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Rowan

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(54) **LATTICE NETWORK DISPLAY DEVICE**

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A47G 1/16 (2006.01)

(52) **U.S. Cl.** **40/743**; 40/732; 40/768; 40/798; 40/735; D6/300

(58) **Field of Classification Search** 40/700, 40/732, 768, 769, 772, 743, 800, 798, 737, 40/734, 771, 735, 790, 796; D6/300
See application file for complete search history.

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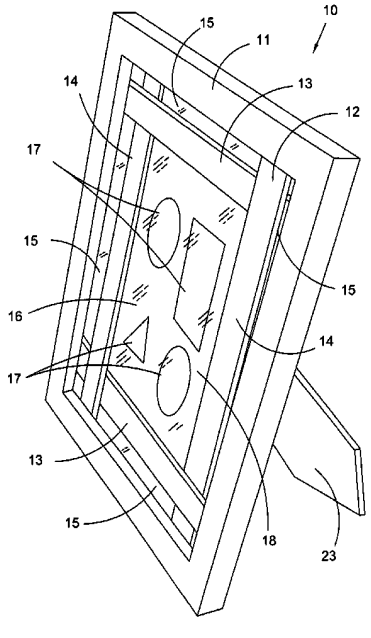
(74) *Attorney, Agent, or Firm*—Simpson & Simpson, PLLC

(57) **ABSTRACT**

The present invention is a display device configured to display sheet like materials such as photos, cards, pictures, patches, and the like. It includes an external frame with a double shoulder configuration in its internal perimeter, a lattice network formed into one or central display areas and supported by the front shoulder, and a transparent front facing a transparent rear facing supported by the rear shoulder. Display items are supported between the front facing and rear facing. Retainers of various types may be used to hold the components in place. Supports are described for mounting or otherwise displaying the display device of the present invention.

