backing member 22 as it is inserted in slot 21, any of the sides of the frame may become the edge upon which it rests on the flat surface. It is of course contemplated that the picture to be displayed in frame 12 may be easily changed by merely sliding it out through slot 21 and reinserting a new picture. Further, the tab/slot locking arrangement between members 25 and 26, as well as the members themselves, may be configured differently as desired.

With specific reference to FIG. 4, it is shown that beveled front face 15 is substantially parallel to rear face 37, these faces being interconnected by a surface 40 which is substantially perpendicular to the face of the frame, thus forming a relatively sharp forward edge 41 and a somewhat blunt rearward edge 42. Body 17 of frame 12 has a beveled surface 43 extending therearound which is preferably on a 45 degree angle with surface 40 and with the plane of the face of the frame. When two frames 12 are fitted together as shown, beveled surfaces 43 come into abutment as do the rearward corners 42. This interconnection of two frames is firm and positive but a knife or coin may be inserted between two adjacent surfaces 40 and twisted so that the frames can be removed one from another. To further enhance the positiveness and correct alignment with which two such frames fit together, the respective outside edges of tabs 23 and 24 abut the rear surface of body 17.

Female members 24, which are adapted to mate with male members 23, are formed with parallel inner surfaces 44, bevels 45 in facing relationship on the rearward ends thereof and reinforcing members 46. Male members 23 extend rearwardly with parallel sides 47 and rounded or beveled ends 48.

It will be readily appreciated that two frames 12 may be put together from two directions, ninety degrees removed from each other. The various beveled and rounded edges are provided to facilitate this interconnection. For example, with reference to FIG. 4 if the top frame 12 having male member 23 is inserted from the top, rounded end 48 will permit ready entrance of this member between the sides of female members 24. On the other hand, the same top frame member 12 may be connected to the right hand frame member from the left so that beveled edges 45 then permit ready entry of the side of male member 23 between female members 24. In order for the picture frames to fit together properly, male member 23 must be slightly thicker than the distance between female members 24 so that there is an interference fit between them. As male member 23 enters between the female members, there must be a slight compression of both members, this compression creating the necessary friction to maintain the thus connected frame members in the proper relative positions. Modular frames 12 are so configured that they will be properly aligned when fully engaged. Beveled surfaces 43 are in abutting relationship while the outside edges of tabs 23 and 24 abut respective rear surfaces of bodies 17. The inclusive angle on each frame member thus engages the adjacent frame member and ensures proper alignment of two engaged frames.

With specific reference to FIGS. 2 and 4, there is shown internal ribs 51 at the rear of slot 21. The picture and backing member are inserted from the right as shown in FIG. 2 and ribs 51 project forward into the slot at the left side. Thus the picture and backing member are squeezed against the inside front surface of the slot and retained therein no matter what the orientation of the frame, that is, these elements cannot slide out the open end of slot 21. Of course the bevel may extend from front to back or from back to front as shown.

The picture display device of this invention may be hung on a wall and arcuate cutout 53 is provided for that purpose. If desired, arcuate reinforcement 54, extending rearwardly from the body of the frame a distance no more than half the length of tabs 23 and 24, may be provided (see FIG. 5). Reinforcement 54 may be formed on more than one side of the body of the frame if desired and in order to prevent interference between two fitted together frames, these elements should also extend no more than half the width of tabs 23, 24 across the rear faces of body 17. By maintaining these relative sizes of reinforcement 54, there is no danger of interference between two such elements on adjacent frames 12.

An alternative means for hanging frame 12 on the wall is by use of a magnetic device as shown in FIG. 5. A metal plate 56 is secured to the back of substantially rigid backing member 55 which is preferably a flat plastic plate. Wall mounted member 57 is preferably a deformable metal and is configured to permit frame 12 to stand off the wall a distance as desired. Member 57 is adjustable for this purpose, as will be described below. In this manner rearwardly projecting tabs 23, 24 present no problem even though they require that the frame be spaced outward from the wall as indicated. Member 57 includes magnet 58 which is mutually attracted to plate 56 and the wall member 57 to hold the frame at a predetermined distance from the wall. The lower end 61 of member 57 extends forwardly a distance slightly greater than the thickness of magnet 58 and is adapted to engage the lower edge of plate 56 to maintain positive angular orientation of the picture and frame. Member 57 is adjusted by bending at points 62 and 63 to offset magnet 58 from the plane of the wall. The wall member may be secured to the wall either by means of an adhesive surface 65 which is normally covered with a protective paper before use, or by means of nails through holes 66 provided.

