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(12) **United States Patent**
van der Walde

(10) **Patent No.: US 10,646,059 B1**
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(54) **SUSPENDED SEGMENTED DISPLAY ARRAY WITH LOW VISIBILITY HARDWARE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 31 days.

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Related U.S. Application Data

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(51) **Int. Cl.**
A47G 1/16 (2006.01)
A47G 1/17 (2006.01)

(52) **U.S. Cl.**
CPC ***A47G 1/1686*** (2013.01); ***A47G 1/1606*** (2013.01); ***A47G 1/17*** (2013.01)

(58) **Field of Classification Search**
CPC A47G 1/1686; A47G 1/1606; A47G 1/17
See application file for complete search history.

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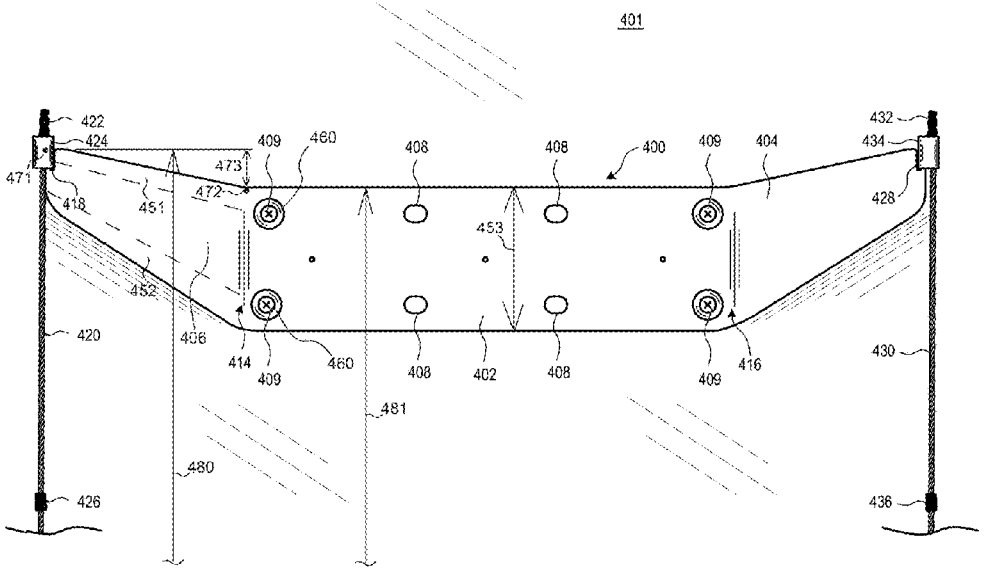
(Continued)

Primary Examiner — Ko H Chan

(57) **ABSTRACT**

Embodiments of the present disclosure relate to segmented display arrays, methods of assembling the same, and components thereof. In one embodiment, a segmented display array comprises wall-mounted first and second standoff members, each standoff member having a wall attachment base and first and second standoff arms extending therefrom. The segmented display array embodiment further comprises a first elongated member segment coupled to each of the first and second standoff members via the associated standoff arms, a second elongated member segment coupled to each of the first and second standoff members via the associated standoff arms, and display panels coupled to each of the first and second elongated member segments.

29 Claims, 62 Drawing Sheets



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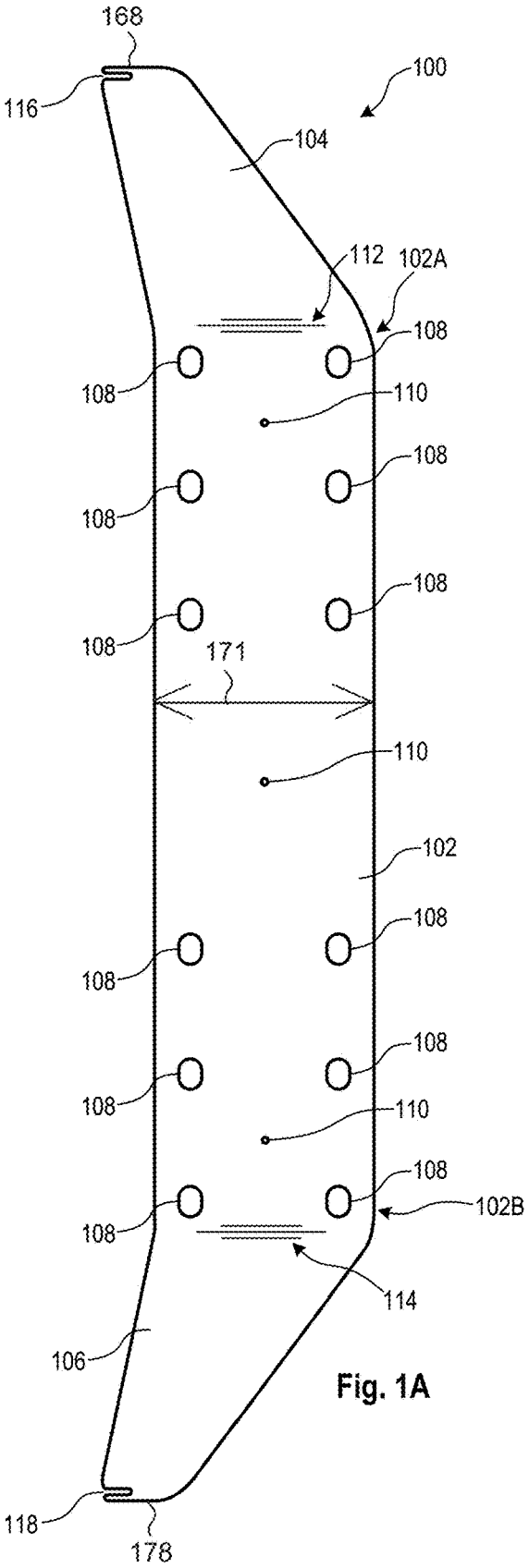
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Fig. 1A

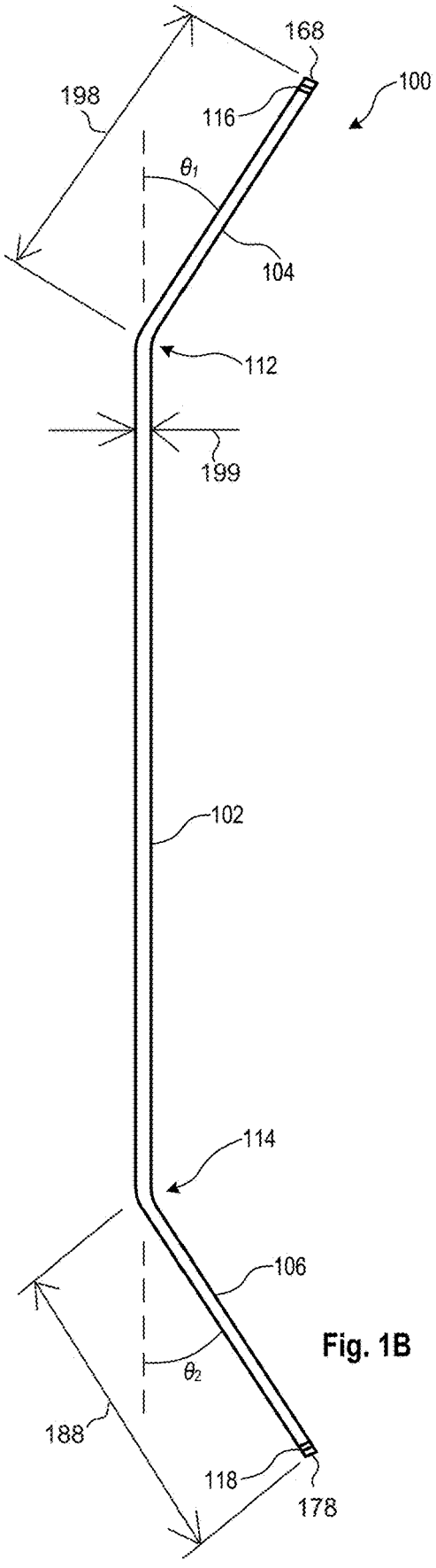
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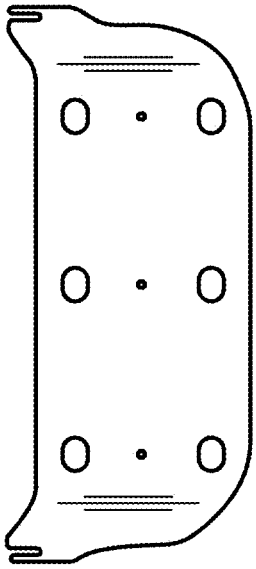
Fig. 1B



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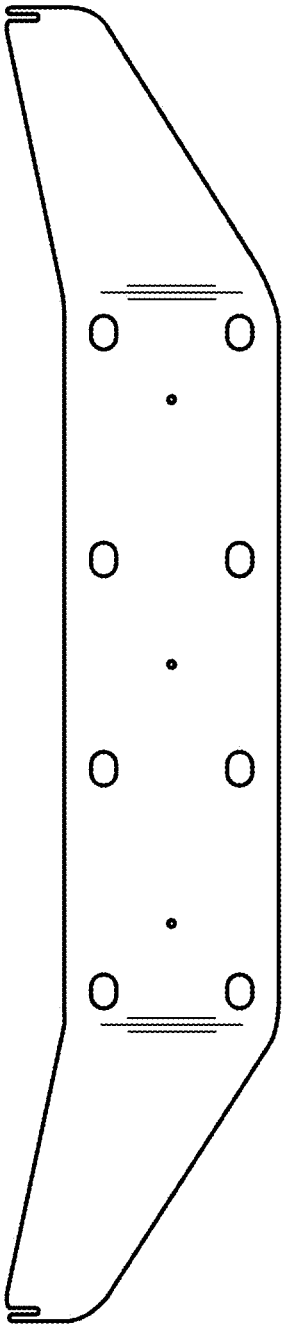

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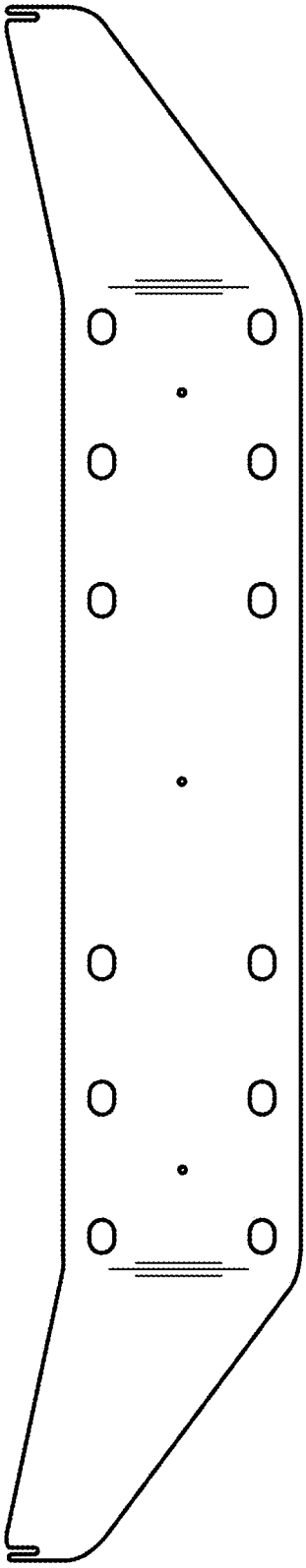

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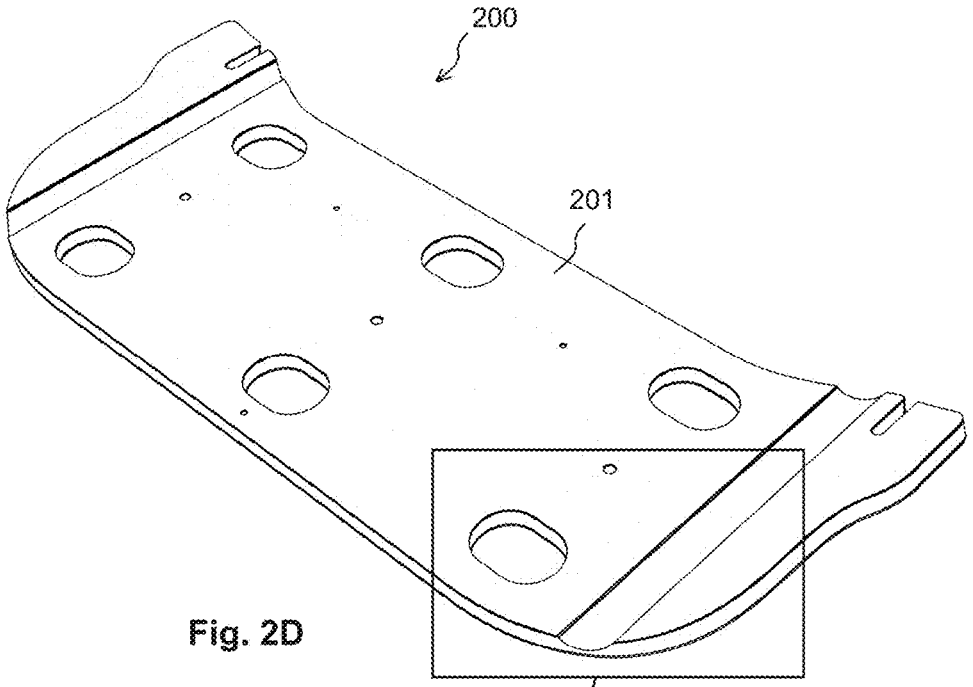