29 Claims, 9 Drawing Sheets



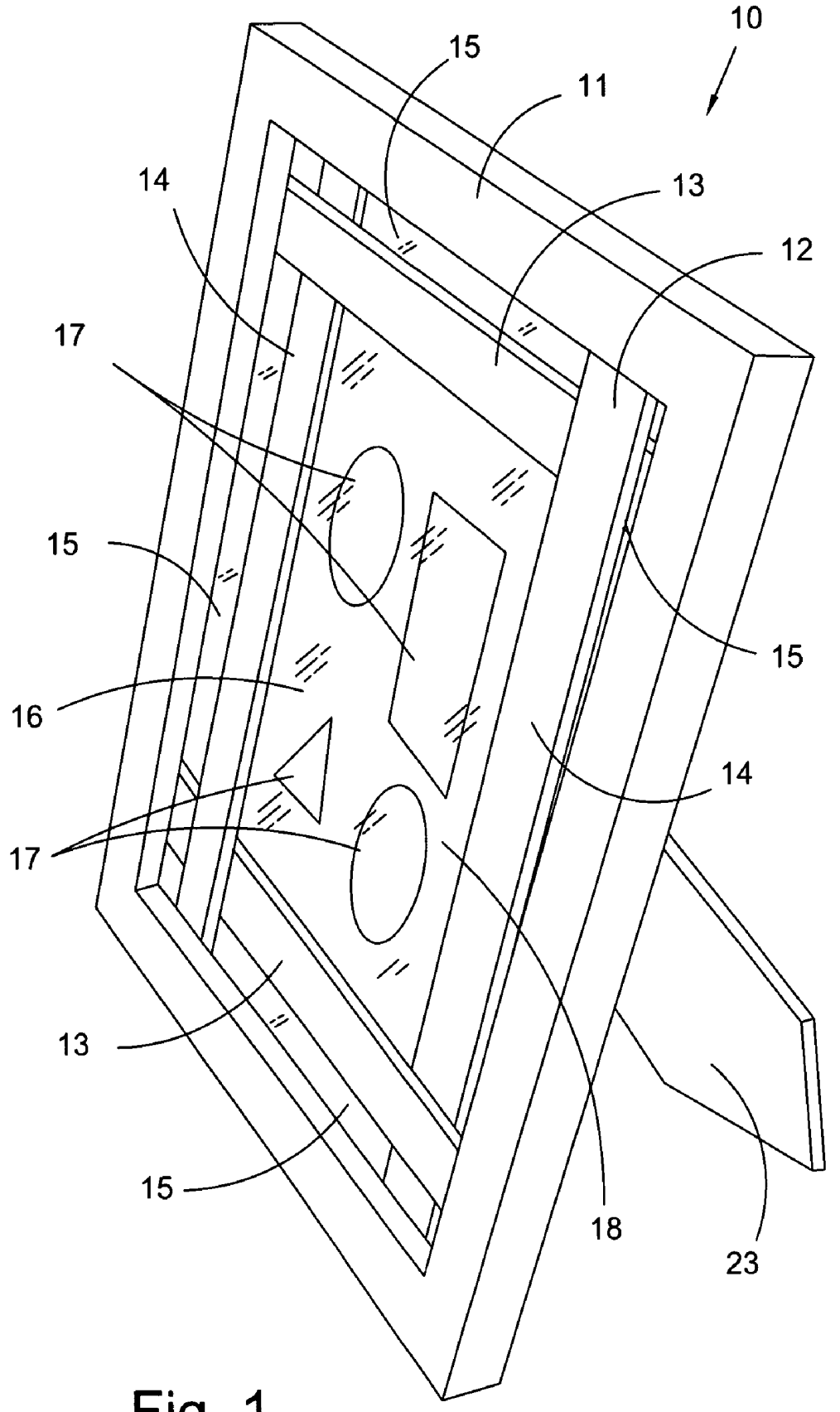


Fig. 1

