United States Patent [19]

Ebner

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[54] **PICTURE DISPLAY AND STORAGE DEVICE**

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[52] **U.S. Cl.** **40/152**

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

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

[56] **References Cited**

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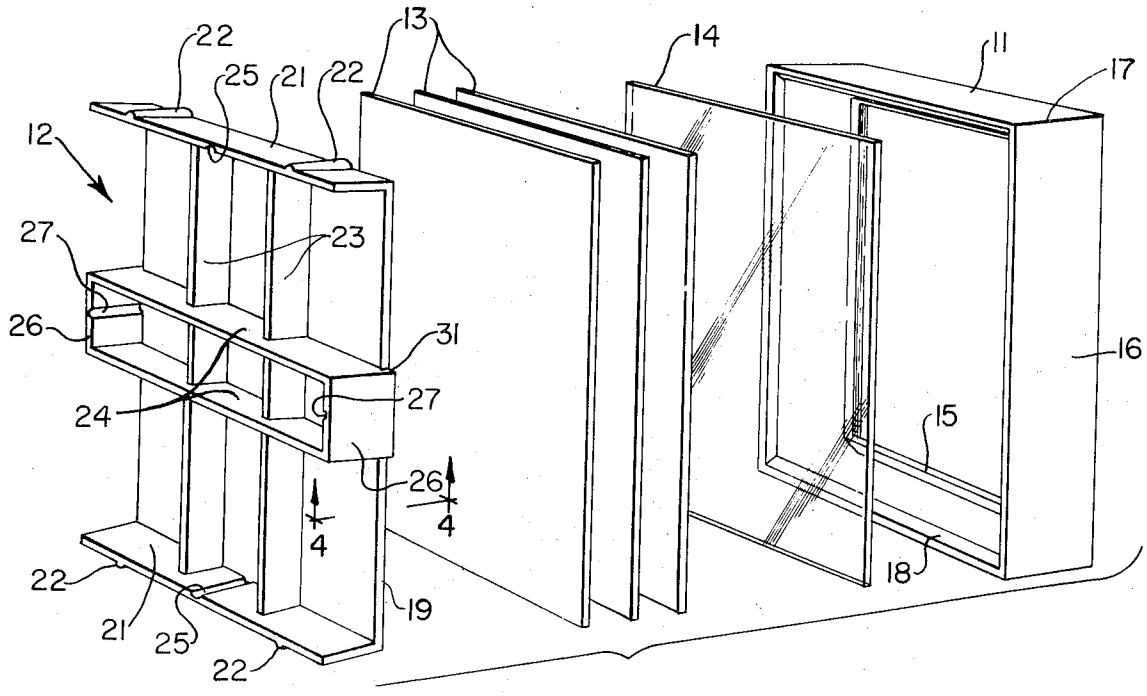
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[57] **ABSTRACT**

A picture display device including space for storing several undisplayed pictures, the device being adapted to permit rapid change of the picture being displayed. This display device provides rigidity for protection of the pictures stored and displayed and yet is of simple and inexpensive construction. The pictures are positively retained for display and storage but changes are easily and quickly made. Alternative embodiments are shown, one of which includes two similar display devices secured together in order to permit different pictures to be observed from opposite sides of the device.