Fig. 2D

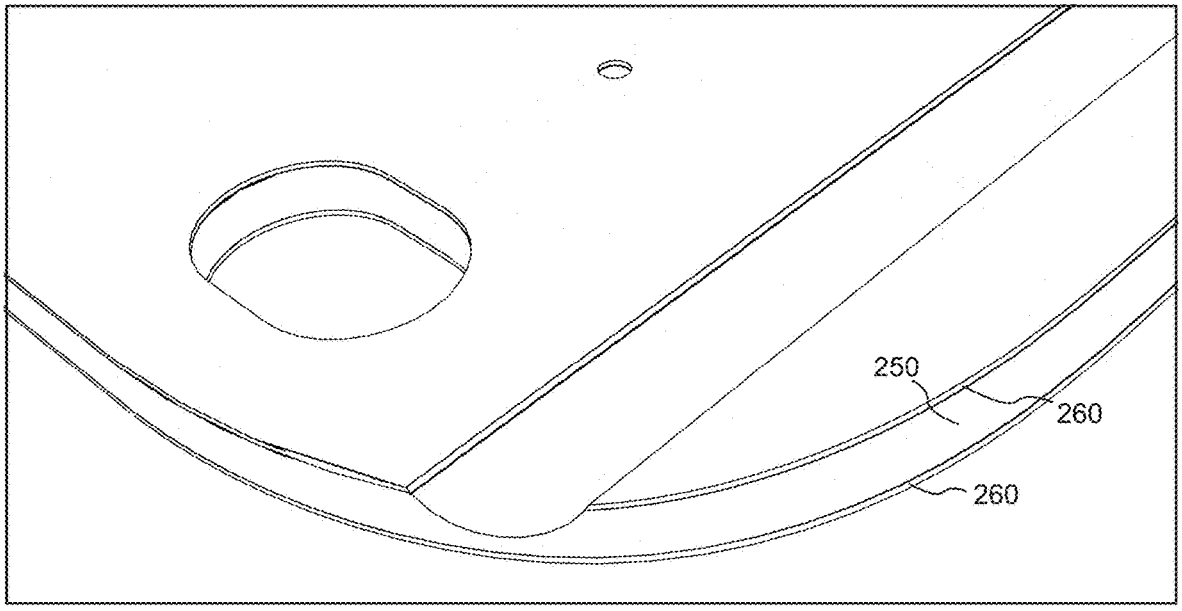


Fig. 2E

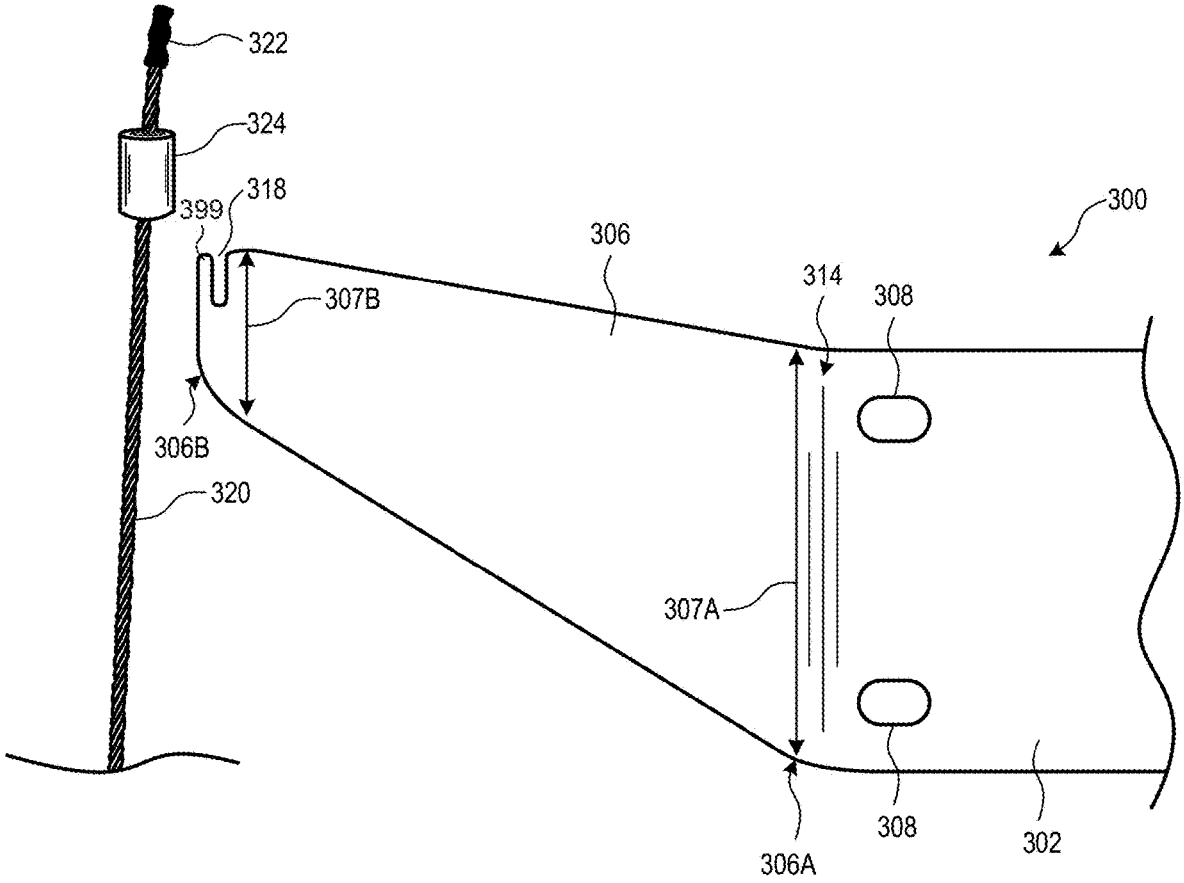


Fig. 3A

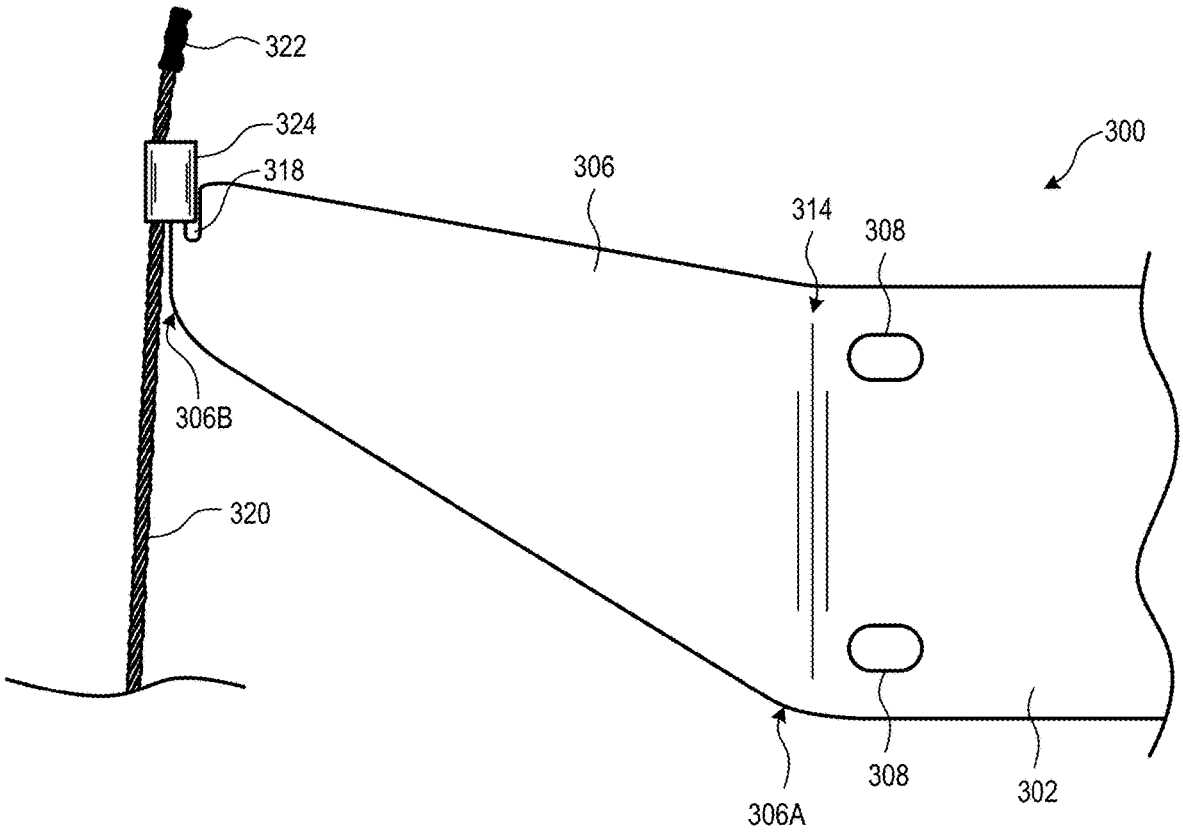
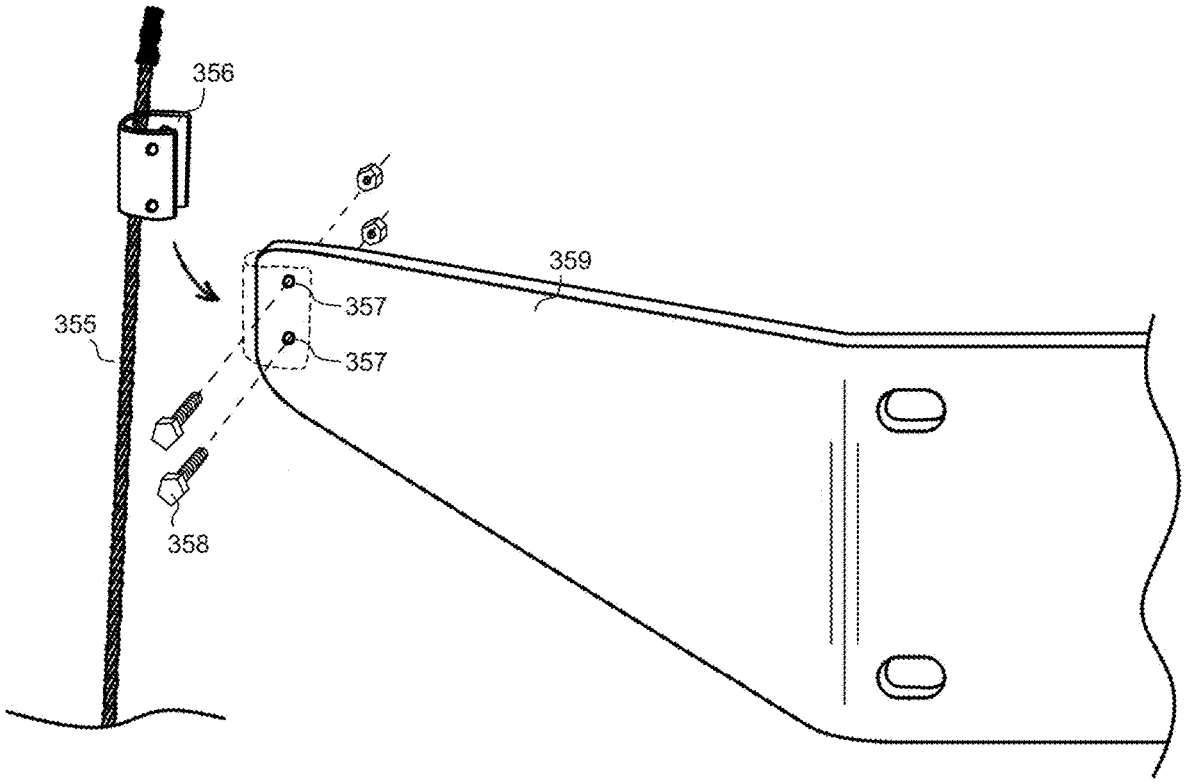


Fig. 3B



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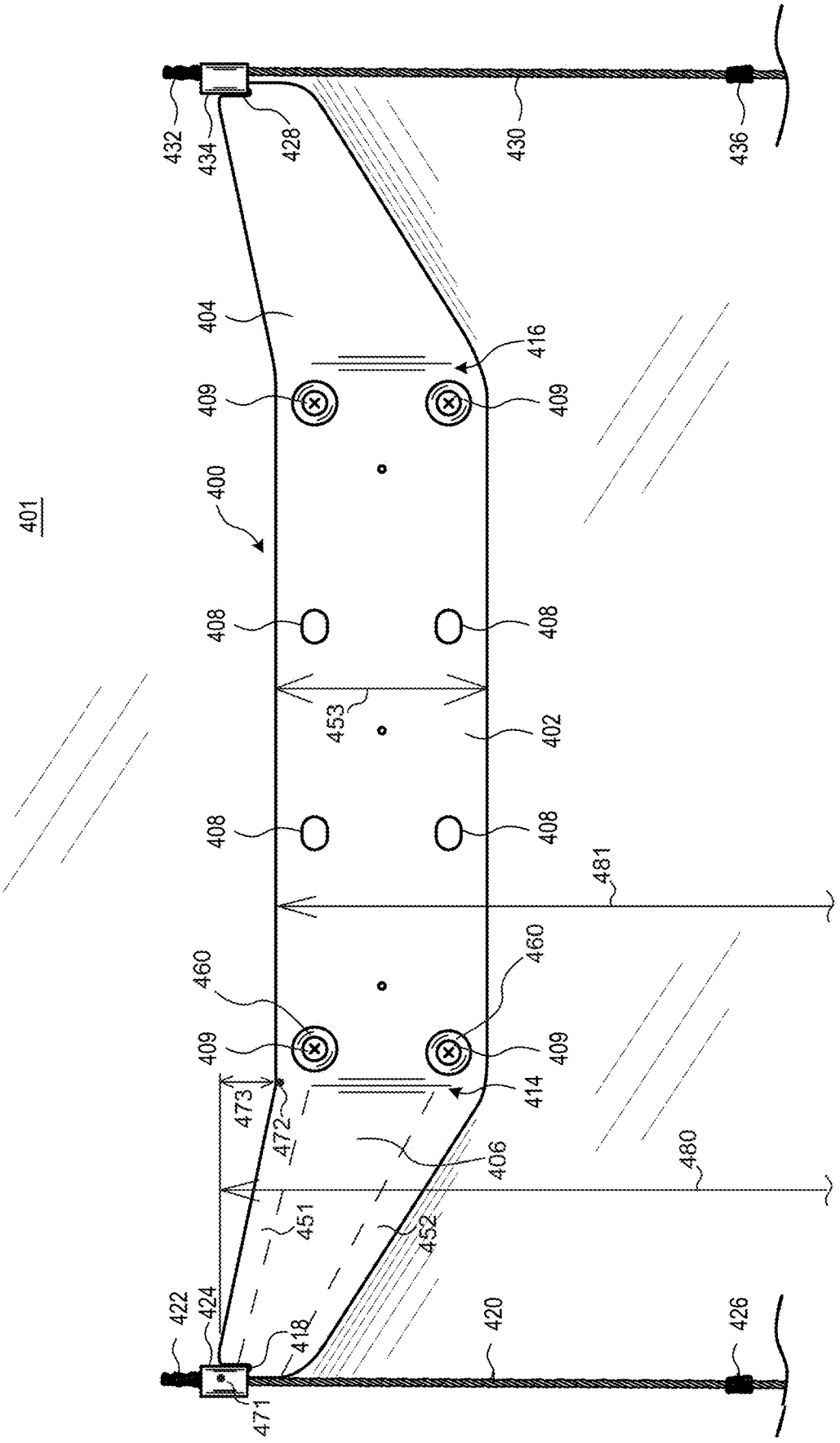
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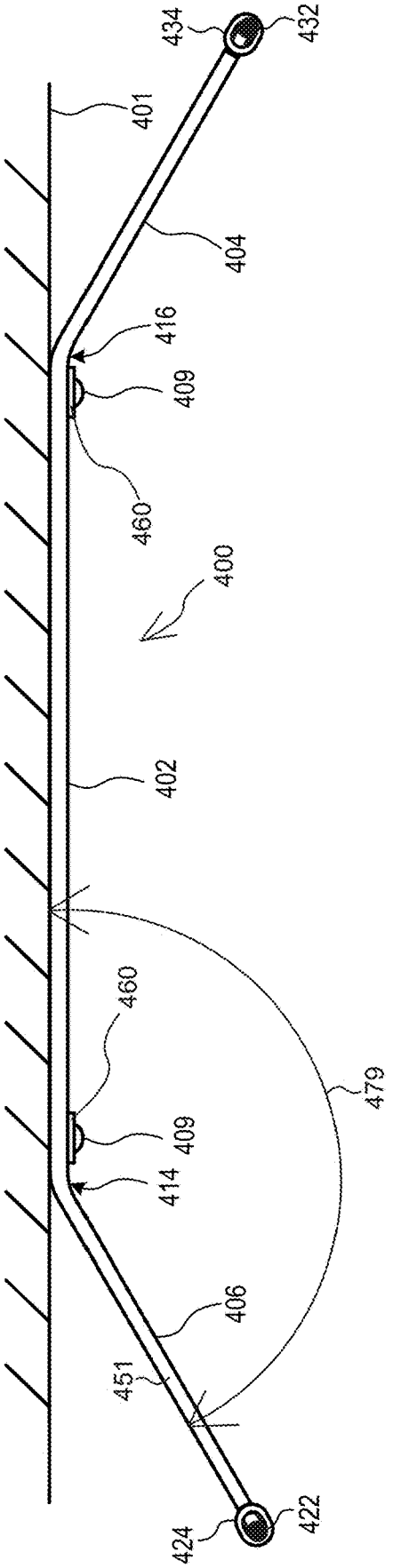
Fig. 4A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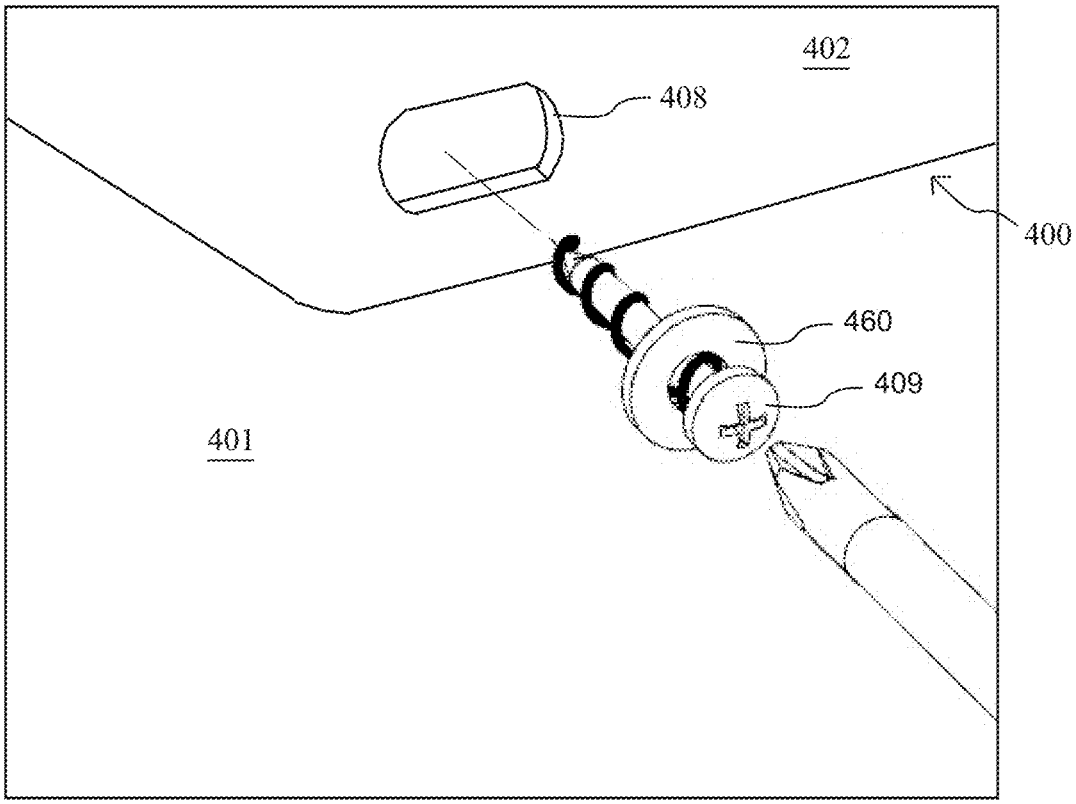