When base 13 is used with cube 11 as shown in FIG. 1, a frame member 12 will be fitted with an appropriate plate connected to a portion of swivel fitting 14 so that it may interconnect with the other frame members 12 to form the cube. As indicated in the drawing, a face of the cube may display items other than pictures. A clock may be a part of cube 11, the works thereof being inside the cube. Such a clock may be powered conventionally as by a power cord through base 13 or by batteries. Further, frame members 12 may display transparencies and a light bulb may be mounted within the cube for appropriate illumination.

Connectors 71 shown in FIGS. 6 and 7 permit frames 12 to be interconnected in flat adjacent relationship.

Connector 71 is preferably made of a single strip of metal properly bent and formed to provide a clamp 72 adapted to positively engage male members 23; a flat tab 73 adapted to positively seat between adjacent female tab elements 24; and rounded end 74 permits entry of tab 73 between the parallel sides of adjacent female tabs. Clamp 72 has an opening between its respective sides which is slightly smaller than the width of male tab 23. Due to the normal biasing of clamp 72 toward the closed position, when connector 71 is placed in engagement with a male tab 23, the sides of clamp 72 will be forced to separate slightly but will tightly engage the tab.

When two or more frames 72 are to be interconnected using connectors 71, these connectors are placed on each male tab 23. Then it is a simple matter to push the respective flat tabs 73 into proper engagement with female tabs 24. In this manner a substantially infinite variety of flat combinations may be achieved. Furthermore, super cubes of 24 frames (four per side) can quickly be put together. At each edge and corner of such a structure, frames 12 would be interconnected as shown in FIG. 4. It is apparent that a large variety of rectangular structures other than cubes could also be formed in this way.

The possibility of using this invention as an educational toy is easily contemplated. The abstract, modular character of frame 12 permits discovery by the child of the aforementioned possible combinations thereof to make a wide variety of structures. Through the use of letters, numbers, pictures and parts of pictures in these frames, a child's creative imagination may be stimulated and reinforced by means of personal discovery in the construction of different forms and combinations of frames.

Another way in which this device may be used is that two of the frames of this invention may be secured together in back-to-back relationship to make a two sided display device which is self-supporting on a flat surface.

The modular frame described and claimed herein may be changed or modified in many ways which are still within the scope of this invention. For example, the interlocking members may be double and triple projections rather than single and double as shown. The front face may have different bevels and different surface sizes and configurations. The potential uses of this invention, only a few of which are mentioned above, are virtually limitless.

What is claimed is:

1. A modular picture display device comprising:

a frame member having a central opening therethrough, front-facing sides surrounding said central opening and a body portion extending rearwardly from said front-facing sides and surrounding said central opening, said body portion including a slot extending laterally outwardly from said central opening within said body portion and complementary coupling means extending rearwardly from said body portion, said coupling means comprising male coupling elements including at least one rearwardly extending tab on each rearwardly facing side of said body portion and female coupling elements including at least two rearwardly extending tabs on each rearwardly facing side of said body portion, said male and female coupling means being spaced and similarly oriented on each rearwardly facing side of said body portion;

said coupling means being adapted to couple with similar coupling means on other identical picture display devices so that said picture display devices may be fitted together in back-to-back relationship to form a device having two display sides or coupled at a 90° orientation to form a three dimensional display device having up to six display sides thereby forming a cube.

2. A modular picture display device as set forth in claim 1 and further comprising:

a relatively stiff backing member removably fitted in said slot and covering said central opening, said backing member being configured to provide support for a picture being displayed through said central opening and to provide means for standing said picture display device substantially upright on a flat surface.

3. A modular picture display device as set forth in claim 2 wherein said body portion of said frame member is formed with at least one arcuate cutout to facilitate hanging of said picture display device on a wall.

4. A modular display device as set forth in claim 3 wherein said frame member is also formed with an arcuate rearwardly extending element surrounding and increasing the length of said arcuate cutout to facilitate hanging of said picture display device.