7 Claims, 8 Drawing Figures



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SHEET 1 OF 2

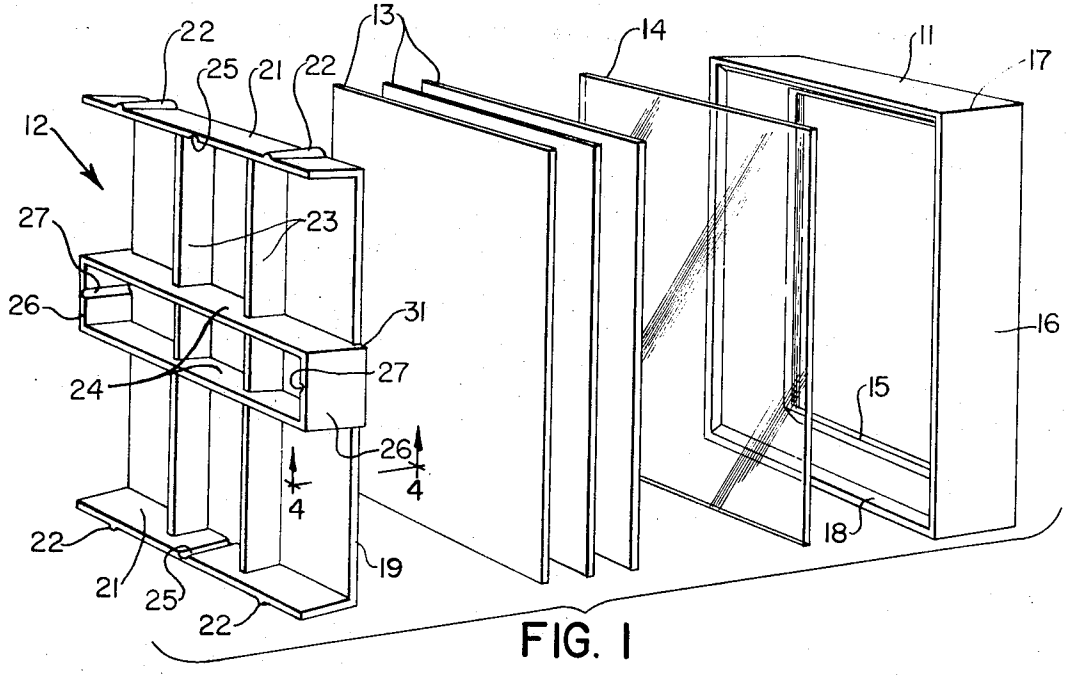


FIG. 1

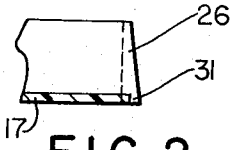


FIG. 2

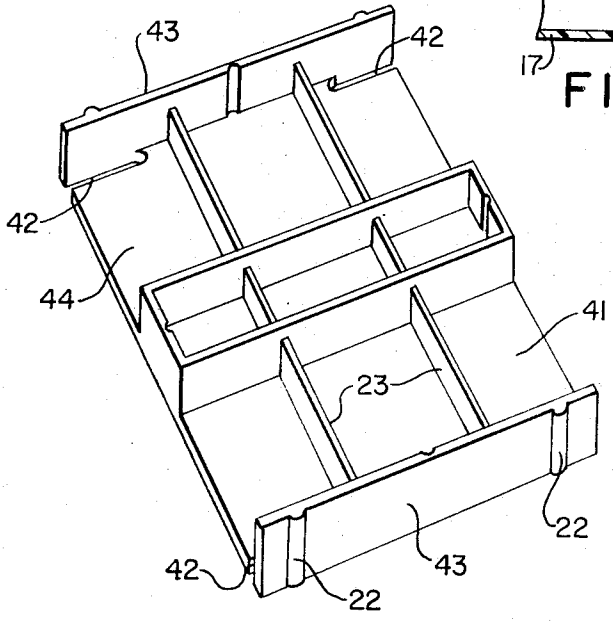


FIG. 4

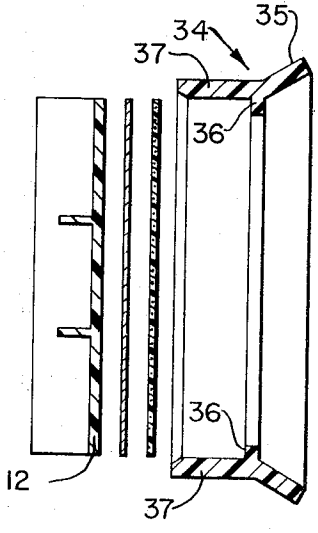


FIG. 3

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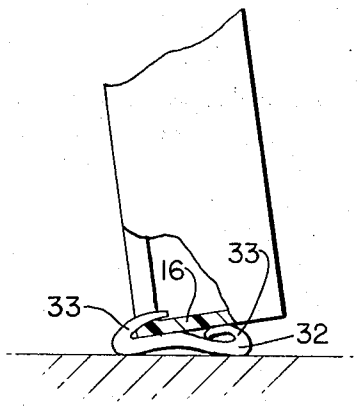