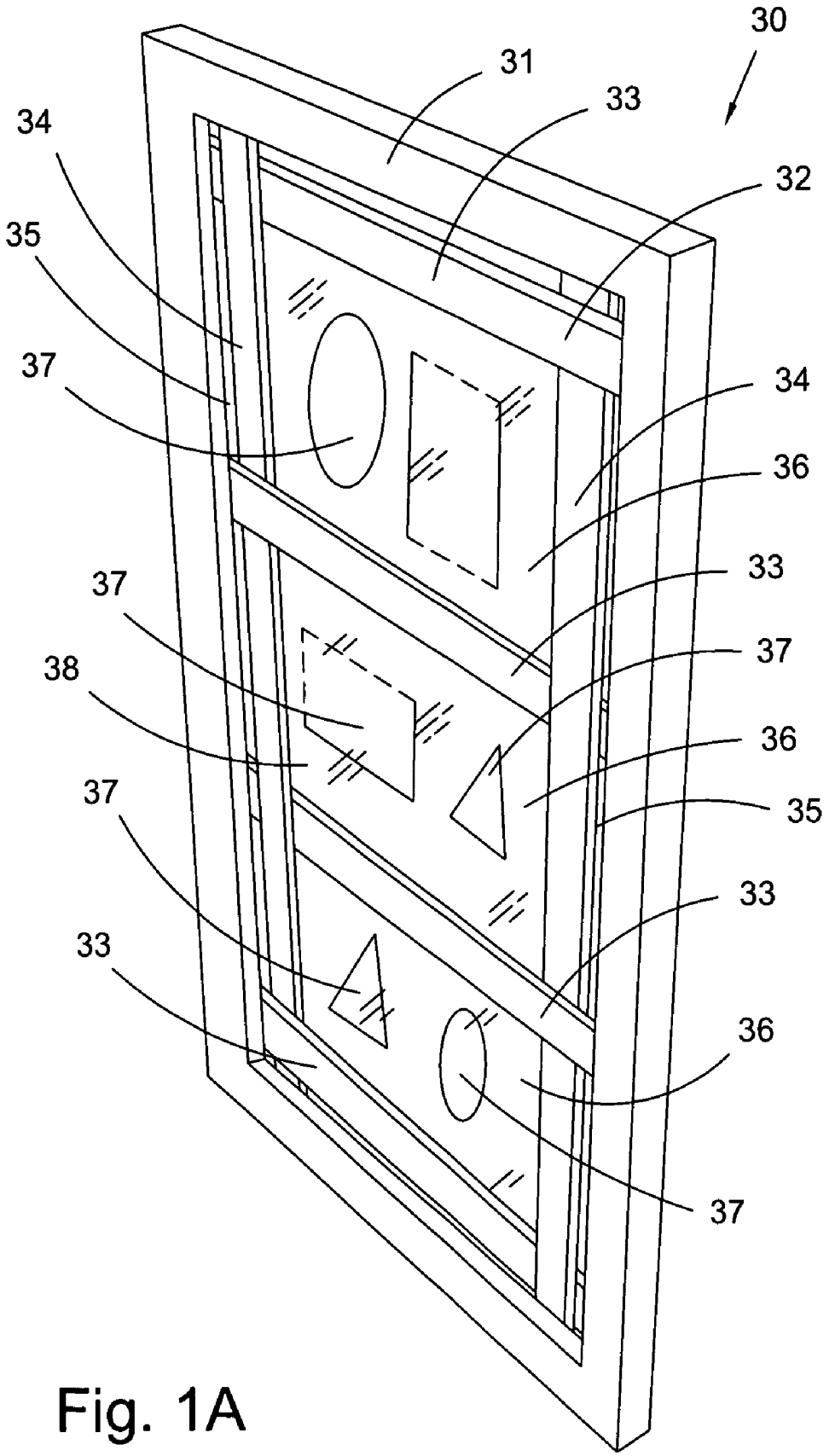
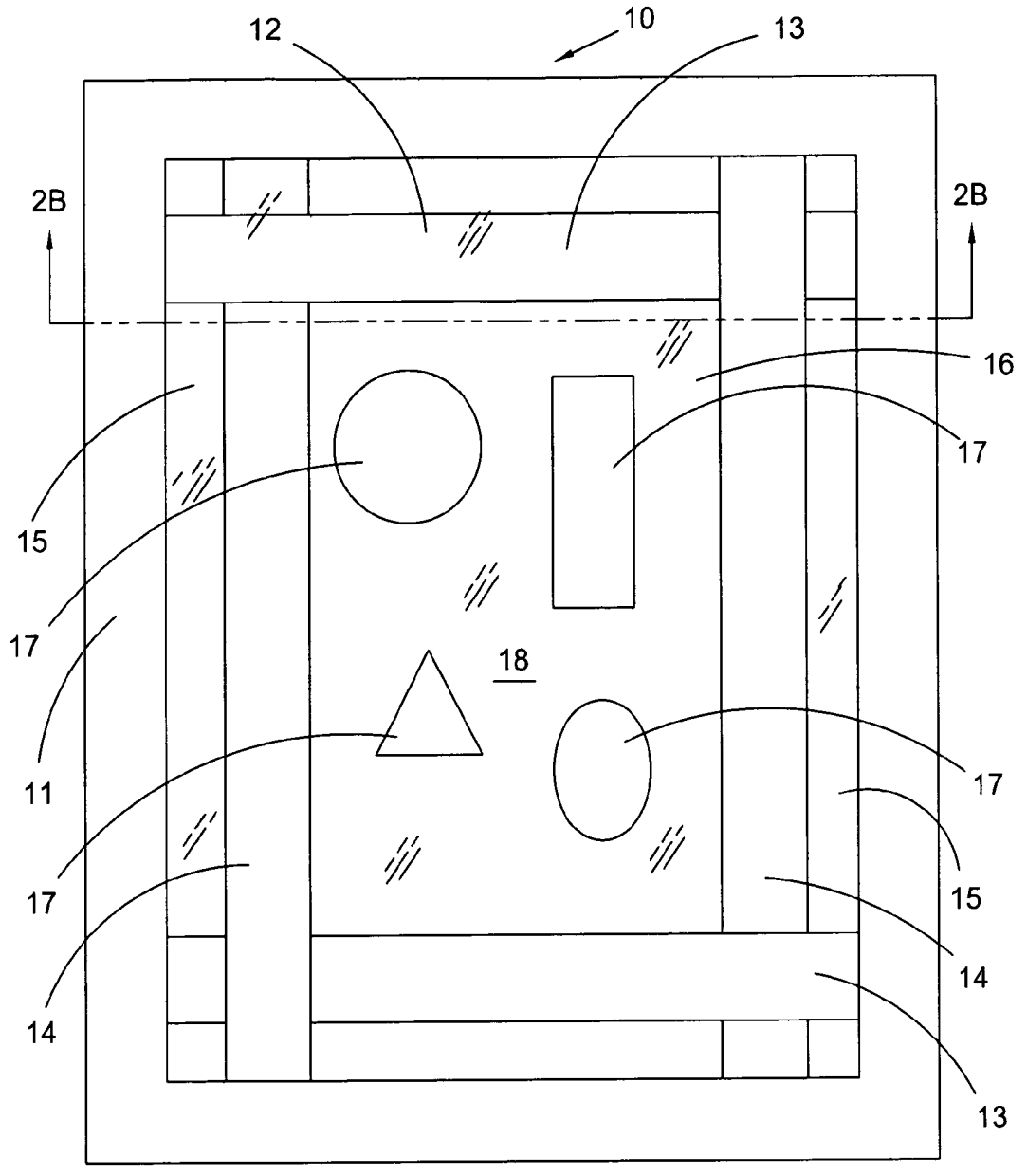