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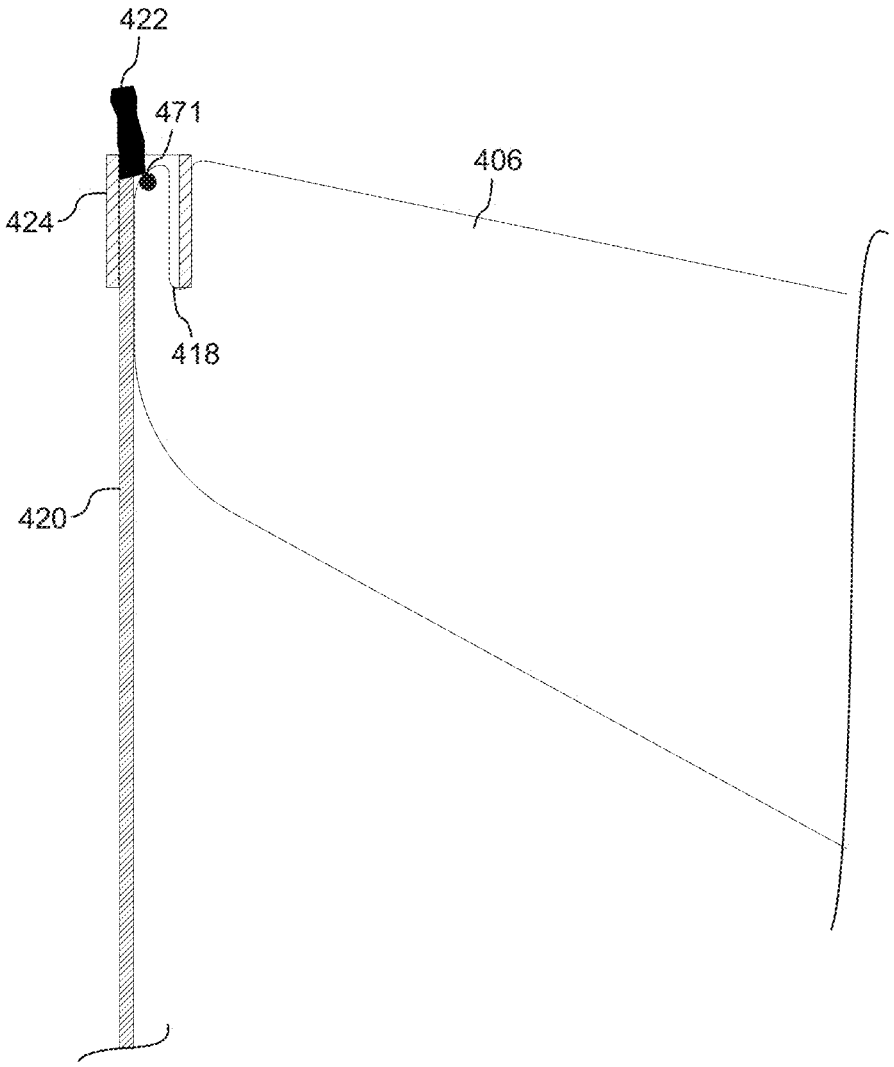

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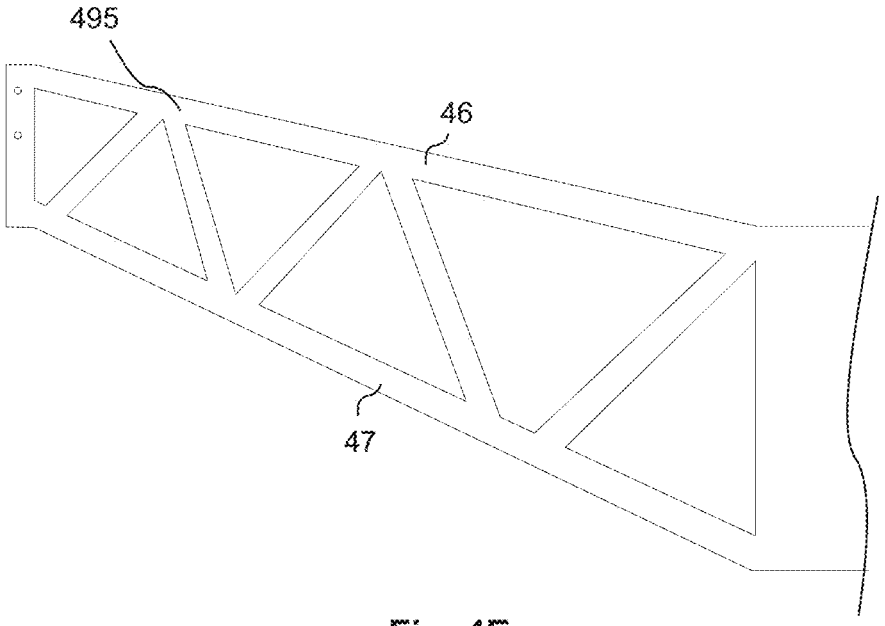

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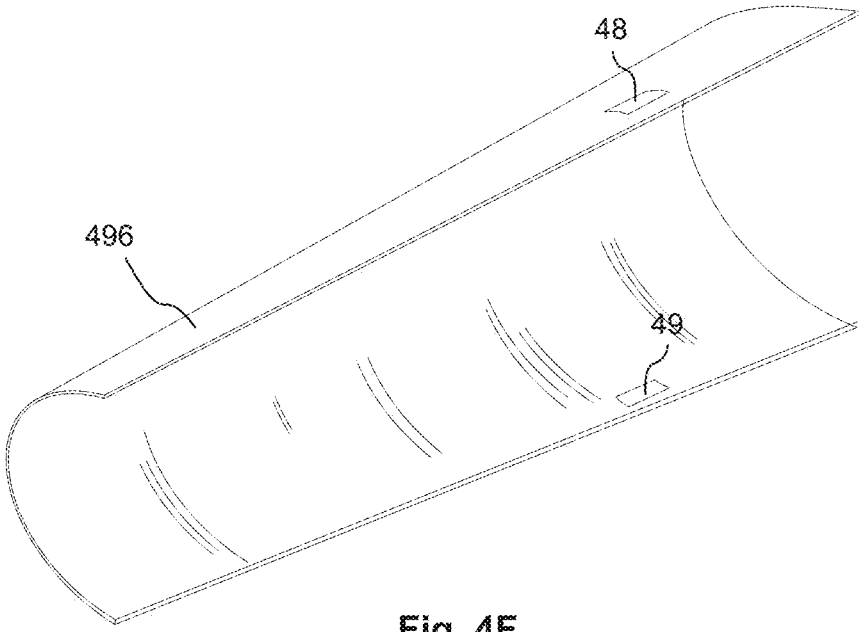