FIG. 5

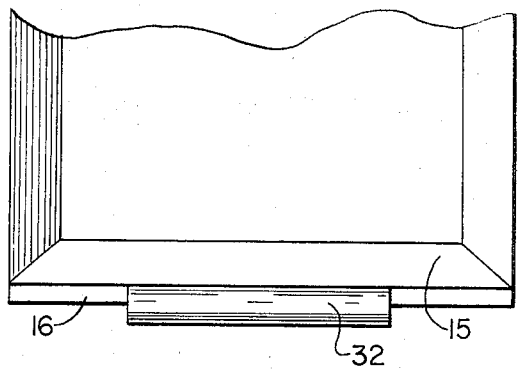


FIG. 6

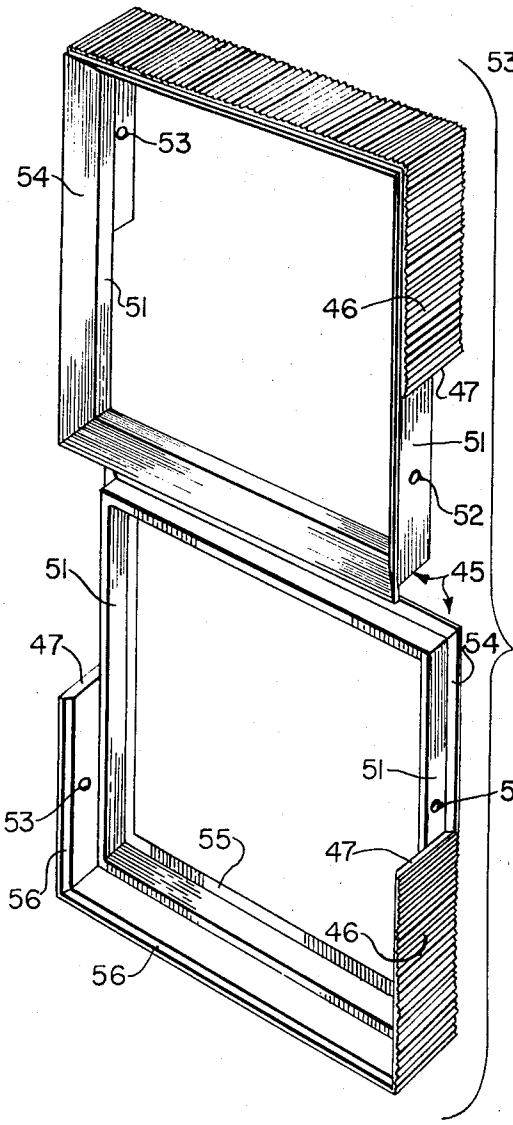


FIG. 7

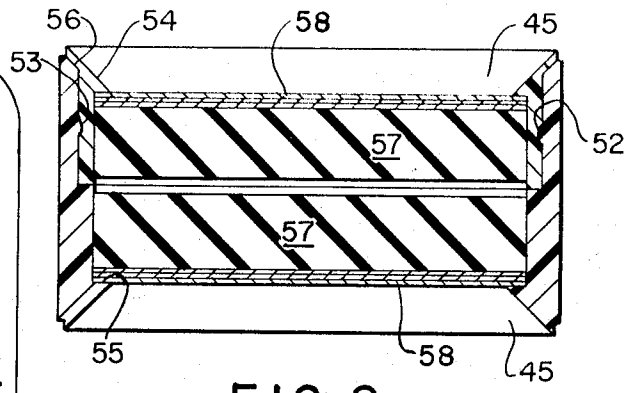


FIG. 8

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PICTURE DISPLAY AND STORAGE DEVICE

FIELD OF THE INVENTION

This invention relates in general to picture display means and more particularly concerns a simple, inexpensive and novel device for storing several pictures while displaying one and having the capability of permitting the picture being displayed to be quickly and easily changed.