Fig. 1A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2B
2B
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Fig. 2

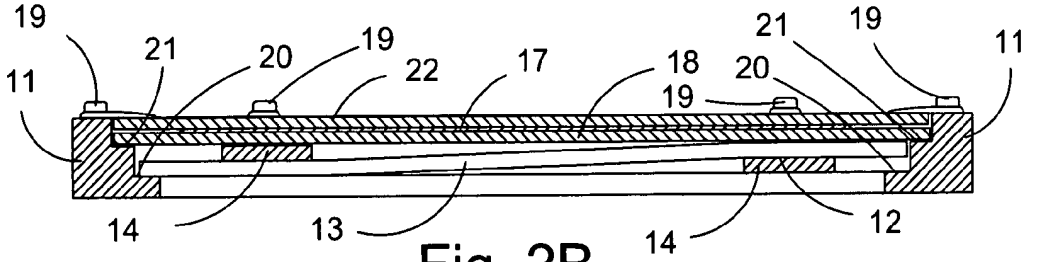
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Fig. 2B

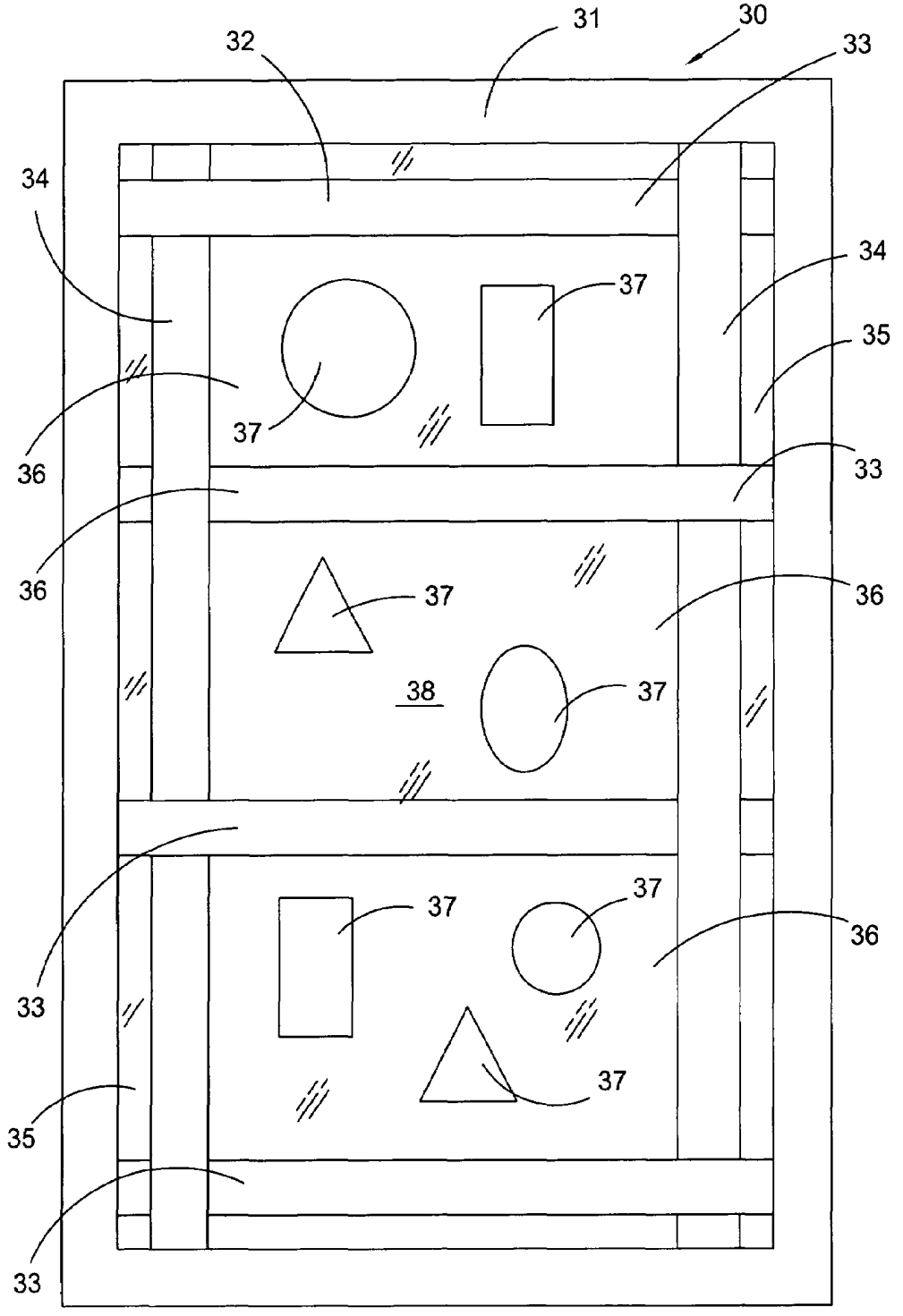

Fig. 2A

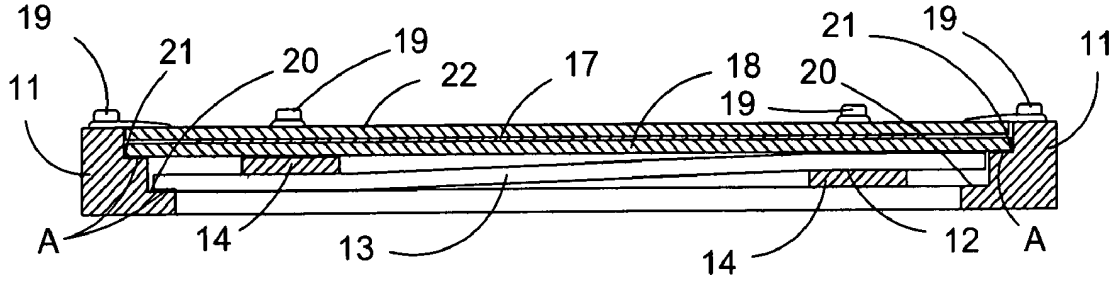

Fig. 2C

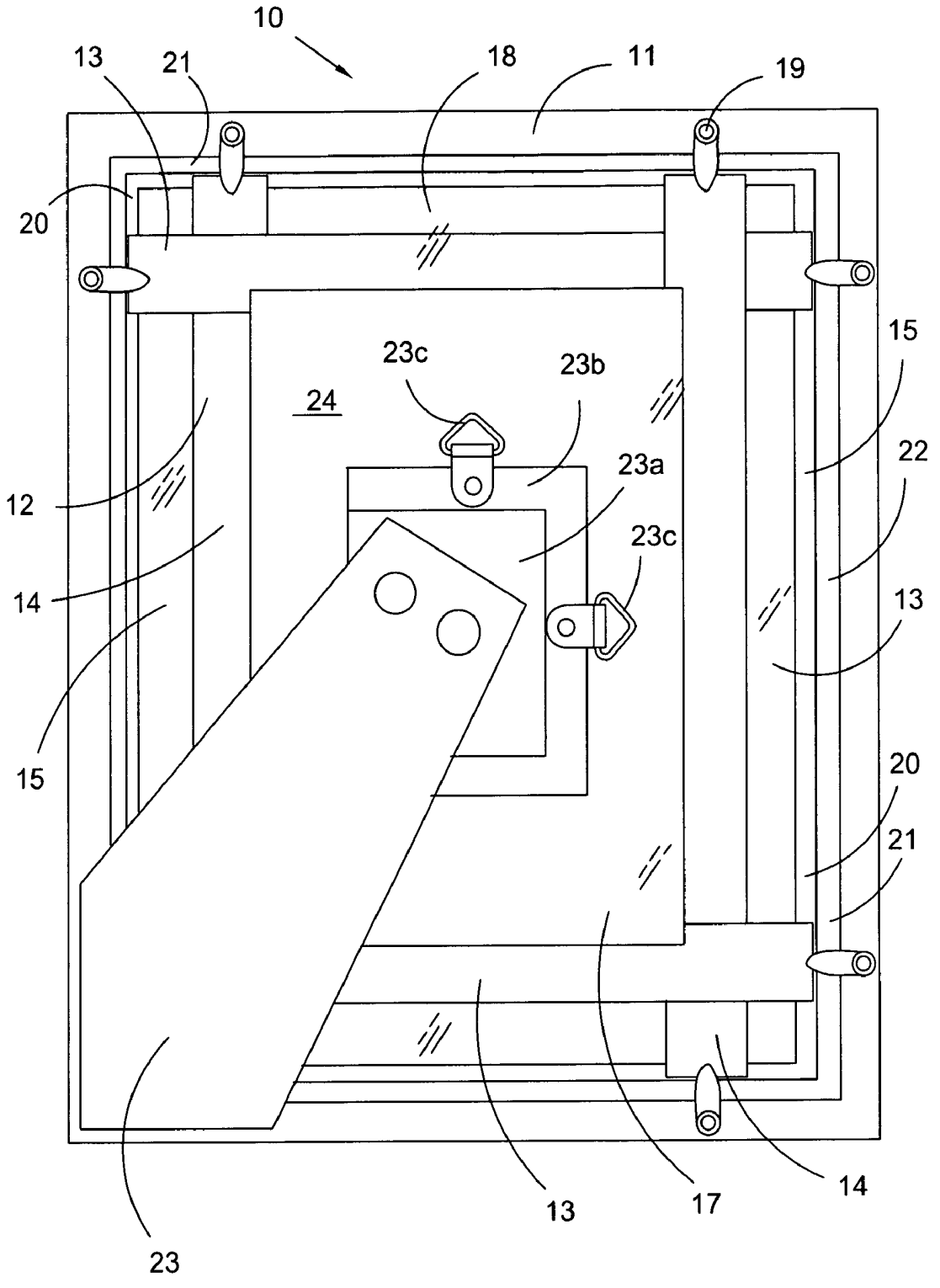
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Fig. 3