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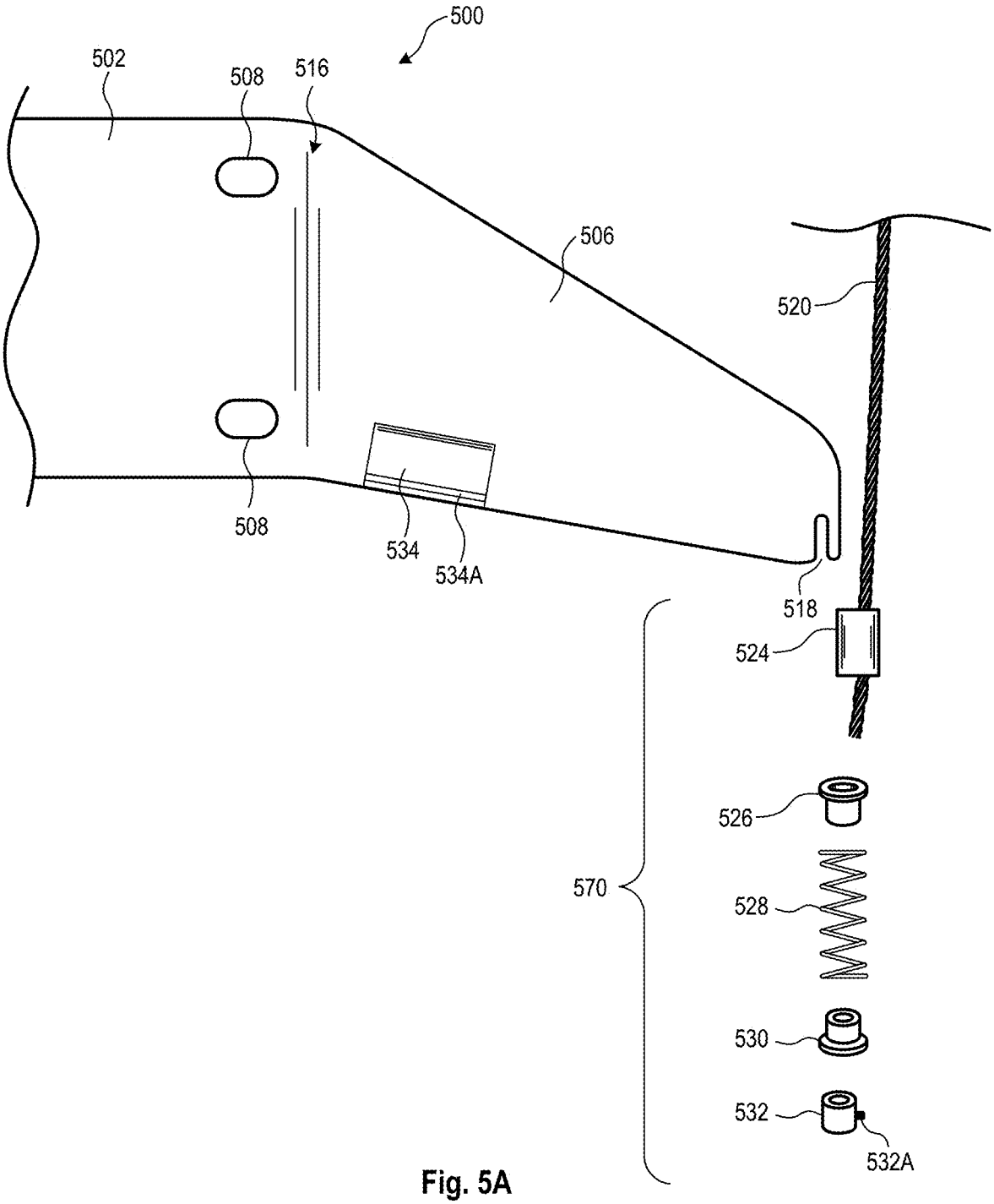
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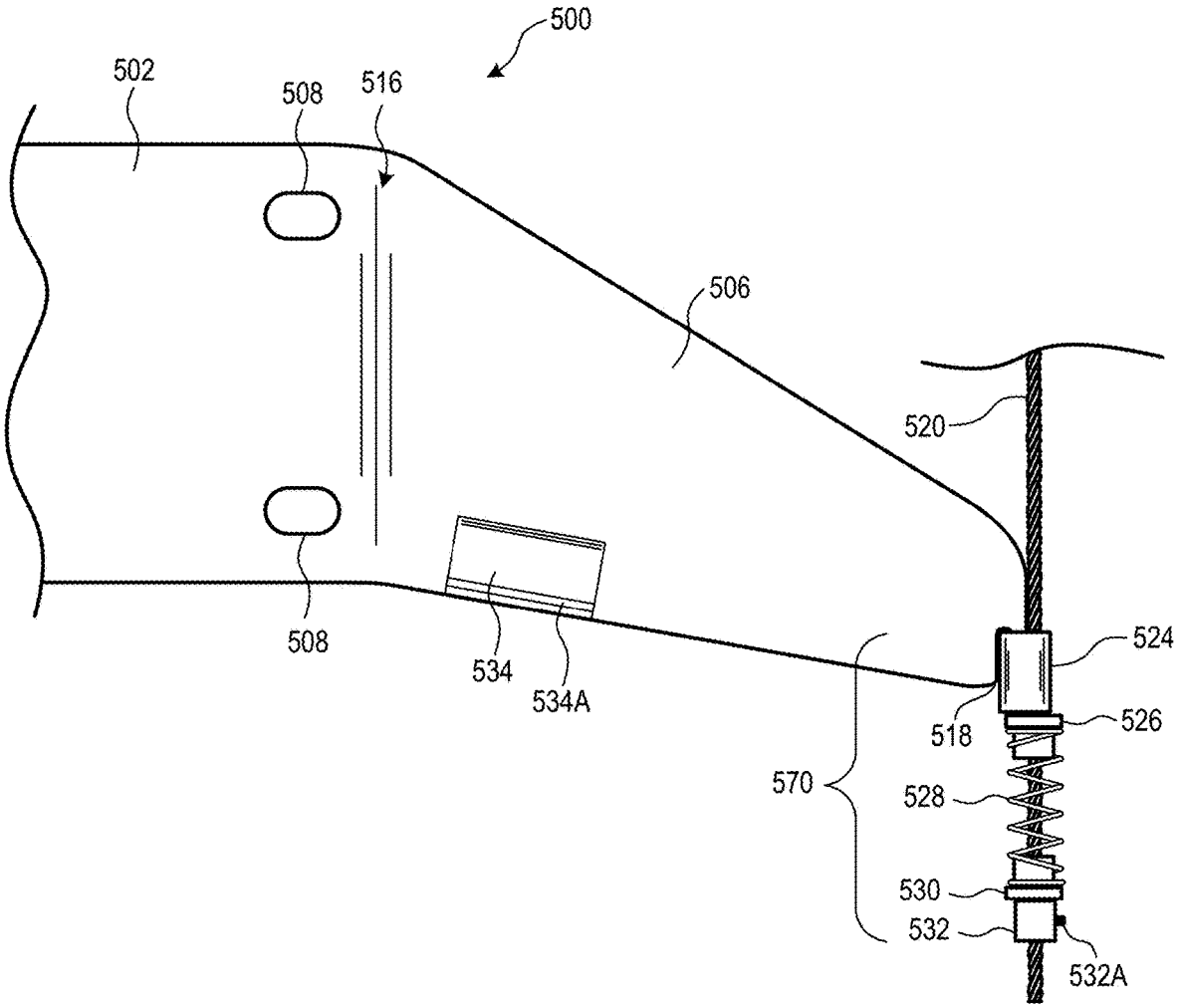
Fig. 5A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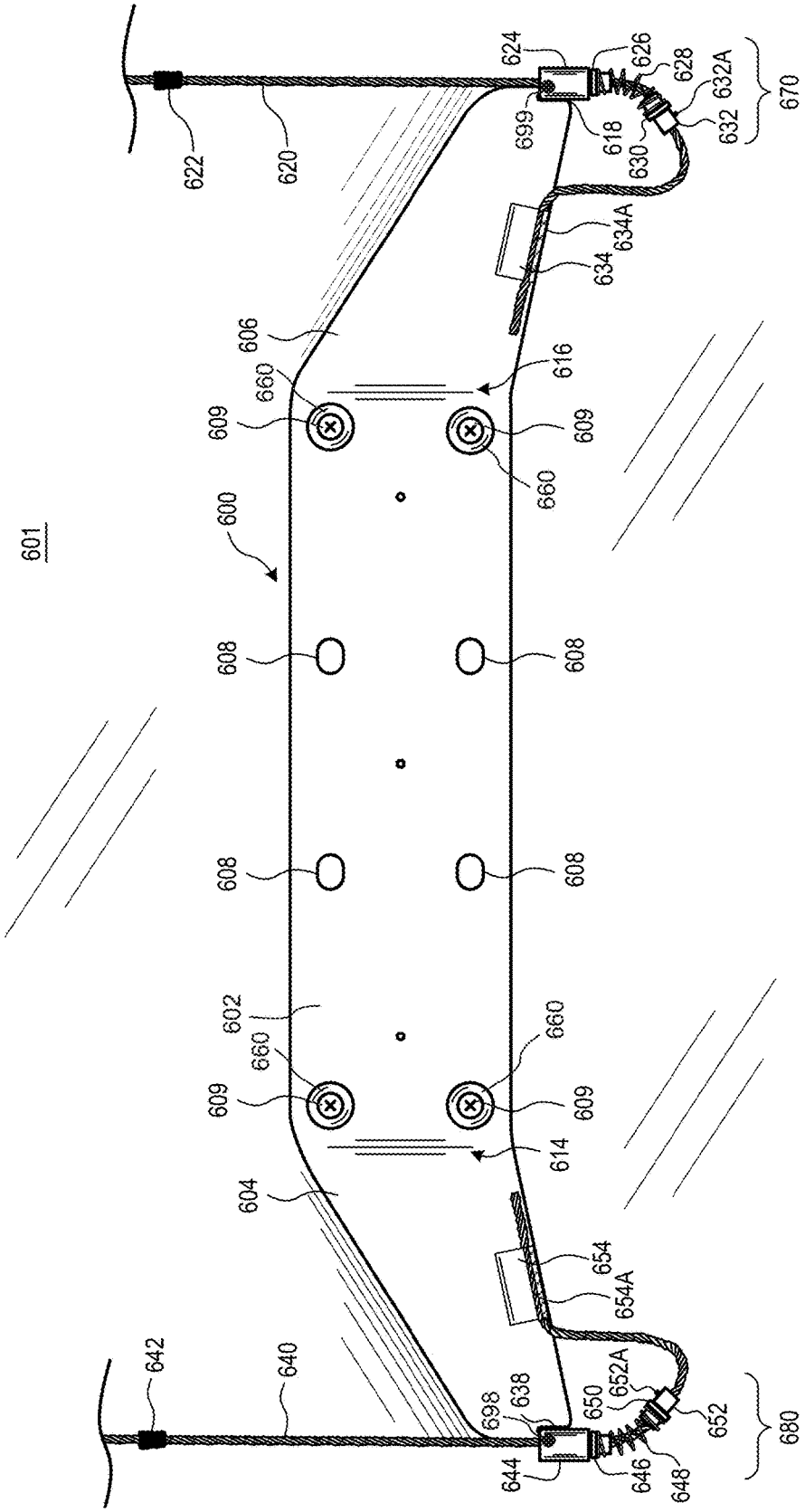
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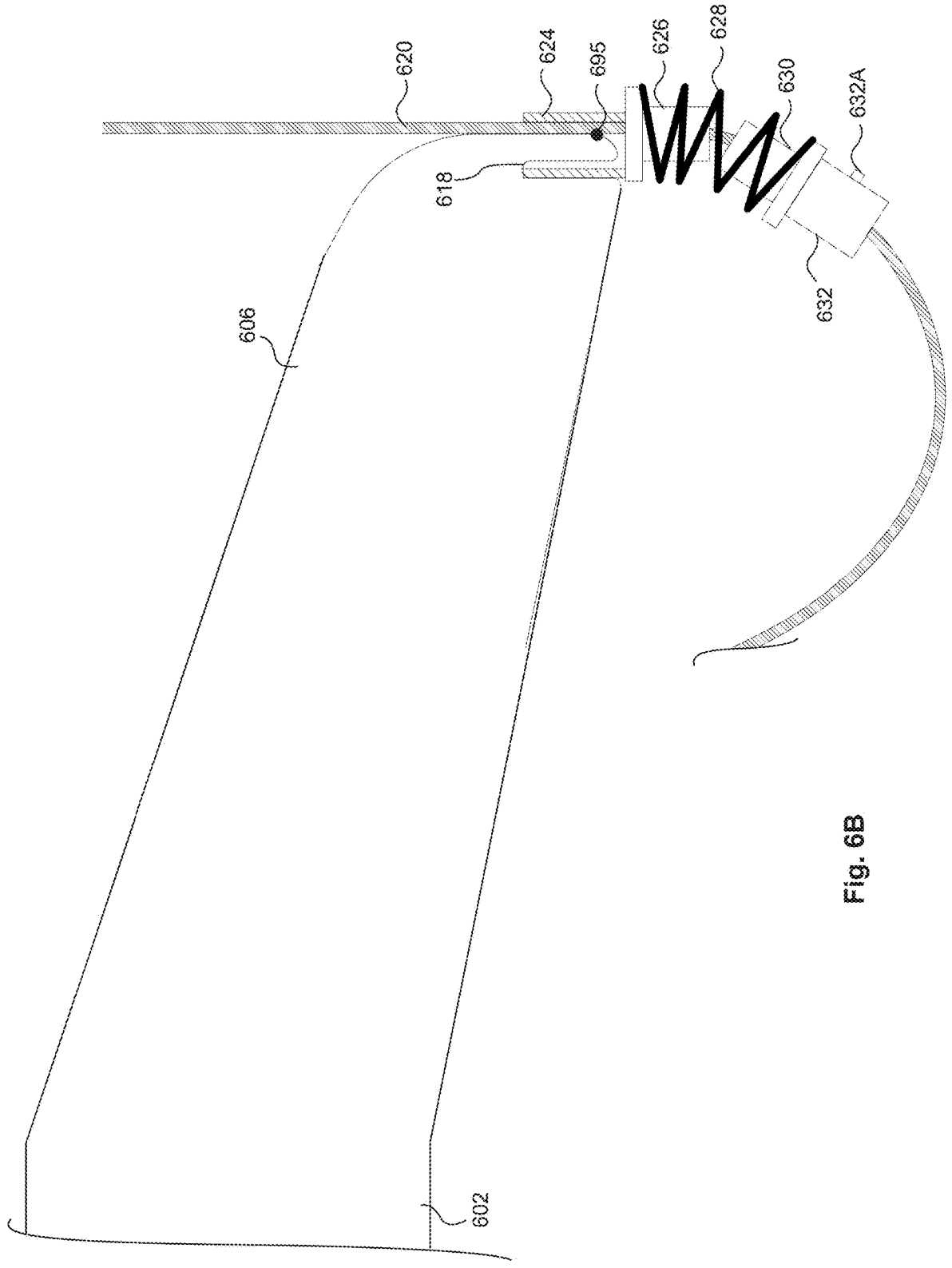
Fig. 6A



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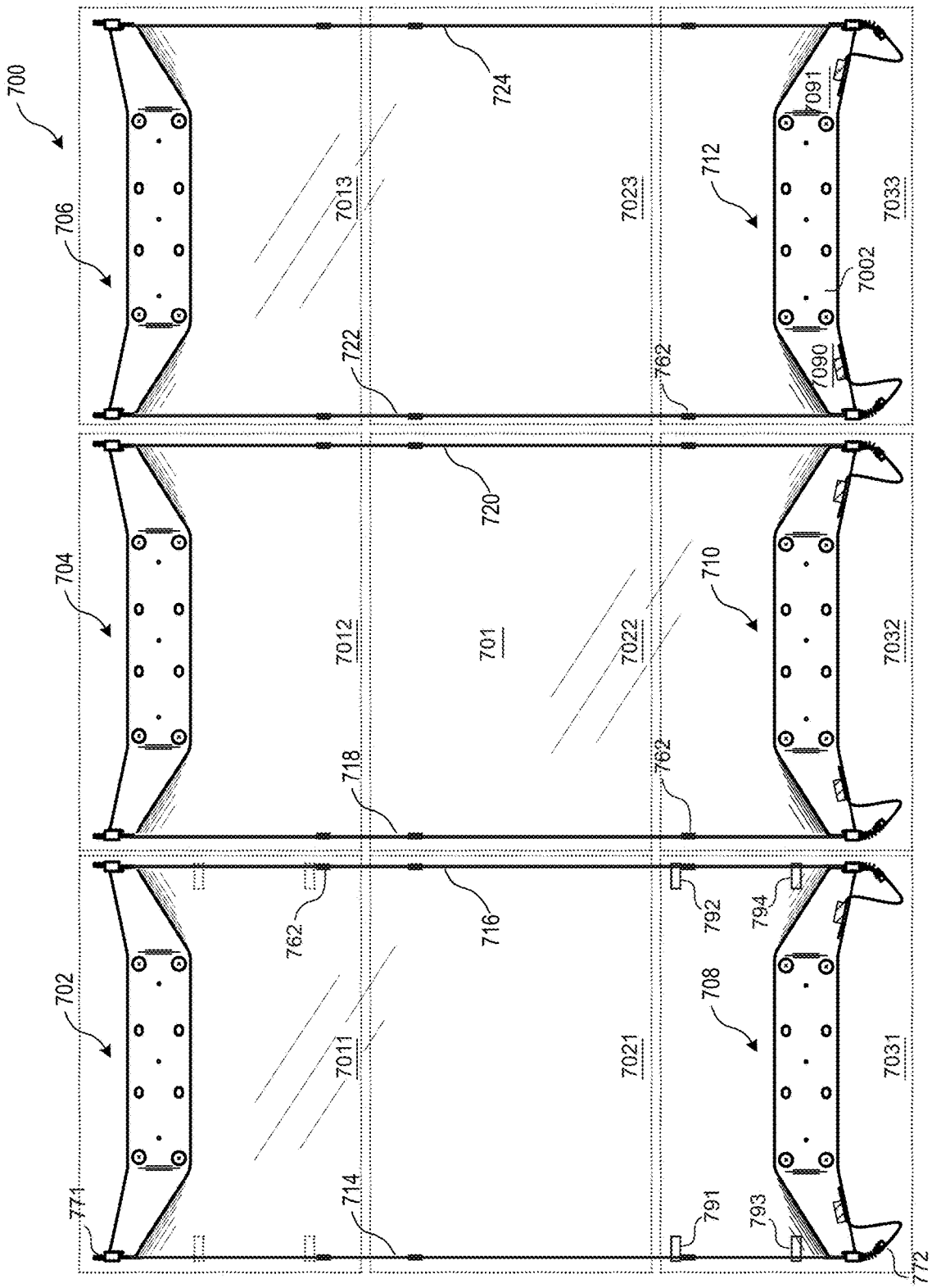
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Fig. 7A

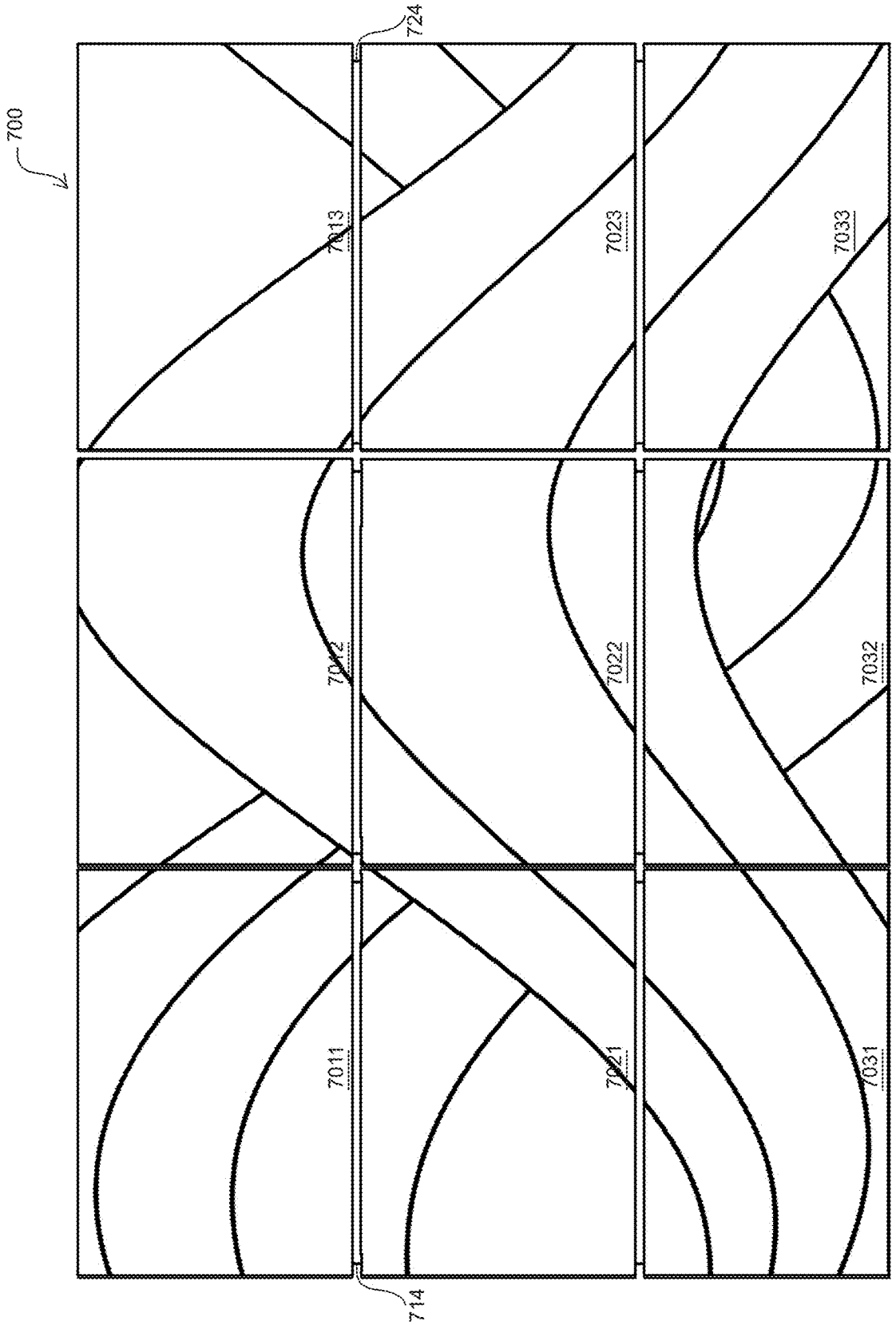
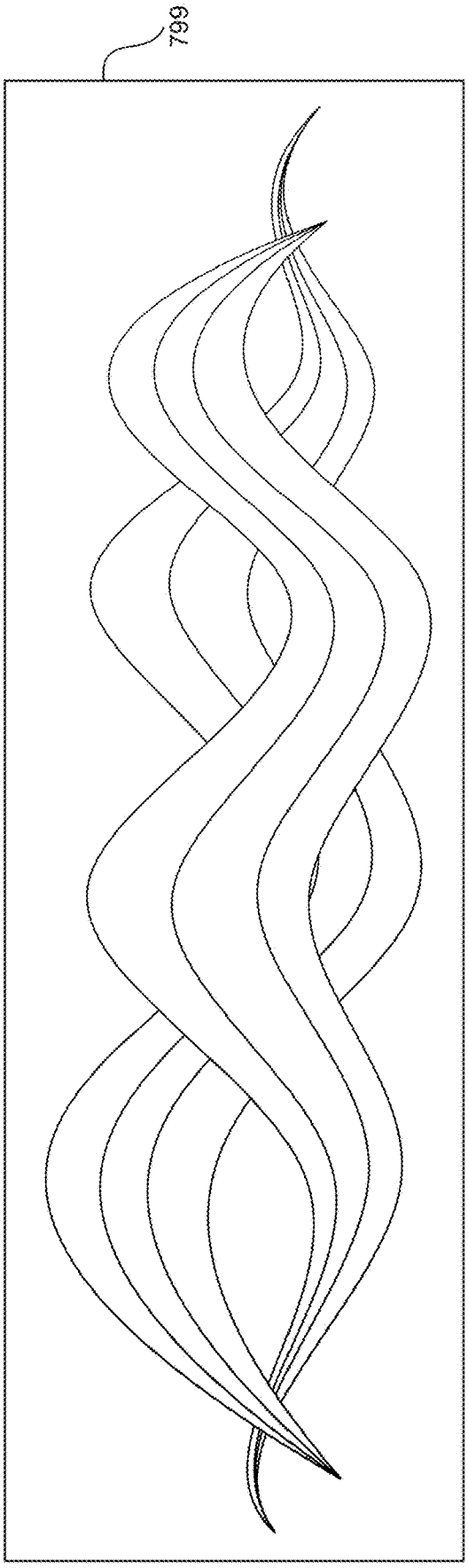