DISCUSSION OF THE PRIOR ART

Many devices of various shapes and sizes have been designed for displaying pictures and for providing different visual appearances. Most of them do not provide for easily changing from one displayed picture to another, nor do they provide space for storing additional pictures which may alternatively be presented by the same structure. Furthermore, many of these products are not easily convertible from a standing frame to a hanging frame and, while some may accommodate both modes, they are often clearly designed for one mode of display rather than the other.

SUMMARY OF THE INVENTION

Broadly speaking, this invention comprises a display device having a frame member with an opening in the front and an insert member which fits in the back and provides a flat surface covering the front opening of the frame. The depth to which the insert member may be inserted and retained is continuously variable so that several pictures may be stored within the display device. Although the frame and insert are preferably substantially rigid, at least one of these members is provided with some degree of flexibility to provide for easy separation and yet a secure fit between the two elements to maintain them together as necessary. This invention employs the principle of the torsion bar in certain embodiments in order to maintain the elements in proper engagement.

This device may with equal facility be hung on a wall or stood on a flat surface, is capable of storing several pictures while displaying one and changes in the displayed picture are easily made merely by pushing the insert out from the front of the device so that a new picture may be placed in proper position.

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 an exploded perspective rear view of the picture display device of this invention showing the device elements together with several pictures and an acetate sheet normally used therewith;

FIG. 2 is a partial sectional view taken through cutting plane 4—4 of FIG. 1 showing the wedge portion in exaggerated manner;

FIG. 3 is an exploded sectional view of a modified embodiment of this invention showing a frame member of somewhat different configuration;

FIG. 4 is a perspective view of an alternative embodiment of the insert member of this invention;

FIG. 5 shows a device for use with the embodiment of FIG. 1 to permit the display means to stand with a slight backward tilt;

FIG. 6 is a partial front view of the frame of FIG. 1 together with the stand device of FIG. 5;

FIG. 7 is an exploded perspective view of a pair of interlocking frame elements showing an alternative embodiment of this invention; and

FIG. 8 is a sectional view showing two of the frame elements of FIG. 7 secured together and having the inserts and pictures mounted therein to form a complete double display device.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference now to the drawing and more particularly to FIGS. 1 and 2 thereof, thee is shown the picture display device of this invention having a frame member 11 and an insert member 12. Also shown in FIG. 1 are three pictures 13 and an acetate sheet 14 which may be used for protection of the pictures or photographs retained in and displayed by the device.

Frame 11, having sides 16 forming a box-like receptacle for insert 12, is preferably made of a substantially rigid plastic having a beam structure to prevent bending or other flexing of the material adjacent the front thereof. At the same time the rearward portion of the straight rearwardly extending sides 16 have some degree of flexibility and may, within limits, bow outwardly or inwardly. The beam structure of the frame is provided primarily by flanges 15 which are integral with and extend rearwardly from the front edges of walls 16 and cooperate with the rigidity provided by each 90° corner 17 where the walls and flanges join. It may be appreciated that although the front portion of frame 11 is quite rigid, a certain amount of center side flexion may take place toward the rear portion of each of the sides 16. An opening through the front of frame member 11 between flanges 15 is provided for viewing the picture mounted rearwardly of the flanges. The rearward edges of flanges 15 form a plane against which a picture 13 or the acetate sheet 14 rests when the elements of the device are assembled for display of a picture. The rearward edges of walls 16 of the frame member are formed with a beveled interior surface 18, the purpose of which will be discussed later.