5. A modular picture display device as set forth in claim 2 wherein said picture support comprises a stand element folded more than 90° rearwardly from said backing member, and a locking member folded from said backing member and adapted to engage said stand element, said backing member being substantially smaller than the overall dimensions of said display device, said stand element being diagonally oriented with respect to said backing member and being more than half the length of said diagonal, whereby said stand element supports said display device in a substantially upright position on a flat surface.

6. A modular picture display device as set forth in claim 1 wherein the sides of said male tabs are substantially parallel and the rearwardly extending end thereof is beveled, the facing sides of said female tabs are substantially parallel and the rearwardly extending ends thereof are beveled inwardly toward the opening between said facing sides, thereby facilitating engagement of said male and female tabs from any direction.

7. A modular picture display device as set forth in claim 6 wherein said body portion is formed with a beveled edge facing generally rearwardly, said beveled edges of adjacent modular frame members abutting each other when said adjacent frame members are fully coupled together.

8. A modular picture display device as set forth in claim 1 wherein said slot opens out on one side of said body portion to provide external access thereto, said slot is formed with ribs projecting from one internal surface of said slot thereby narrowing said slot in that area, said ribs being located within said slot on the opposite side of said central opening from said open end of said slot, whereby items inserted fully into said slot are wedged positively in place by said ribs and whereby said items are retained for viewing through said central opening.

9. A picture display device comprising:

a plurality of modular frame members, each having a central opening therethrough, front-facing sides surrounding said central opening, said body por-

tion including a slot extending laterally outwardly from said central opening within said body portion and complementary coupling means extending rearwardly from said body portion, said coupling means comprising male coupling elements including at least one rearwardly extending tab on each rearwardly facing side of said body portion and female coupling elements including at least two rearwardly extending tabs on each rearwardly facing side of said body portion, said male and female coupling means being spaced and similarly oriented on each rearwardly facing side of said body portion, the coupling means of each said frame member being engaged by the coupling means of each adjacent frame so that said frame members are oriented at a 90° angle with each adjacent frame member, thereby forming a three dimensional display device having a plurality of display sides.

10. A picture display device as set forth in claim **9** wherein one of said frame members is fitted with a stand for supporting said display device above a flat surface.

11. A picture display device as set forth in claim **10** wherein said stand includes a swivel fitting to permit said display device to be rotated and tilted as desired.

12. A picture display device as set forth in claim **9** wherein one of said frame members is fitted with a clock, the face of which is visible through said central opening in said one frame member.

13. A picture display device as set forth in claim **9** wherein said slot opens out on one side of said body portion to provide external access thereto, said slot is formed with ribs projecting from one internal surface of said slot thereby narrowing said slot in that area, said ribs being located within said slot on the opposite side of said central opening from said open end of said slot, whereby items inserted fully into said slot are wedged positively in place by said ribs, whereby said items are retained for viewing through said central opening.

14. A picture display device as set forth in claim **9** wherein the sides of said male tabs are substantially parallel and the rearwardly extending end thereof is beveled, the facing sides of said female tabs are substantially parallel and the rearwardly extending ends thereof are beveled inwardly toward the opening between said facing sides, thereby facilitating engagement of said male and female tabs from any direction.

15. A picture display device as set forth in claim **14** wherein said body portion is formed with a beveled edge facing generally rearwardly, said beveled edges of adjacent modular frame members abutting each other when said adjacent frame members are fully coupled together.

16. A picture display device array comprising:

a first plurality of modular frame members, each having a central opening therethrough, front-facing sides surrounding said central opening and a body portion extending rearwardly from said front-facing sides and surrounding said central opening, said body portion including a slot extending outwardly from said central opening within said body portion and complementary coupling means extending rearwardly from said body portion, said coupling means comprising male coupling elements including at least one rearwardly extending tab on each rearwardly facing side of said body portion and female coupling elements including at least two rearwardly extending tabs on each rearwardly facing side of said body portion, said male and female coupling means being spaced and similarly oriented on each rearwardly facing side of said body portion; and

a second plurality of elongated connector elements, each having one end shaped and configured to positively engage said male tab and the other end shaped and configured to be positively engaged by said female tabs;

each adjacent male and female coupling element of each adjacent frame member being mutually coupled by said connector elements to form a composite flat array of said modular frame members.

17. A picture display device array as set forth in claim **16** wherein a plurality of said picture display device arrays, each rectangular in form, are coupled together by mutual engagement of said coupling means at the edges of said arrays to form a rectangular enclosure.

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