Fig. 7B



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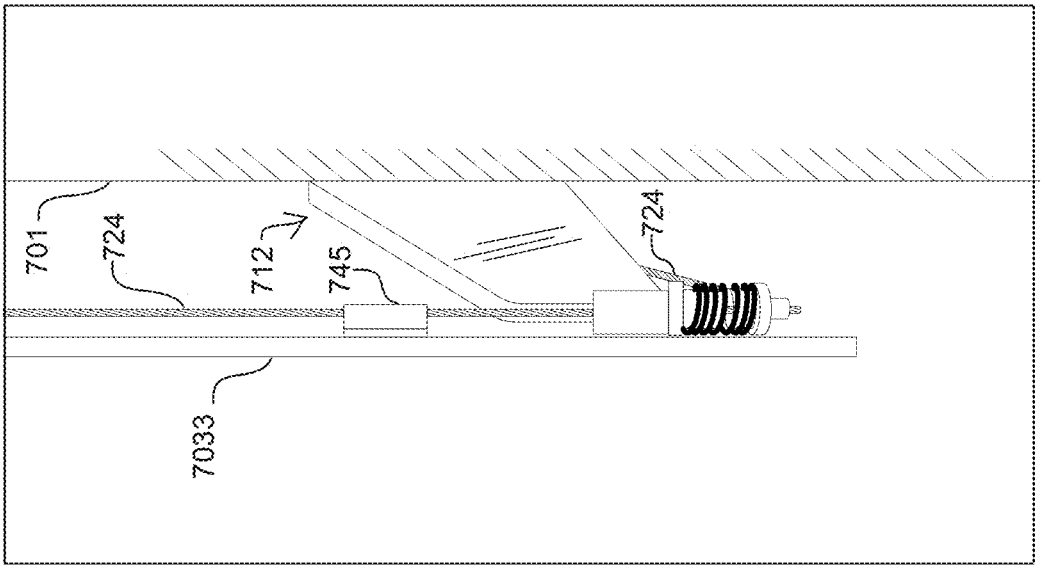

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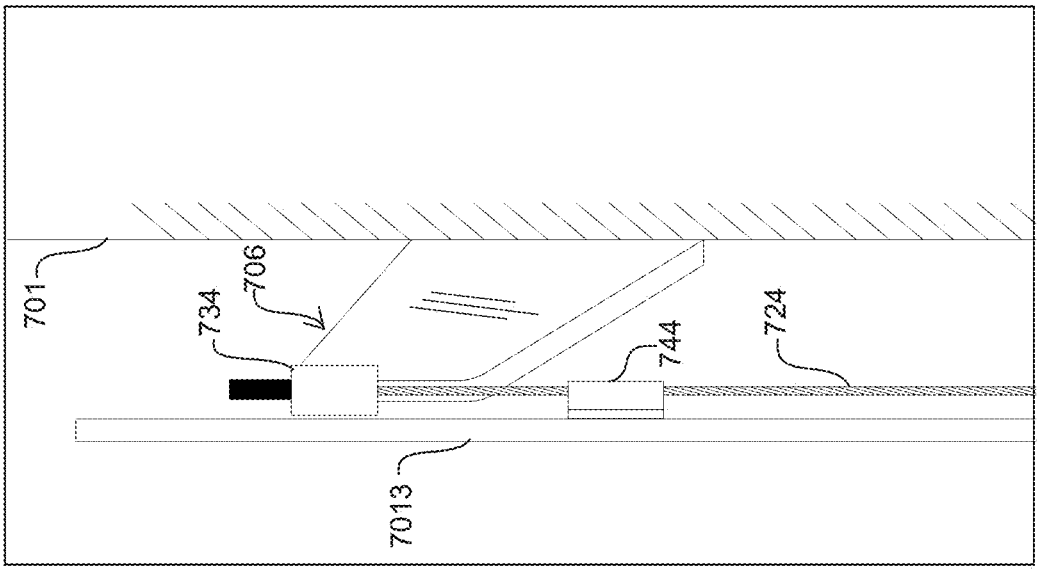

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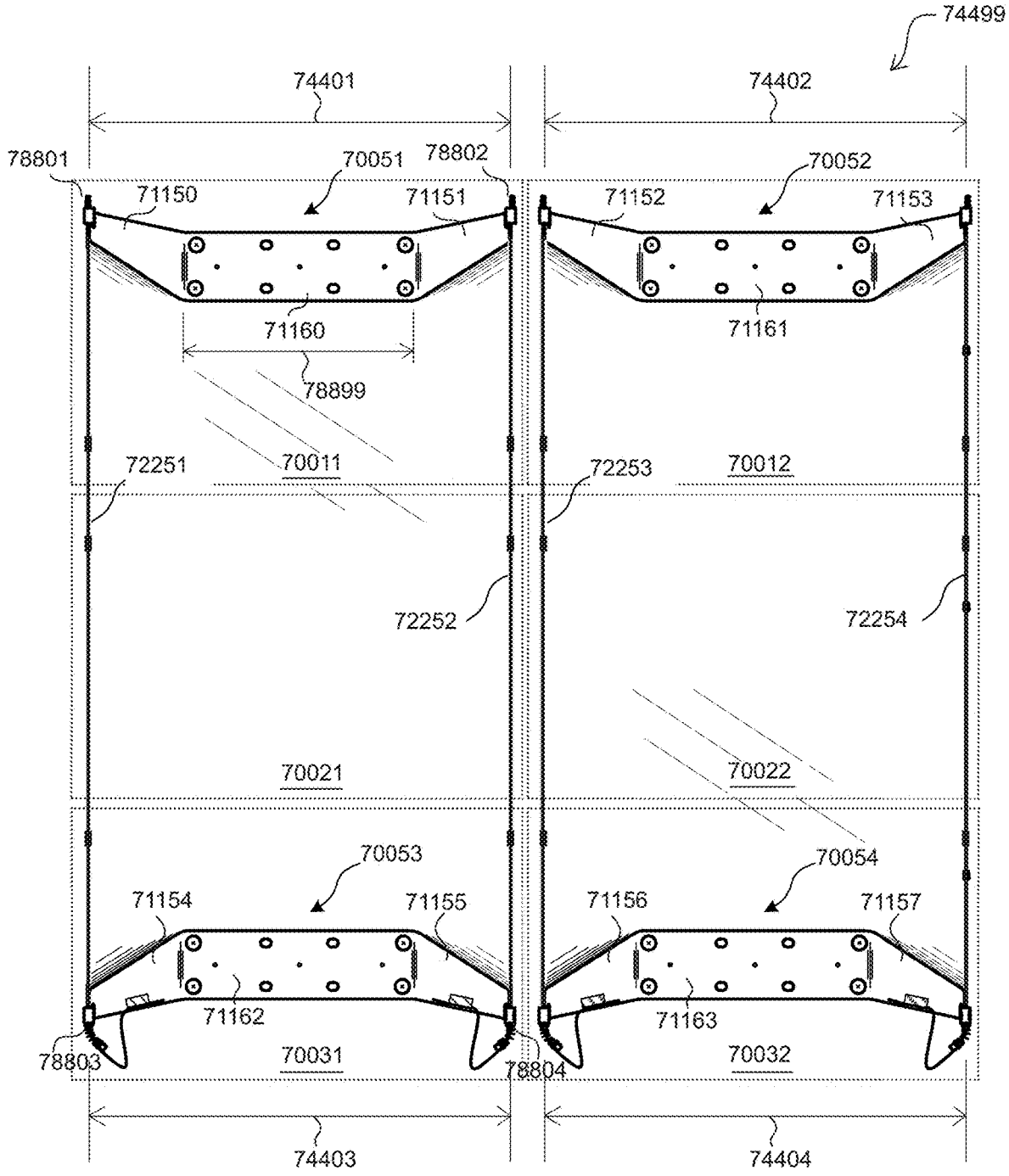
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Fig. 7F

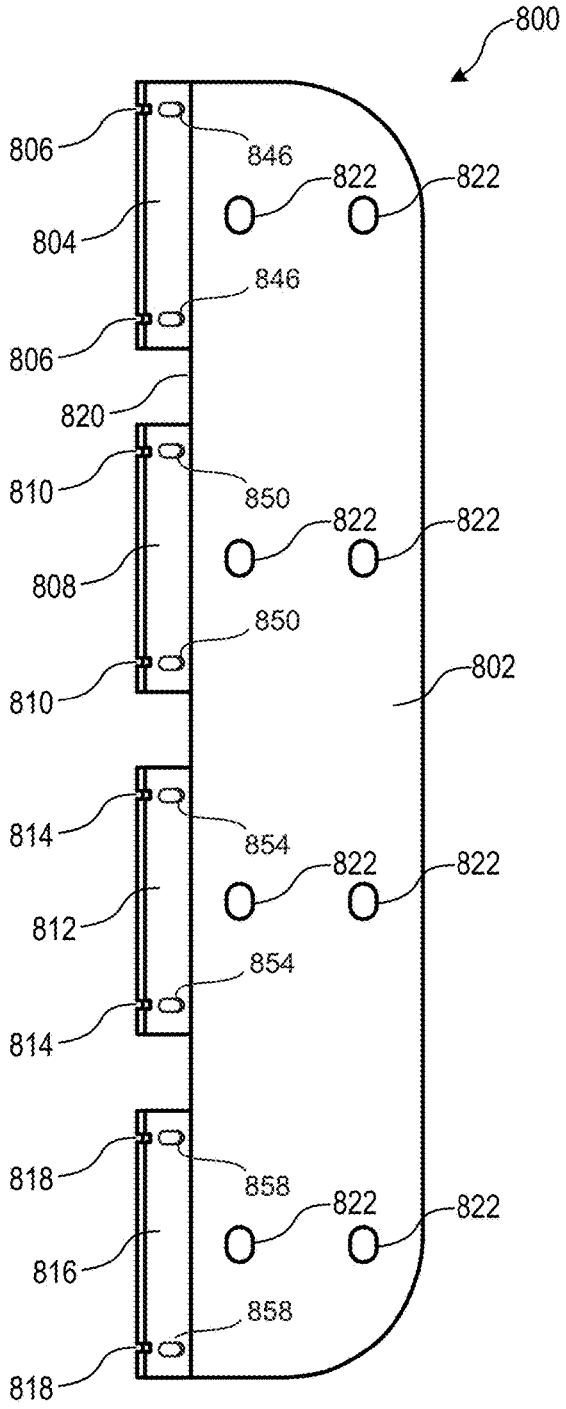
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Fig. 8A

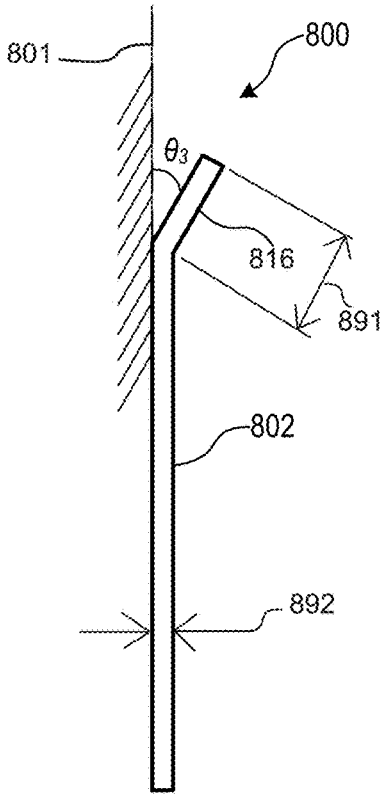
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Fig. 8B

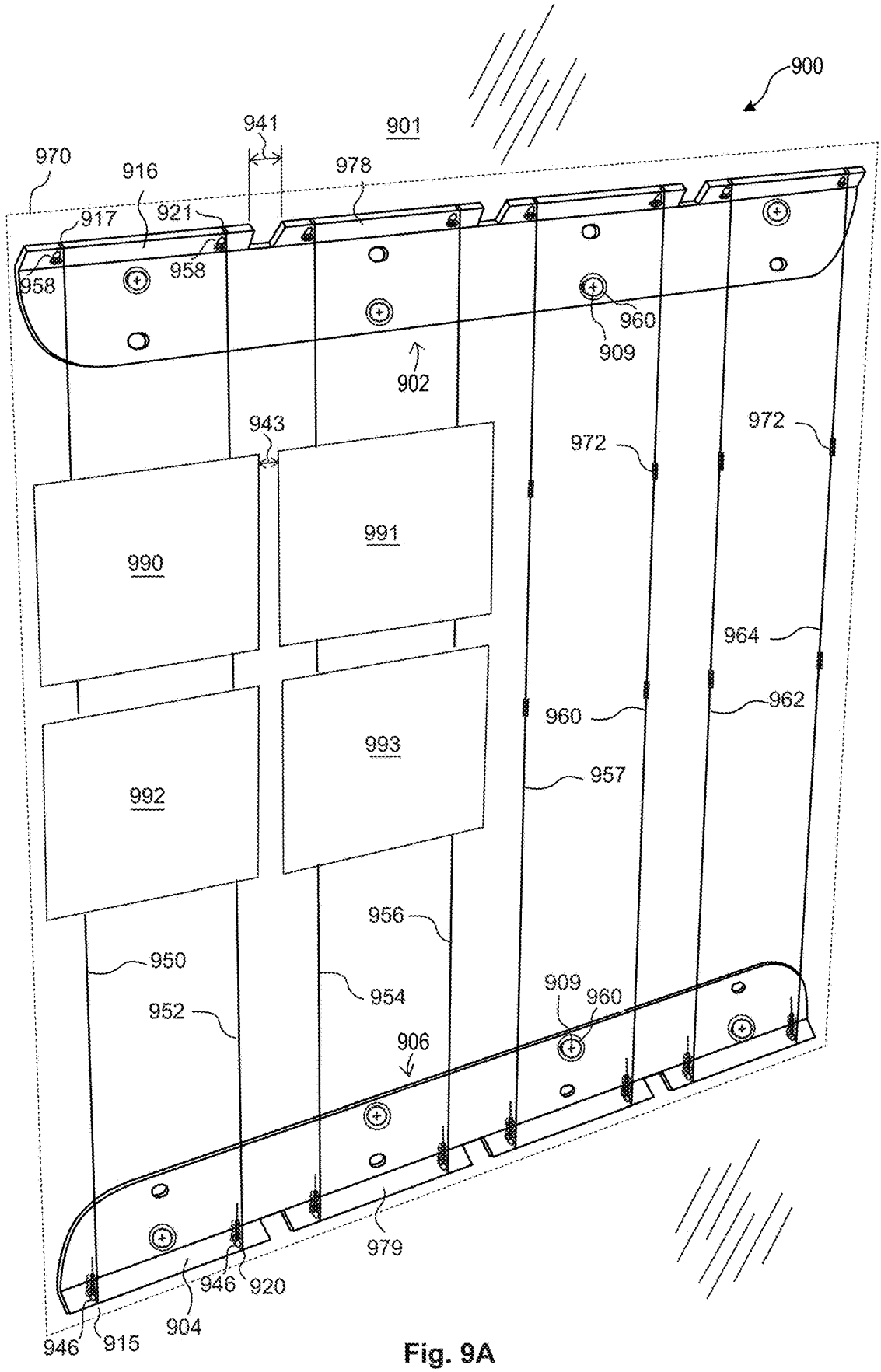
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Fig. 9A