Insert 12 has a flat front face 19 which is substantially coextensive with the interior area between sides 16 of frame 11 and is adapted to cover the entire opening through flanges 15. The insert has two end members 21 each being formed with ribs 22 on the outer surface adjacent the outer ends thereof and adapted to provide a force fit between the insert and two opposite sides 16 of the frame member. For rigidity, cross beams 23 and 24 are provided to insure that front face 19 always remains flat. End members 21 are each formed with a small cutout 25 at the center of each of their inside surfaces. Likewise, side members 26 between each of beams 24 are formed with an arcuate cutout 27 which is located at the centers of the other sides of the insert. Side members 26 are also formed with a wedge 31 shown in exaggerated manner in FIGS. 1 and 2. The purpose of this wedge, which acts in conjunction with ribs 22, will be made clear presently.

When a picture is to be placed in the display device shown in FIG. 1, members 11 and 12 are separated and an acetate sheet 14 is normally placed in the back of frame 11 to lie over the plane formed by flanges 15. A picture or photograph 13 which is desired to be displayed in then placed face forward on top of acetate

sheet 14 and any other pictures or photographs 13 which may be displayed at some other time may then be placed on top of the displayed picture for storage. Insert 12 is then fitted into the back of the frame member and pressed forward against pictures 13 to hold them securely therein. Although ribs 22 and wedges 31 of the insert create an interference fit with the sides 16 of the frame member, bevels 18 provide for smooth and easy entrance of insert 12 into the frame member. Ribs 22, by pushing outwardly on opposite sides 16 of the frame member near corners 17 cause these sides to flex slightly outward. This results in inward deflection of the other two sides 16 for the simple reason that the material is substantially rigid and there is no appreciable cold flow thereof. When the other sides 16 are pulled inward due to the action of ribs 22, they sharply engage wedges 31 causing a very tight fit between all four sides of insert 12 and the side walls of the frame member. It is thus apparent that even with the tolerances normal for plastic molding, insert member 12 will firmly and positively hold the pictures within the frame member in proper position for display.

When it is desired to change the picture being displayed. the front is pushed rearwardly so that the insert, pictures and acetate sheet are removed from frame 11. The facing picture is changed and the insertion procedure described above is then followed again.

Depending upon the orientation of the picture to be displayed, any of the cutouts 25 and 27 may be used for hanging the display device upon a nail or other small protrusion on a wall. Alternatively, the device may be stood on a flat surface on the appropriate side 16.

If it is desired to have the front face of frame 11 tilt slightly rearward when standing on a flat surface, stand member 32 shown in FIGS. 5 and 6 may be fitted to the back edge of the bottom side 16 of the frame to cause the device to stand correctly but tilt slightly back for eye-pleasing effect. Stand 32 may be a simple slightly flexible extruded plastic member having folded flaps 33, one of which opens slightly to clamp around the edge of side 16 and the other of which abuts the outside surface of the same side 16, thereby being secured to the frame and at the same time permitting it to tilt slightly rearward.

The embodiment of FIG. 3 differs from FIG. 1 only in that frame member 34 is provided with external beveled flange 35 which provides the tapered recessed appearance for the picture secured within the frame. The picture and acetate sheet are held against the plane formed by ridges 36 which extend fully around the inside of the frame at the juncture of flanges 35 and sides 37. Additionally, flanges 35 permit the frame to tilt slightly backward when standing upon a flat surface because of their outwardly extending configuration. Insert member 12 may be the same as shown in FIG. 1, one of the other inserts shown and described herein, or other suitable insert member.