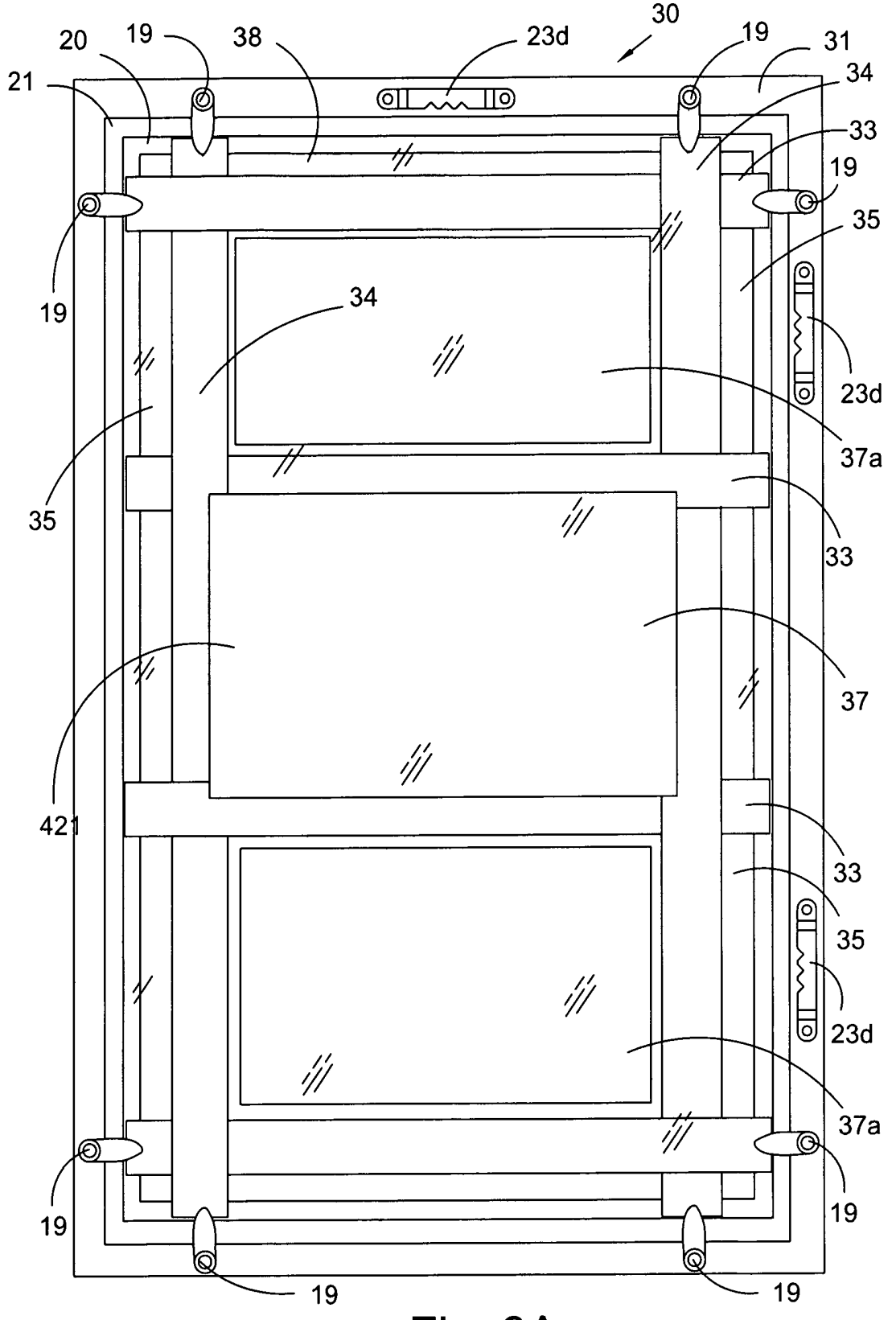
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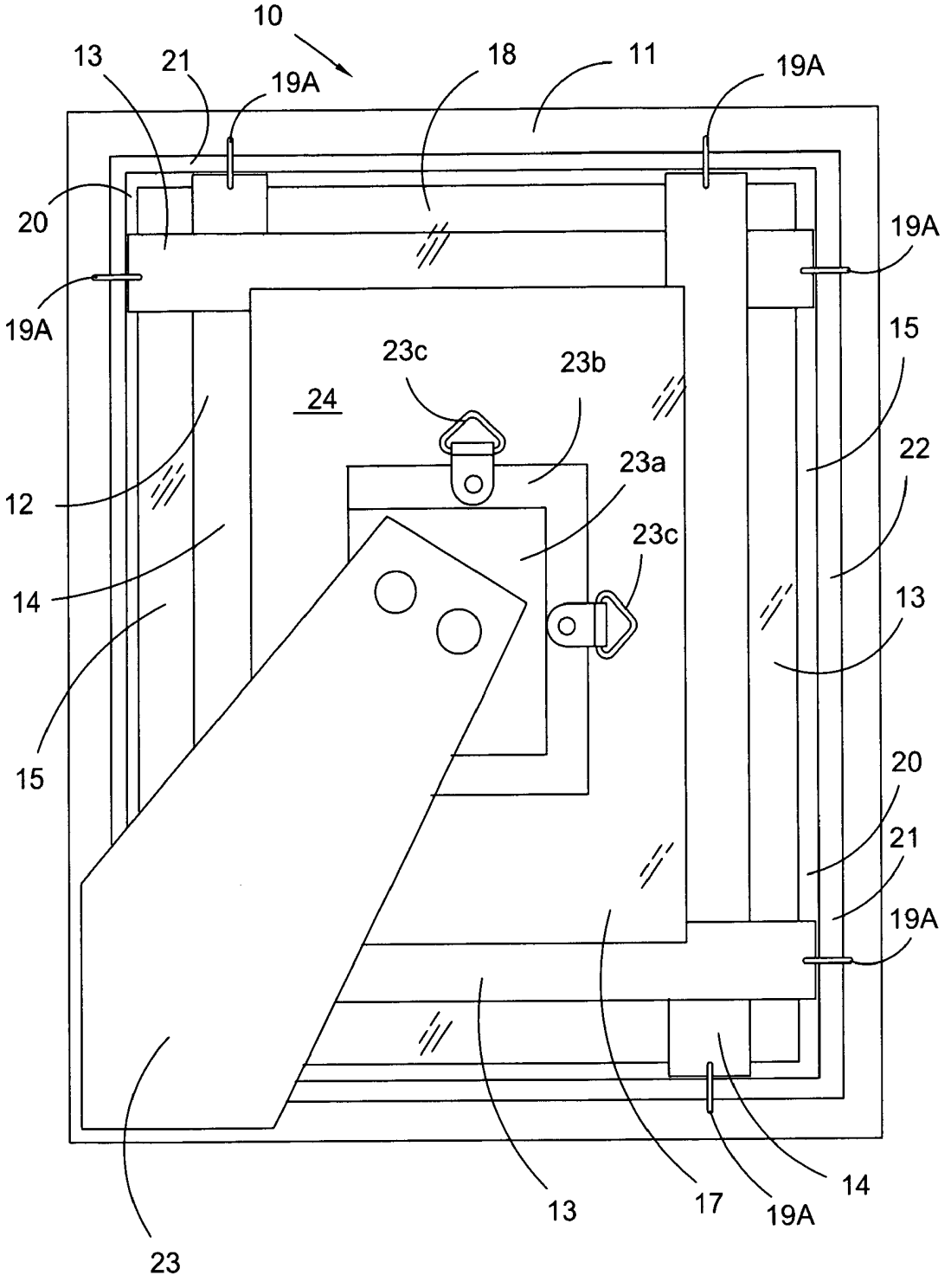
Fig. 3A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19A
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19A
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Fig. 3B