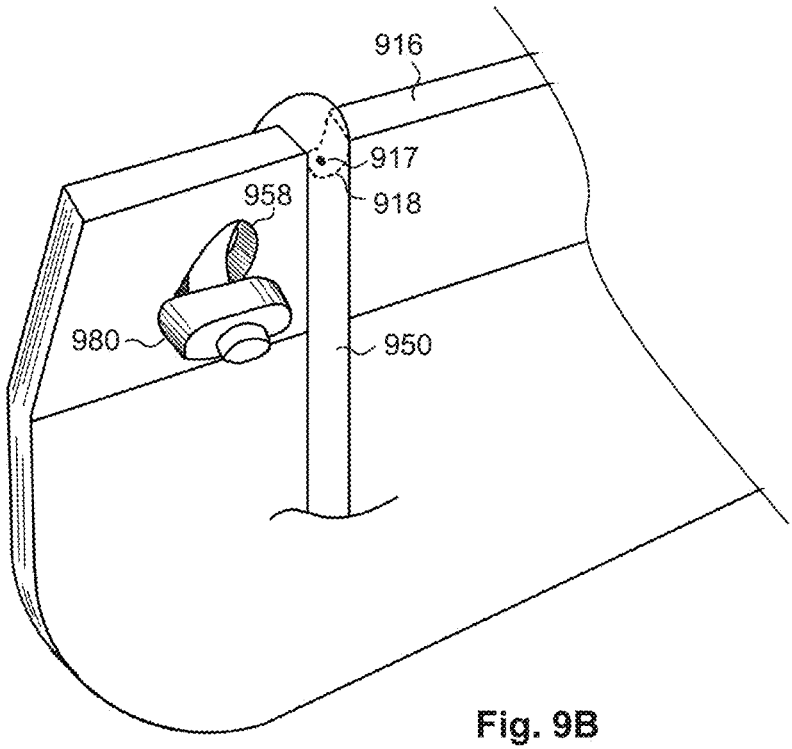
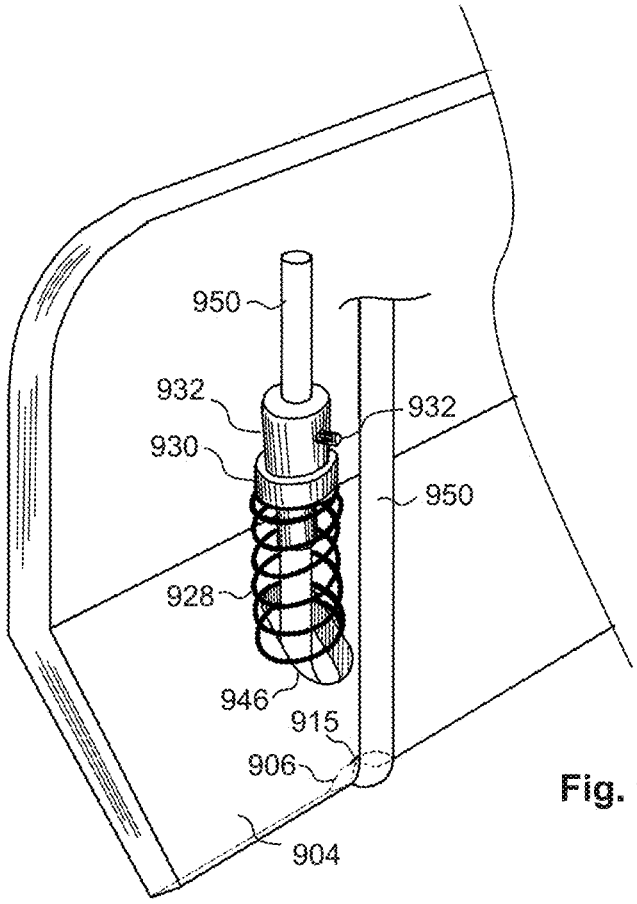


Fig. 9B



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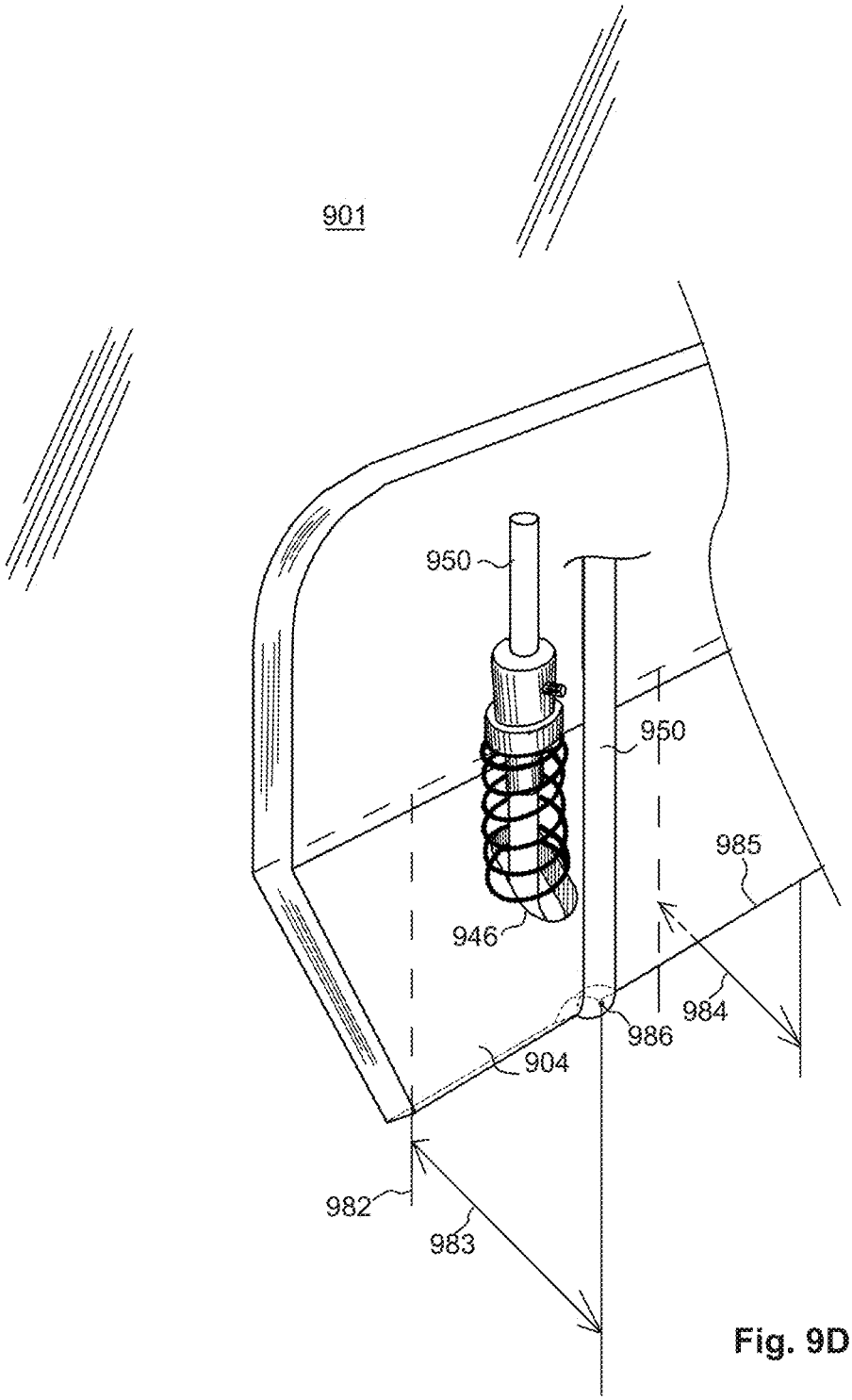

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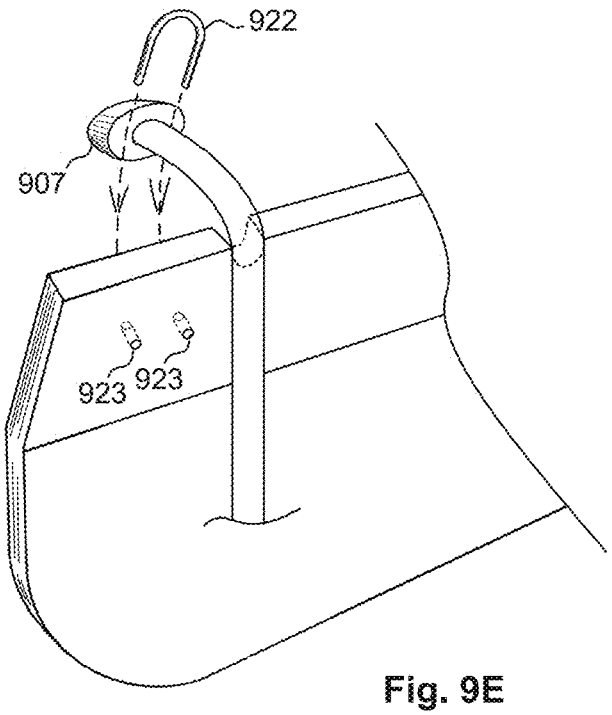

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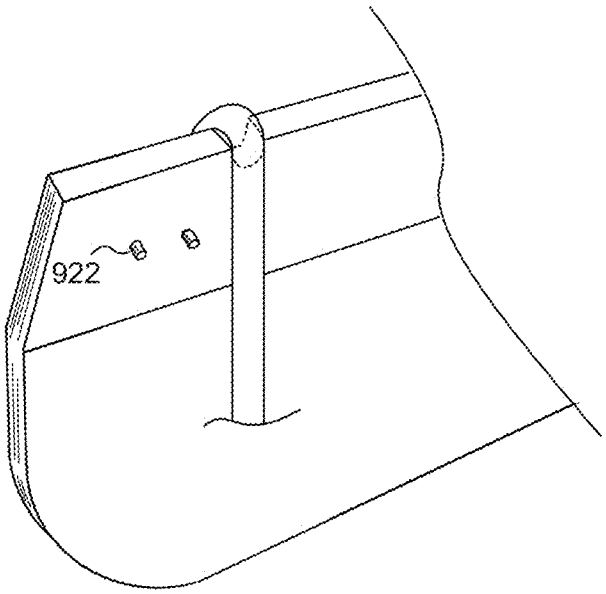

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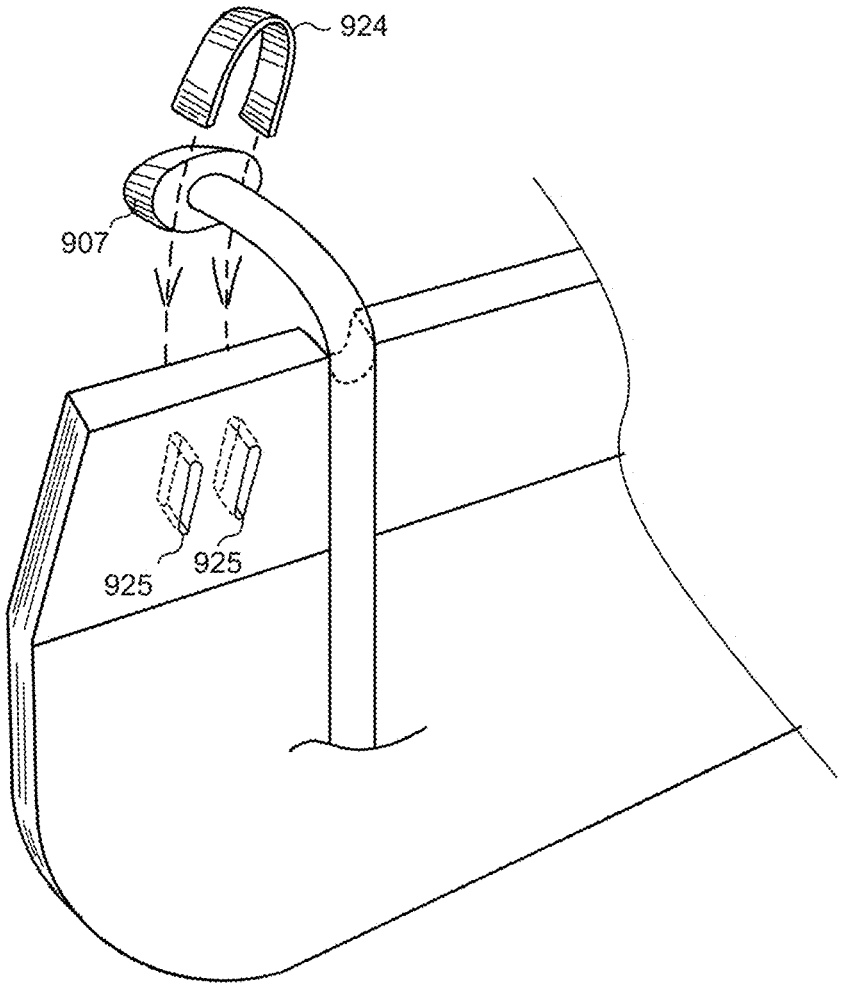