FIG. 4 shows a modified insert member 41 which is substantially similar in appearance to insert member 12. However, this insert does not include friction wedges 31. Ribs 22 are included and they may have any suitable cross sectional configuration such as square, triangular or round as shown. The primary difference of this embodiment from that previously described is the coutout areas 42 in flat surface 44 adjacent the outer ends of each end member 43. These cutout areas extend inwardly beyond the position of rib 22 but short of the position of beam 23. When insert 41 is placed in the back of the frame member, ribs 22, as before, form an interference fit with the sides of the frame but the desired flexion is provided by the wing-like configuration of the extremities of end members 43. That is, because of the interference fit between the interior surfaces of walls 16 and ribs 22, the portion of end 43 which is not supported by the flat portion 44 of the insert is permitted to bend somewhat in order to permit entry of the insert into the frame and at the same time provide a firm contact with the frame member. The material of these wing-like portions has a certain amount of physical memory so that when the insert is removed from the frame member, it will spring back to substantially its original position. Thus, instead of flexing the sides of the frame member, the necessary flexion is taken up at the corners of the insert member 43 but the positive cooperative fit between these members remains.

An alternative embodiment of the invention previously described is shown in FIGS. 7 and 8. FIG. 7 shows two identical frame members 45 which are adapted to fit and lock together to form a double-sided display device. These frame members are identical so that the following description concerns only one of them. These frame members receive insert members as previously described for holding pictures therein. After two of these identical frame members 45 have been prepared with the pictures to be displayed, they are then fitted together to form a double display device as described hereinbelow and as shown in section in FIG. 8.

Frame member 45 is formed with sides 46 which extend half way around the periphery of the frame and have a sculptured appearance such as may be appropriate to camouflage the mating line which will occur at edges 47 when two of these elements are fitted together. Indented somewhat from sides 46 are inner sides 51 which form complete inner walls, similar to sides 16 of FIG. 1. These sides are formed with centered dimples 52 which are adapted to mate with rounded projections 53 centered on the interior surfaces of sides 46. The front side of frame member 45 is formed with bevel 54 which extends inwardly and rearwardly from the outer front extremities of sides 46 to ridge 55 which forms a rearwardly facing plane upon which the pictures are intended to rest. In areas where sides 46 are absent, bevel 54 extends outwardly from sides 51 so that the forward edges of bevel 54 lie in a single plane. The rearwardly extending edges 56 of sides 46 are inwardly beveled to properly match the rearward sides of bevel 54 which slopes at an angle similar to that of the forward facing portion of the bevel. When two elements 45 are fitted together, rounded projections 53 engage dimples 52 to lock the frames together. When so connected, bevels 54 and 55 are properly mated and the junction line 47 is appropriately camouflaged so that the device appears as a unitary double-sided display device which at the same time employs the convenient picture storage and rapid changing features previously described in conjunction with FIGS. 1–4.

FIG. 8 is a sectional view through two elements 45 connected together with pictures 58 therein maintained in place by inserts 47. Although either the inserts of FIGS. 1 and 4 may be used, the inserts shown here are relatively stiff foam blocks which are formed to provide an interference fit within the interior sides

of the walls 51 of the frame members. These inserts have some flexibility to enable them to conform to the receptacle formed by the frame walls and maintain a firm cooperative relationship therewith. Inserts 57 operate in a manner similar to the inserts previously described, in that they flex when inserted and maintain the picture in display position flat against the plane formed by the ridges 55 which extend inwardly from the sides 51 of the device. Frames 45 have sufficient flexibility to permit engagement and disengagement of dimples 52 and projections 53 so that two display devices as shown in FIGS. 7 and 8 may be easily pulled apart and put together, either longitudinally as shown in FIG. 7, or back-to-back as desired, and the pictures changed as described with reference to the embodiment shown in FIG. 1.

It is likely that modifications and improvements will occur to those skilled in this art which are within the spirit and scope of this invention.