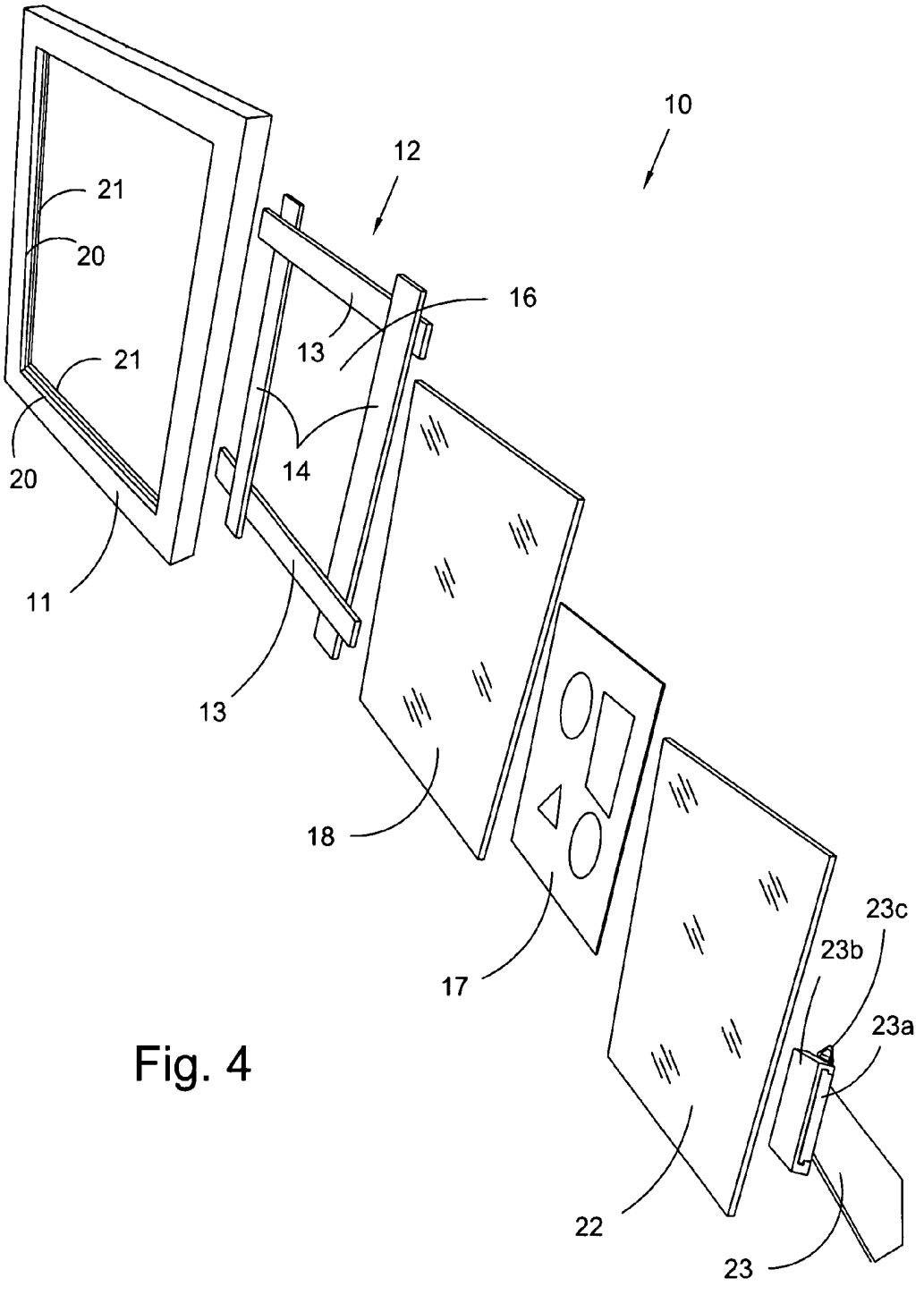

Fig. 4

LATTICE NETWORK DISPLAY DEVICE

FIELD OF THE INVENTION

The invention relates generally to display devices, particularly to framed display devices, and more particularly to framed display devices having a lattice network.

BACKGROUND OF THE INVENTION

Framed display devices are well known globally. Frames provide a structure to art work by preventing the rolling or folding of a display item. They also provide a measure of protection from destruction by protecting the edges of items on display.

In addition, the structure and surface features of frames themselves may contribute to the appearance of a piece of work on display. There are numerous examples of decorative and artistic frames that are able to enhance the item or items displayed by a frame. For example, U.S. Pat. No. D9,732 to Gray discloses a frame in which the four sides are shaped into the form of vines. U.S. Pat. No. D248,356 to Tougas et al. discloses a frame in which each of its sides has a wicker-type configuration. U.S. Pat. No. D200,159 to Mueller, et al. discloses a frame with sides having a wavy configuration and also includes two diagonally crossed pieces in the rear.

One contemporary trend in artistic display is the presentation of "floating" displays in which the displayed item has the appearance of being suspended in space by being held by transparent facings. U.S. Patent Publication No. 2003/0121195 to Moon discloses such an artistic display system. U.S. Pat. No. D369,679 to Lankford is another example of picture holders designed to hold a floating display item.

What appears to be lacking in the field is a display device that combines the structural and artistic advantages of a frame with the capacity to support a floating display item. U.S. Patent Publication No. 2004/0216345 to Wadusky discloses a support frame having four corner mounting devices that support front and rear facings that hold one or more display items sandwiched between the two facings. However, the four mounting devices are only positioned at the four corners and do not extend along the length and width of the facings. U.S. Pat. No. 6,108,958 to Kofoed discloses a picture framing kit with a lattice system that sits behind a transparent facing within an exterior frame, but does not disclose any methods or components that would enable a floating display effect.

What is needed then is a device that would provide the structural and artistic advantages of an external frame while still giving display items a floating effect.

SUMMARY OF THE INVENTION

The present invention broadly comprises a display device including a frame having an inner perimeter and outer perimeter in which the inner perimeter is configured in the form of two shoulders, a lattice network formed from strips attached to the first or front of the two shoulders, the lattice network having at least one display area in which the display area is surrounded by some or all of the strips, a front facing fabricated from a transparent material and set into the second or rear shoulder, and a rear facing fabricated from a transparent material and positioned to rest on the front facing, and retaining means positioned to retain the front and rear facings. In a preferred embodiment, support means in functional association with the rear of the display device are provided to support the display device.

The present invention also includes an alternate embodiment in which the lattice network is formed into a plurality of display areas each of which is surrounded by some or all of the strips of the lattice network. This alternate embodiment includes a frame having an inner perimeter and outer perimeter in which the inner perimeter is configured in the form of two shoulders, a lattice network formed from strips attached to the first of the two shoulders, the lattice network having a plurality of display areas wherein each of the plurality of display areas is surrounded by some or all of the strips, a front facing fabricated from a transparent material and set into the second or rear shoulder, and a rear facing fabricated from a transparent material and positioned to rest on the front facing, and retaining means positioned to retain the front and rear facings. In a preferred embodiment, support means in functional association with the rear of the display device are provided to support the display device.

One object of the invention is to provide a framed structure that gives structural support and artistic effect to the invention.

A second object is to provide a device that allows for the presentation of display items using a floating effect.

A third object is to allow for the display of a plurality display areas within the display device.

An additional object is to provide a display device that enables the display of both framed and floating display items.