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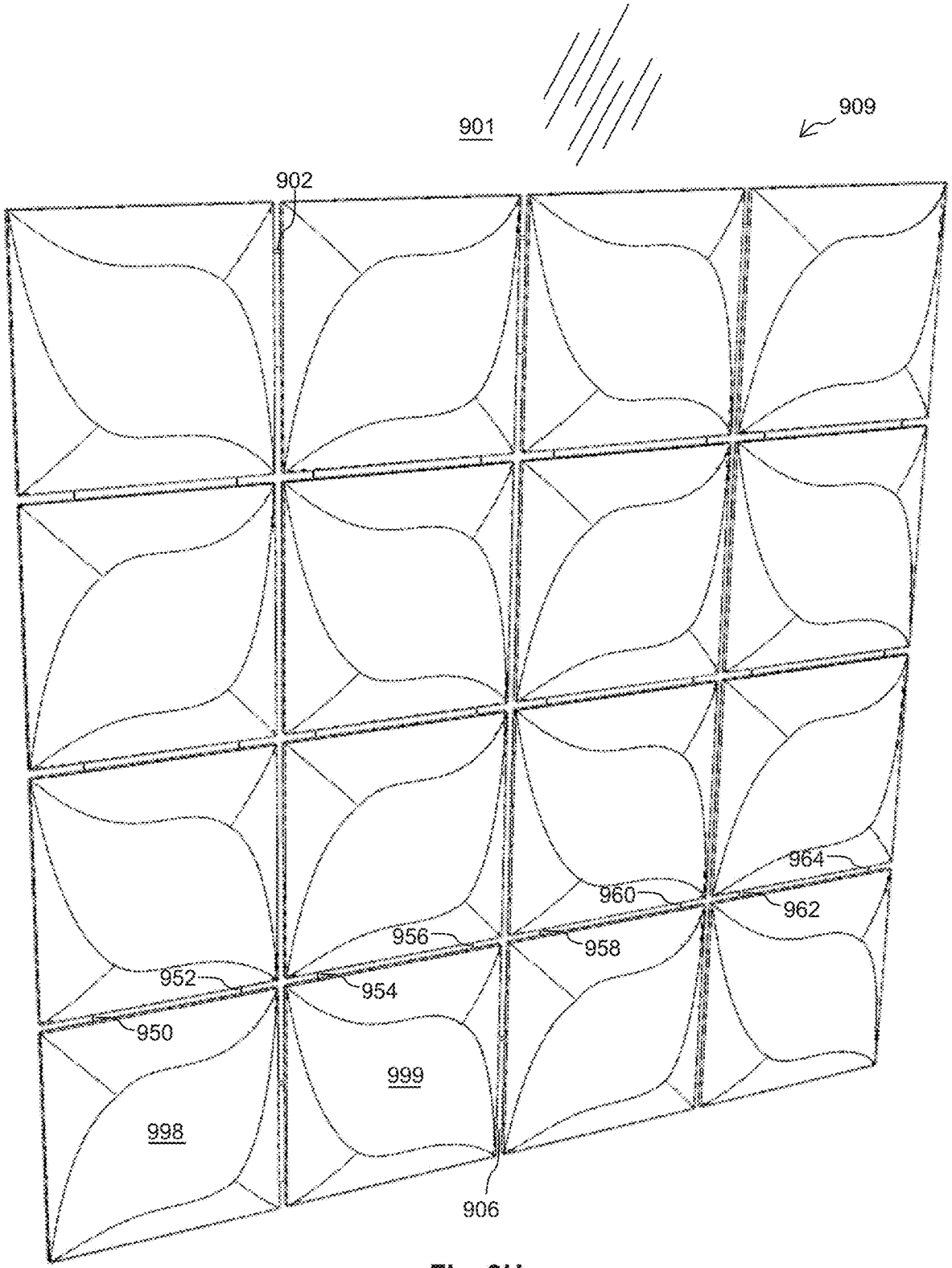
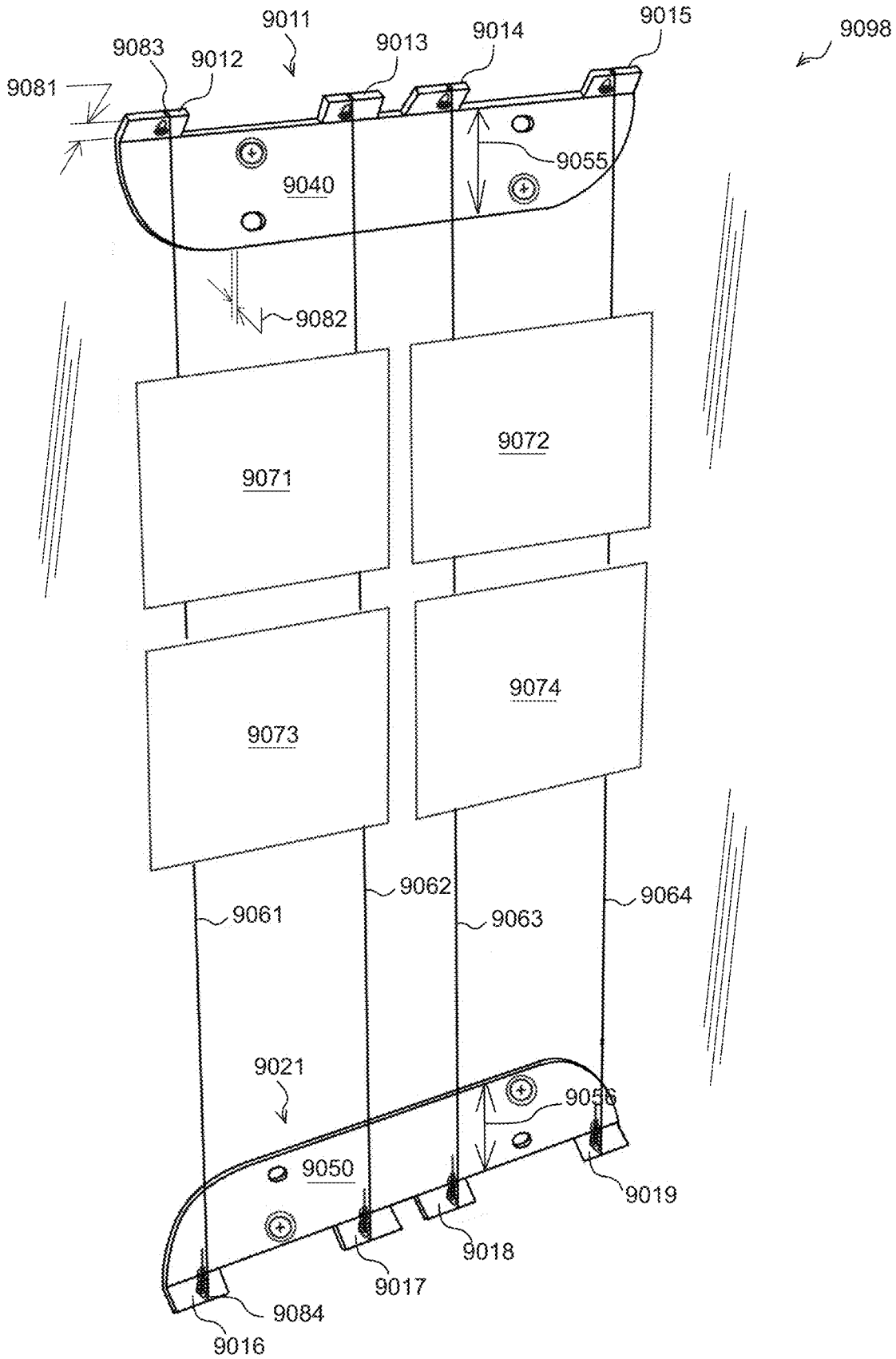


Fig. 9H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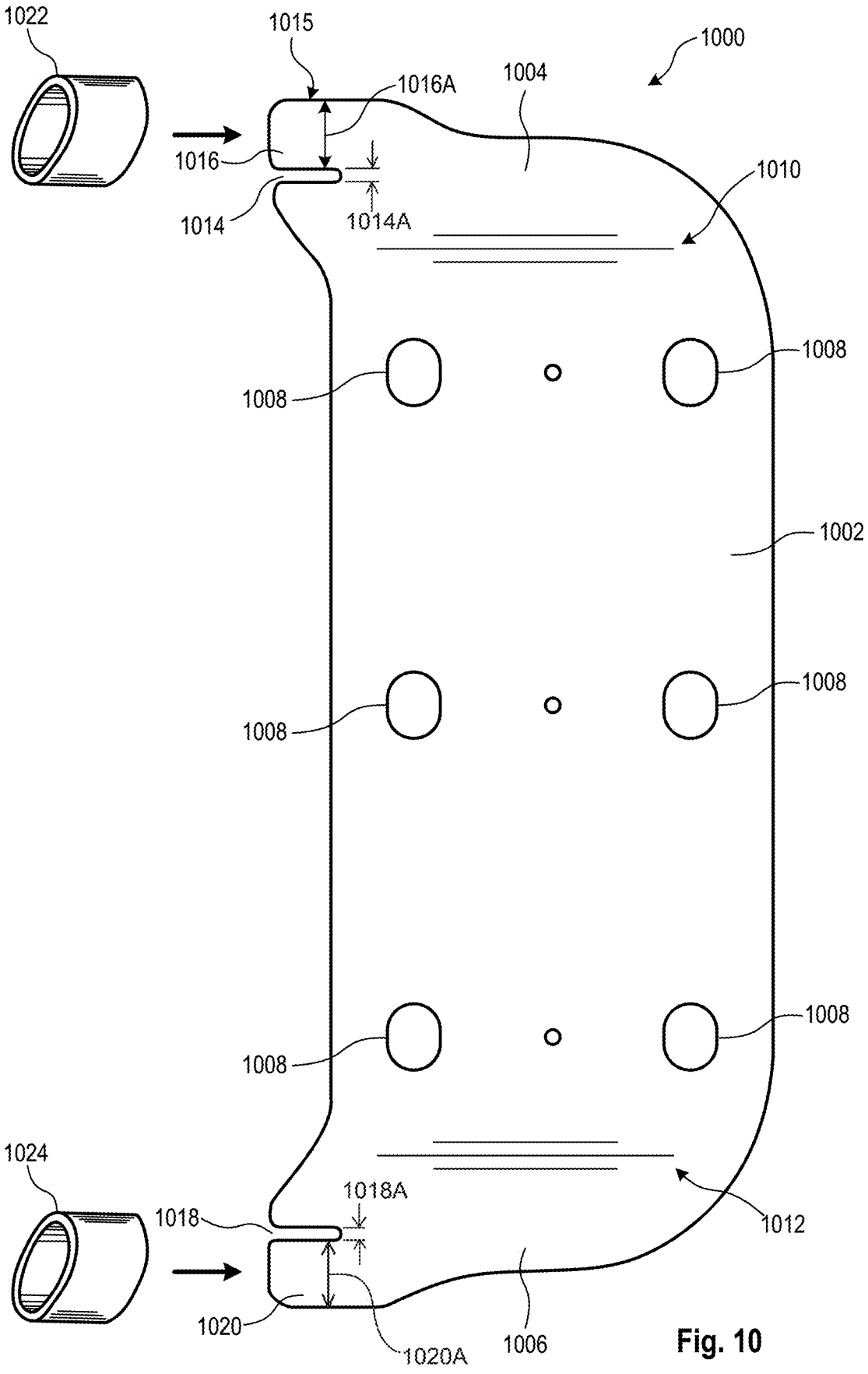
9016

Fig. 9I


1022
1015
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1016A
1004
1016
1010
1014
1014A
1008
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1002
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1024
1018A
1018
1012
1020
1020A
1006