What is claimed is:

1. A picture display and storage device comprising:
a frame member having four sides forming a box-like receptacle opening rearwardly and a forward opening framed by beveled flanges, said flanges together with said sides forming a substantially rigid beam structure at the forward portion of said frame member; and
an insert member removably secured within said box-like receptacle in said frame member, said insert member having a flat forward face positioned adjacent said forward opening;
said frame member and said insert member being constructed to provide a mutual interference fit, one of said members being capable of flexing as necessary to permit said members to be mutually engaged, said members being held together by friction therebetween;
said insert member being formed with end walls extending rearwardly from opposite sides of said flat forward face, said end walls having elongated ribs protruding therefrom for engagement with the inner surfaces of the first two opposite ones of said sides of said frame member;
said insert member being formed with side wall portions extending rearwardly from the other opposite sides of said flat forward face, said side wall portions having a wedge-like protrusion extending outwardly adjacent said flat forward face for engagement with the inner surfaces of the second two sides of said frame member; said first two sides of said frame member being deflected outwardly by said insert member, thereby causing said second two sides to deflect inwardly to firmly engage said wedge-like protrusions;
said insert member being formed with first cross beams extending between said end walls and second cross beams extending between said side wall portions, said first cross beams being perpendicular to said second cross beams, said first and second cross beams extending rearwardly from said flat forward face and being integrally formed therewith.

2. The picture storage and display device recited in claim 1 wherein each of said end walls and side wall portions are formed with an arcuate cutout on their inwardly directed faces for purposes of hanging said device; said side wall portions are centered on said opposite sides of said flat forward face.

3. A picture display and storage device comprising:
a frame member having four sides forming a box-like receptacle opening rearwardly and a forward opening framed by beveled flanges, said flanges together with said sides forming a substantially rigid beam structure at the forward portion of said frame member; and
an insert member removably secured within said box-like receptacle in said frame member, said insert member having a flat forward face positioned adjacent said forward opening;
said frame member and said insert member being constructed to provide a mutual interference fit, one of said members being capable of flexing as necessary to permit said members to be mutually engaged, said members being held together by friction therebetween;
said insert member being relatively rigid and formed with end walls extending rearwardly from opposite sides of said flat forward face, said end walls having elongated ribs protruding therefrom for engagement with the inner surfaces of the first two opposite ones of said sides of said frame member, a portion of said flat forward face adjacent said end walls extending inwardly parallel to said end walls less than half way to the center of said flat forward face being removed to permit the outer ends of said end walls to deflect inwardly;
said ribs, when engaging said first two sides, causing said outer ends of said end walls to deflect inwardly a sufficient amount to permit said insert member to enter said box-like receptacle, said outer ends of said end walls being biased toward their normal position to positively retain said insert member and said frame member together;
said insert member being formed with first cross beams extending between said end walls, side wall portions centered on said opposite sides of said flat forward face and second cross beams extending between said side wall portions, said first and second cross beams being mutually perpendicular, extend rearwardly from said flat forward face and are integrally formed therewith.

4. The picture storage and display device recited in claim 3 wherein each of said end walls and side wall portions are formed with an arcuate cutout on their inwardly directed faces for purposes of hanging said device.

5. A picture display and storage device comprising:
a frame member having four sides forming a box-like receptacle opening rearwardly and a forward opening framed by beveled flanges, said flanges together with said sides forming a substantially rigid beam structure at the forward portion of said frame member; and
an insert member removably secured within said box-like receptacle in said frame member, said insert member having a flat forward face positioned adjacent said forward opening;
said frame member and said insert member being constructed to provide a mutual interference fit, one of said members being capable of flexing as necessary to permit said members to be mutually engaged, said members being held together by friction therebetween;

said frame member including outer sides which extend continuously over one-half of the periphery of said sides, said outer sides extending rearwardly from the rearward edge of said sides a distance substantially equal to the width of said sides, the inside faces of said outer sides rearward of said sides and the outside faces of said sides being formed with mutual engaging means for locking together two of said frame members.

6. The picture storage and display device recited in claim 5 wherein the outside surface of said outer sides are textured to disguise the mating line between the outer sides of one frame member and the outer sides of the other frame member when said one and said other frame members are joined together.

7. The picture storage and display device recited in claim 5 wherein said beveled flanges extend rearwardly to form a plane against which a picture is held by said insert member and extend forwardly of said side, the rearward edges of said outer sides being beveled to mate with that portion of said flanges extending forwardly of said sides when two of said frame members are joined together.

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