A further object is to provide a frame configured to provide sufficient support for the items held within the frame.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The nature and mode of the operation of the present invention will now be more fully described in the following detailed description of the invention taken with the accompanying drawing Figures, in which:

FIG. **1** is a front perspective view of a first embodiment of the present invention;

FIG. **1**A is a front perspective view of a second embodiment of the present invention;

FIG. **2** is a front view of the first embodiment of the present invention;

FIG. **2**A is a front view of the second embodiment of the present invention;

FIG. **2**B is a cross section view of the first embodiment of the present invention taken along line **2**B-**2**B of FIG. **2**;

FIG. **2**C is a cross section view similar to that of FIG. **2**B depicting the use of adhesives to retain the front latticework;

FIG. **3** is a rear view of the first embodiment of the present invention;

FIG. **3**A is a rear view of the second embodiment of the present invention;

FIG. **3**B is a rear view of the first embodiment of the present invention depicting the use of stays as retaining means; and,

FIG. **4** is an exploded perspective view of the first embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

At the outset, it should be appreciated that like drawing numbers on different drawing views identify identical structural elements of the invention.

While the present invention is described with respect to what is presently considered to be the preferred embodiments, it is understood that the invention is not limited to the disclosed embodiments. The present invention is intended to

cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

Adverting to the drawings, FIG. **1** is a front perspective view of one embodiment of display device **10**. External frame **11** forms the perimeter of display device **10** and surrounds and supports the inner components of display device **10**. Lattice network **12** is formed from longitudinal strips **14** extending along the length of frame **11** and transverse strips **13** extending along the width of frame **11**. It will be recognized by those skilled in the art that lattice network **12** may contain more than one longitudinal strip **14** and or transverse strip **13** on each length and width, respectively, of frame **11** and that there may be different numbers of longitudinal strips **14** and transverse strips **13** on each length and width of frame **11**. Gap **15** is shown between the inner perimeter of frame **11** and the outermost longitudinal strips **14** and transverse strips **13**.

Display area **16** is formed by the innermost transverse strips **13** and longitudinal strips **14**. As will be discussed below, in an alternate embodiment, lattice network **12** may form more than one display area **16**. Within display area **16**, one or more display items **17** are presented. It will be recognized that display items **17** may be small enough to fit totally within the perimeter of display area **16**, may be framed by the innermost strips of lattice network **12** or may extend beyond the strips of lattice network **12** bordering display area **16** into gap **15**. Display items may be photographs, drawings, leaves, patches and/or other memorabilia sufficiently sized to fit within frame **11** as described below. In a preferred embodiment, support means **23**, discussed below in detail, is shown and holds display device **10** in a sloping upright position. FIG. **2** is a front view of display device **10** more clearly showing front facing **18** which is a transparent sheet behind lattice network **12** covering display item(s) **17**.

FIG. **1**A is a front perspective view of multi-display device **30**, an alternate embodiment of the present invention. As in display item **10**, frame **31** encloses multi-display device **30** and supports the inner components of multi-display device **30**. Lattice network **32** includes transverse strips **33** and longitudinal strips **34**. There may be more than one longitudinal strip **34** along each length of frame **31** or more than one transverse strip **33** along the width of multi-display device **30**. Multi-display device **30** includes sufficient transverse strips to form a plurality of display areas **36**. Persons of skill in the art will recognize that a plurality of display areas **36** may be formed by sufficient numbers of longitudinal strips **34** as well as a combination of longitudinal strips **34** and transverse strips **33**. As in display device **10** shown in FIG. **1**, each of the display areas **36** is surrounded by transverse strips **33** and longitudinal strips **34**. Gap **35** is formed between frame **31** and lattice network **32**. Display items **37** are seen in each of display areas **36**. FIG. **2**A is a front view of multi-display device **30** more clearly showing front transparent facing **38** behind lattice network **32** covering the front side of display item(s) **37**.

FIG. **2**B is a cross section view of display item **10** taken along line **2**B-**2**B of FIG. **2**. Frame **11** includes a double shoulder configuration along its inner perimeter which provides two shelf-like projections around the inner perimeter. Front shoulder **20** is seen as supporting transverse strip **13** of lattice network **12**. Not seen in this view, first shoulder **20** also supports longitudinal strips **14** in the same manner as transverse strips **13**. In the embodiment shown, lattice network **12** is removably supported by front shoulder **20**. In an alternate embodiment, lattice network **12** is retained on front shoulder **20** by adhesive A. Rear shoulder **21** holds front facing **18** and transparent rear facing **22**. Display item(s) **17** are held between front facing **18** and rear facing **22** in a sandwich type configuration. The support of front facing **18** and rear facing **22** by rear shoulder **21** enables the presentation of display items **17** to achieve a "floating effect" by supporting the display item(s) **17** with the facings in a "sandwich" tight enough to render them immobile without having them appearing to be supported by lattice network **12** or frame **11**. Front shoulder **20** and rear shoulder **21** are seen to project from the inner perimeter at substantially right angles. The double shoulder configuration enables the load of lattice network **12**, front facing **18**, and rear facing **22**, along with any display item(s) **17** to be distributed over the entire thickness of the interior perimeter of frame **11** giving increased support to each of those elements. In one embodiment, front facing **18** may be removably supported by rear shoulder **21**. In an alternate embodiment, front facing **18** may be attached to rear shoulder **21** by adhesive A as seen in FIG. **2**C. Similarly, rear facing **22** may be removably mounted into rear shoulder **21** or attached to rear shoulder **21** using an adhesive. Using a similar double shoulder configuration as described above in the inner perimeter of frame **31** of multi-display **30** (not shown in FIG. **2**B), substantially the same support can be realized for display item(s) **37** placed between front facing **38** and rear facing **42**.

In a more preferred embodiment, the distance between front shoulder **20** and rear shoulder **21** is evaluated to allow enough room to hold lattice network **12** without disturbing support front facing **18**, display items **17**, and rear facing **22** supported by rear shoulder **21** to prevent display items from moving. Front facing **38** and rear facing **42** may be retained in a removable or attached embodiment as described above with display device **10**.

FIG. **3** is a rear view of display device **10** showing one embodiment of retaining means **19**. In the embodiment shown, retaining means **19** are swivel pins attached to frame **11** and that rotate to extend over rear facing **22** to retain lattice network **12** in place against front shoulder **20** and front facing **18**, display item **17** and rear facing **22** against rear shoulder **21**. By retaining means is meant devices that extend over rear facing **22** to hold the above elements in place. Other retaining means include stays such as brads, pins, staples, nails, or other similar devices that extend from frame **11** over rear facing **22** to hold in place the components resting on shoulders **20** and **21**. FIG. **3**B depicts an example of the use of stays in the form of staple **19***a*. In an alternate embodiment, retaining means may include adhesives that hold some or all of the above components in place on shoulders **20** and **21**. Retaining means may be located within the inner perimeter of frame **11** and/or on the rear of frame **11** as shown in FIGS. **2** and **2**A.

FIG. **3** also shows two embodiments of support means **23** which are defined as devices used to support the entire display device **10** or multi-display device **30**. Support means **23** are in functional association with the rear of display device **10** or multi-display device **30** meaning that they are attached to one or more components of the rear side of either display device **10** or multi-display device **30** to support those devices. In FIG. **3**, support means **23** is a prop hingably attached to slide **23***a* which slides into block **23***b*. Block **23***b* is attached to rear facing **22** and is shaped to receive slide **23***a* by creating a cutout of the block sized to receive slide **23***a*. In a preferred embodiment, slide **23***a* is sized to be inserted into the cutout to enable display device **10** to be propped on either the long or short side of frame **11**. FIG. **3** also depicts rings **23***c* as an alternate embodiment to support means **23** which allows display device **10** to be mounted on a wall or similar support. In the preferred embodiment shown, rings **23***c* are positioned to allow display device **10** to be supported in a longitudinal (long

side) or transverse (width) position. FIG. **3** also depicts the embodiment in which the perimeter of display item **17** extends into longitudinal strips **12** and transverse strips **13** surrounding display area **16** to frame display item **17**. Other examples of support means **23** include hanger style devices such as hook and wire assemblies, eyelet hangers, suction devices and other equivalent objects designed to hold display device **10** and multi-display device **30** in place.

FIG. **3**A is a rear view of multi-display device **30**. In still another embodiment of support means **23**, support means **23***d* shown in the form of sawtooth supports are seen attached to frame **31**. Also seen is display item(s) **37** positioned over display areas **36** so as to extend into transverse strips **33** and longitudinal strips **34** to give a framed appearance by the strips surrounding that display area **36**. Also seen in FIG. **3**A is an alternate embodiment in which display items **37***a* are wholly within upper and lower display areas **36** to create a floating effect. It will be recognized that one or more of display areas **36** may have floating display items **37***a* while simultaneously other display areas **36** may have display items **37** positioned to extend into or beyond the surrounding lattice network strips.

FIG. **4** is an exploded perspective view of display device **10**. In the embodiment shown, lattice network **12** is placed onto front shoulder **20**. Front facing **18** is positioned onto rear shoulder **21**. Display item(s) **17** is positioned within display area **16** or if desired, placed within or extended over the strips of lattice network **12**. Rear facing **22** is positioned onto rear shoulder **21** over display item(s) **17** onto rear shoulder **21** and retaining means **19** (not shown) moved or positioned to extend over rear facing **22** to hold all the components in place. Finally slide **23***a* of support means **23**, in this case a prop, is slid into block **23***b* which is attached to rear facing **22**. A similar layering procedure is used for multi-display device **30**. As discussed above, other retaining means **19** and support means **23** may be used.

Thus it is seen that the objects of the invention are efficiently obtained, although changes and modifications to the invention should be readily apparent to those having ordinary skill in the art, which changes would not depart from the spirit and scope of the invention as claimed.

I claim:

1. A display device comprising:

a frame having an inner perimeter and outer perimeter wherein said inner perimeter is configured in the form of two rigid shoulders, wherein each of said two shoulders form a substantially right angle with said inner perimeter;

a lattice network formed from strips attached to the first of said two shoulders, said lattice network having at least one display area wherein said at least one display area is surrounded by some or all of said strips;

a front facing fabricated from a transparent material and set into said second shoulder;

a rear facing fabricated from a transparent material and set into said second shoulder; and,

retaining means positioned on said frame to retain said front and rear facings.

2. The display device as recited in claim **1** further comprising support means in functional association with the rear of said display device to support said display device.

3. The display device as recited in claim **1** wherein said at least one display area comprises a plurality of display areas.

4. The display device as recited in claim **1** wherein at least one part of each said front and rear facings are visible between said lattice network and said inner perimeter.

5. The display device as recited in claim **1** further comprising at least one display item positioned in said at least one display area between said front and rear facings.

6. The display device as recited in claim **5** wherein the perimeter of said at least one display item is covered by some or all of said surrounding strips.

7. The display device as recited in claim **5** wherein the perimeter of said at least one display item is enclosed within said at least one display area.

8. The display device as recited in claim **7** wherein a plurality of said at least one display items is enclosed within at least one of said at least one display areas.

9. The display device as recited in claim **1** wherein said retaining means are swivel retaining pins.

10. The display device as recited in claim **1** wherein said retaining means are stays.

11. The display device as recited in claim **1** wherein said retaining means is an adhesive.

12. The display device as recited in claim **2** wherein said support means is a prop positioned to hold said frame in a sloping position.

13. The display device as recited in claim **2** wherein said support means is an enclosed mounting device in functional association with said rear of said display device.

14. The display device as recited in claim **2** wherein said support means is a hanging device attached in functional association with said rear of said display.

15. The display device as recited in claim **14** wherein said hanging device is a sawtooth hanger.

16. A display device comprising:

a frame having an inner perimeter and outer perimeter wherein said inner perimeter is configured in the form of two shoulders;

a lattice network formed from strips attached to the first of said two shoulders, said lattice network having a plurality of display areas wherein each of said plurality of display areas is surrounded by some or all of said strips;

a transparent front facing set into said second shoulder;

a transparent rear facing positioned to rest on said front facing; and,

retaining means positioned to retain said front and rear facings on said second shoulder.

17. The display device as recited in claim **16** further comprising support means in functional association with the rear of said display device to support said display device.

18. The display device as recited in claim **16** wherein at least one part of each of said front and rear facings are visible between said lattice network and said inner perimeter.

19. The display device as recited in claim **16** further comprising at least one display item positioned in at least one of said plurality of display areas between said front and rear facings.

20. The display device as recited in claim **19** wherein the perimeter of said at least one display item is covered by said surrounding strips.

21. The display device as recited in claim **19** wherein the perimeter of said at least one display item is enclosed within said at least one display area.

22. The display device as recited in claim **21** wherein a plurality of said at least one display items is enclosed within at least one of said at least one display areas.

23. The display device as recited in claim **16** wherein said retaining means are swivel retaining pins.

24. The display device as recited in claim **16** wherein said retaining means are stays.

25. The display device as recited in claim **16** wherein said retaining means is an adhesive.

26. The display device as recited in claim 17 wherein said support means is a prop positioned to hold said frame in a sloping position.

27. The display device as recited in claim 17 wherein said support means is an enclosed mounting device in functional association with said rear of said display device.

28. The display device as recited in claim 17 wherein said support means is a hanging device.

29. The display device as recited in claim 28 wherein said hanging device is a sawtoothed strip attached in functional association with said rear of said display.

* * * * *