Fig. 10

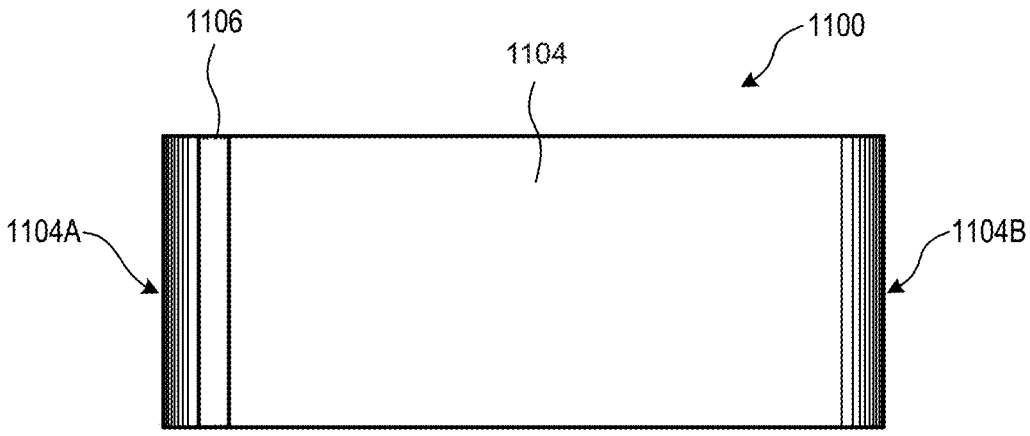


Fig. 11A

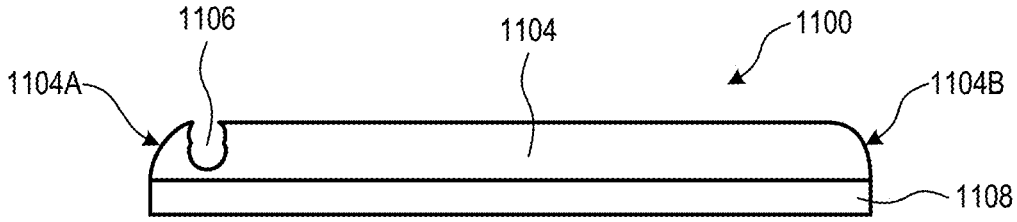


Fig. 11B

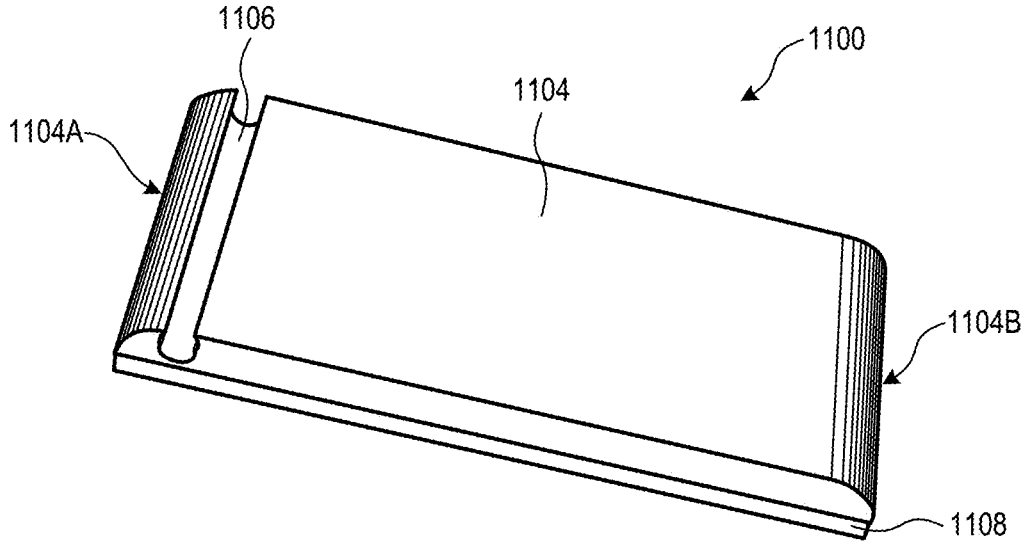


Fig. 11C

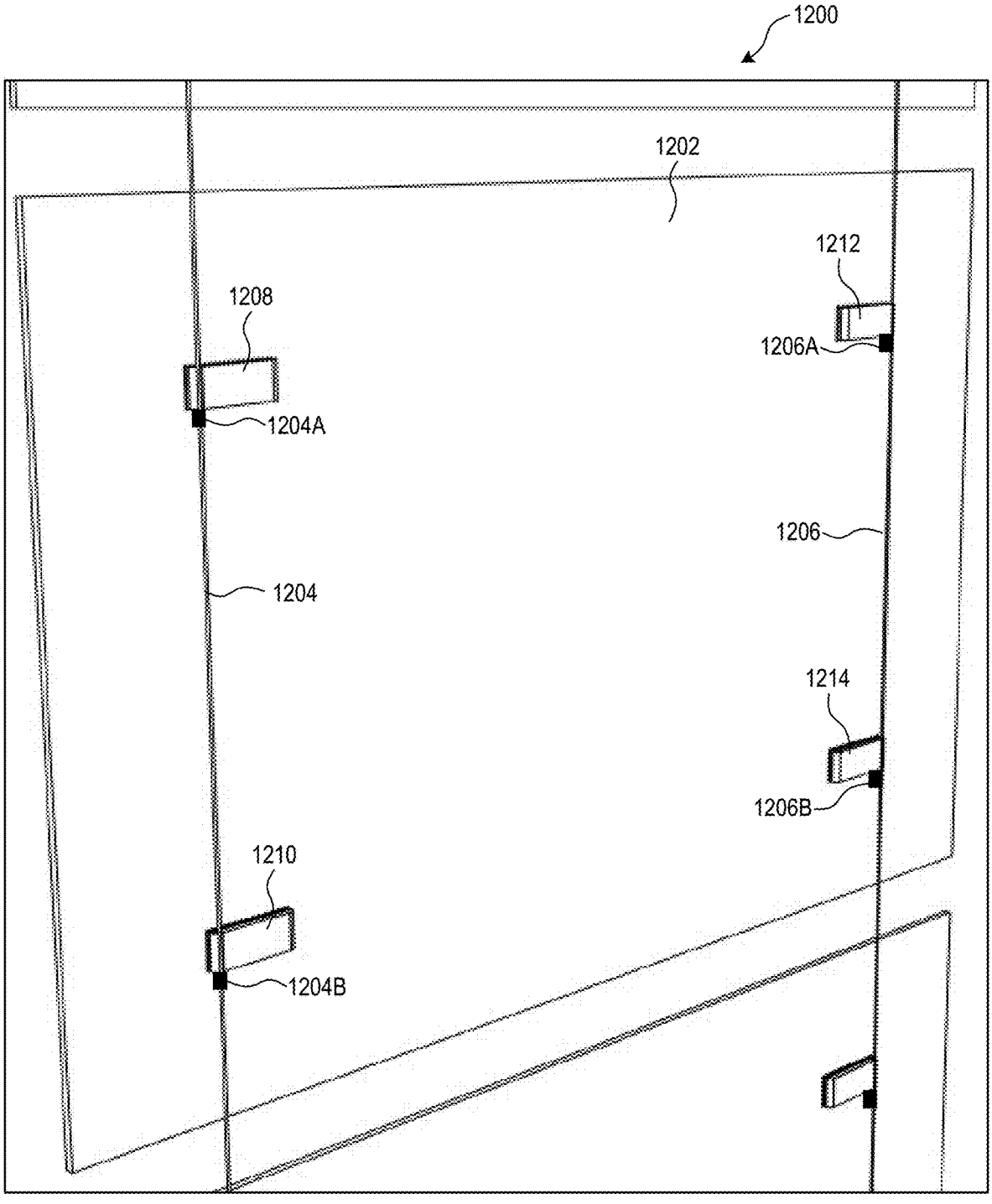

1200
1202
1212
1208
1206A
1204A
1206
1204
1214
1206B
1210
1204B

Fig. 12A

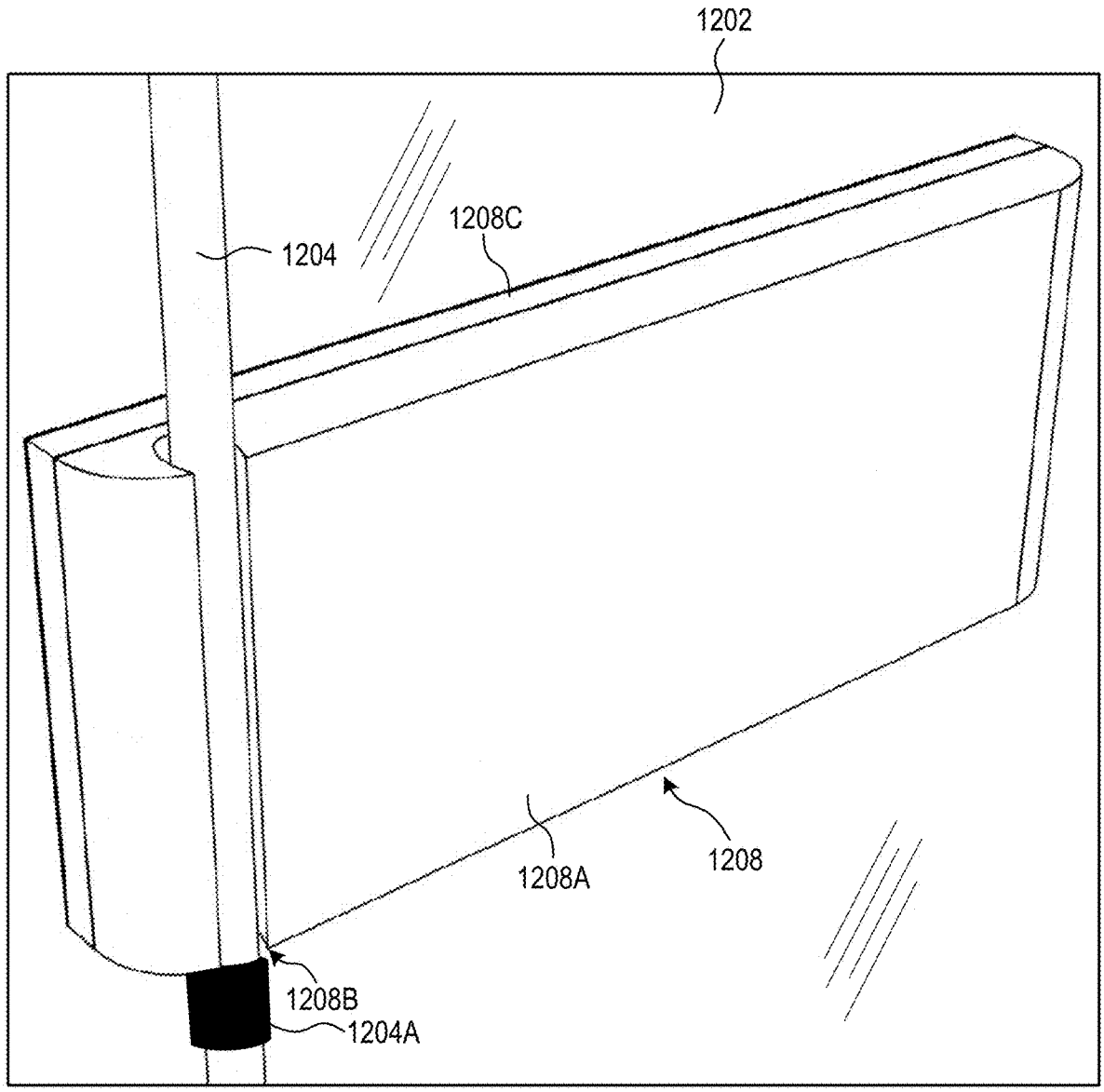


Fig. 12B

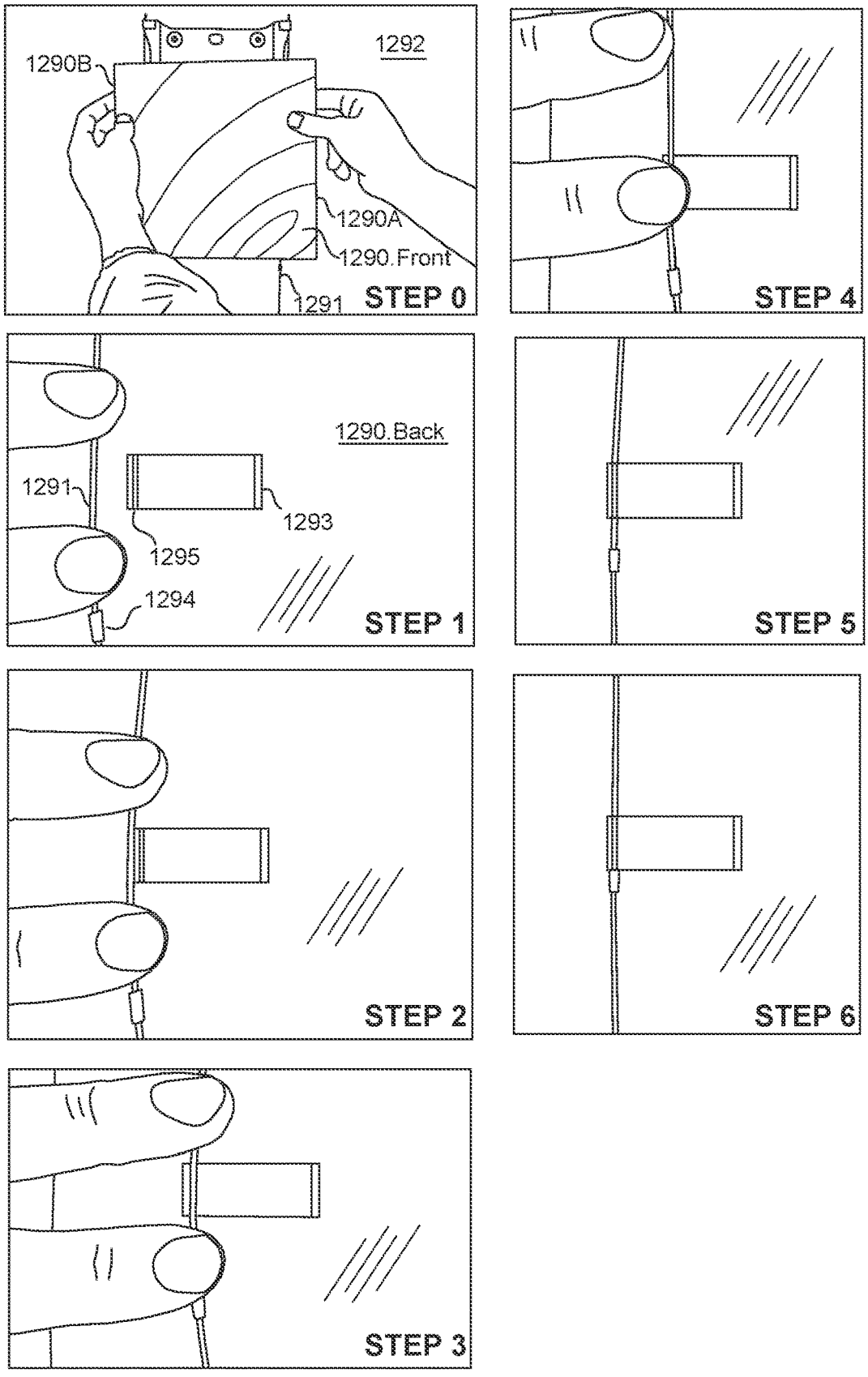

1290B
1292
1290A
1290.Front
1291
STEP 0
STEP 4
1290.Back
1291
1293
1295
1294
STEP 1
STEP 5
STEP 2
STEP 6
STEP 3

Fig. 12C

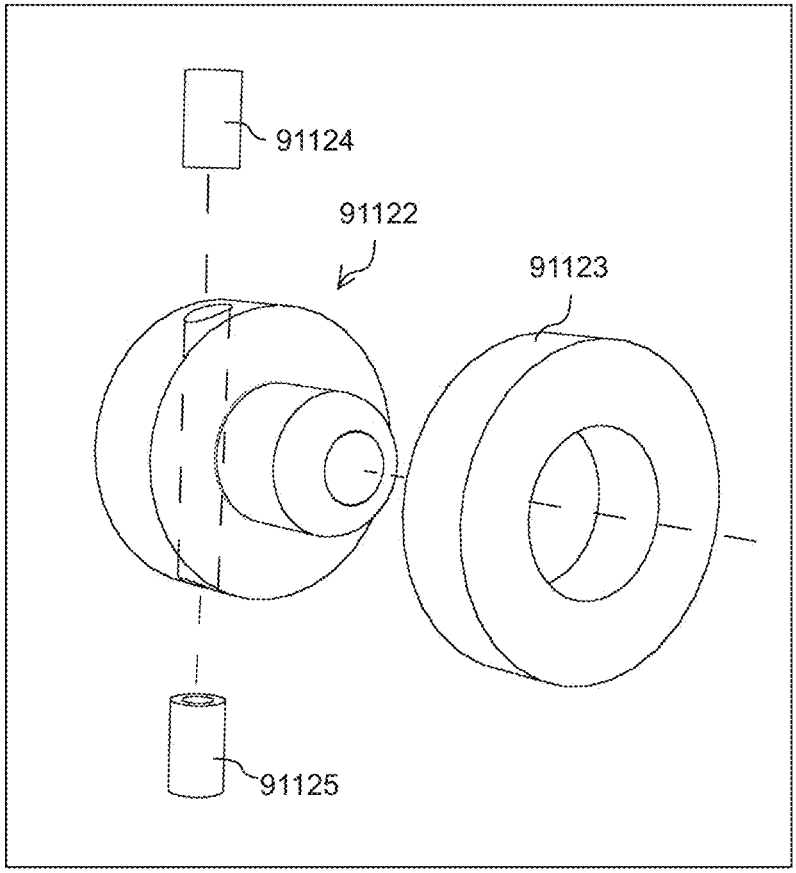


Fig. 12D

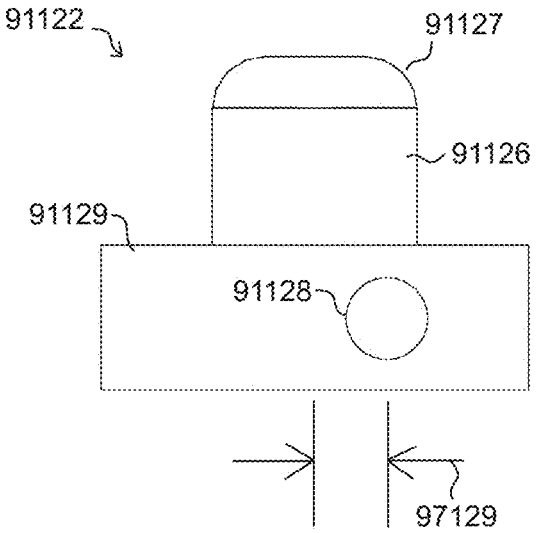


Fig. 12E

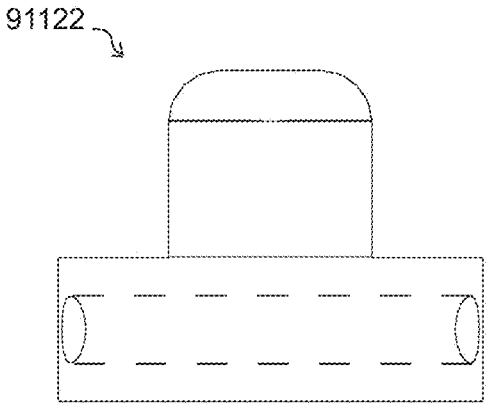


Fig. 12F

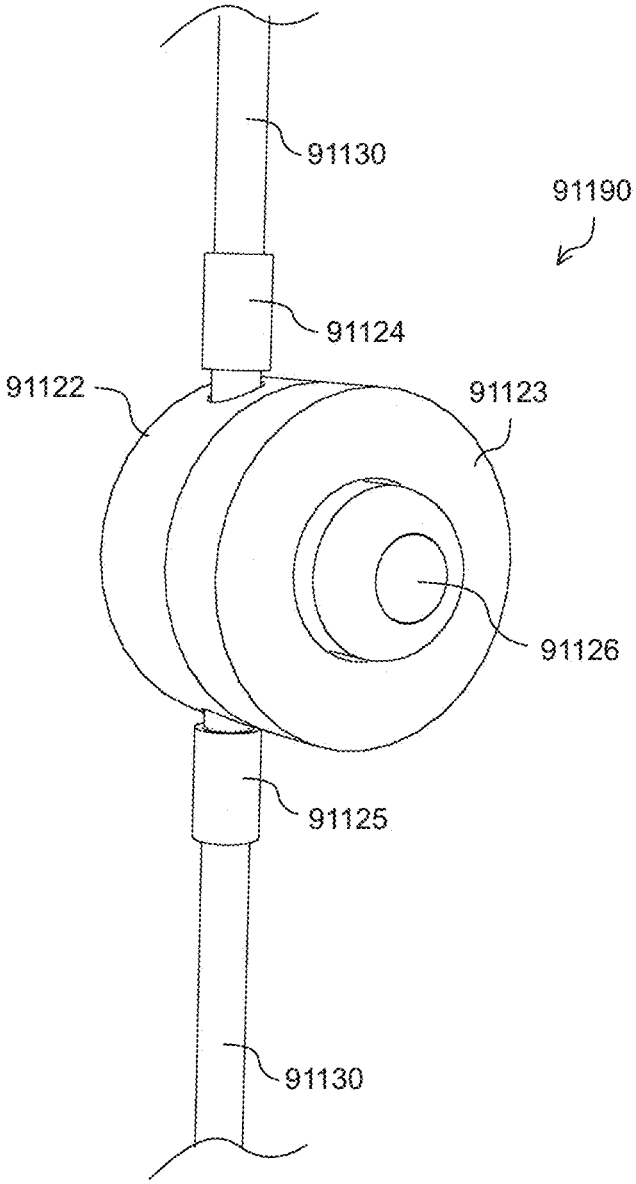
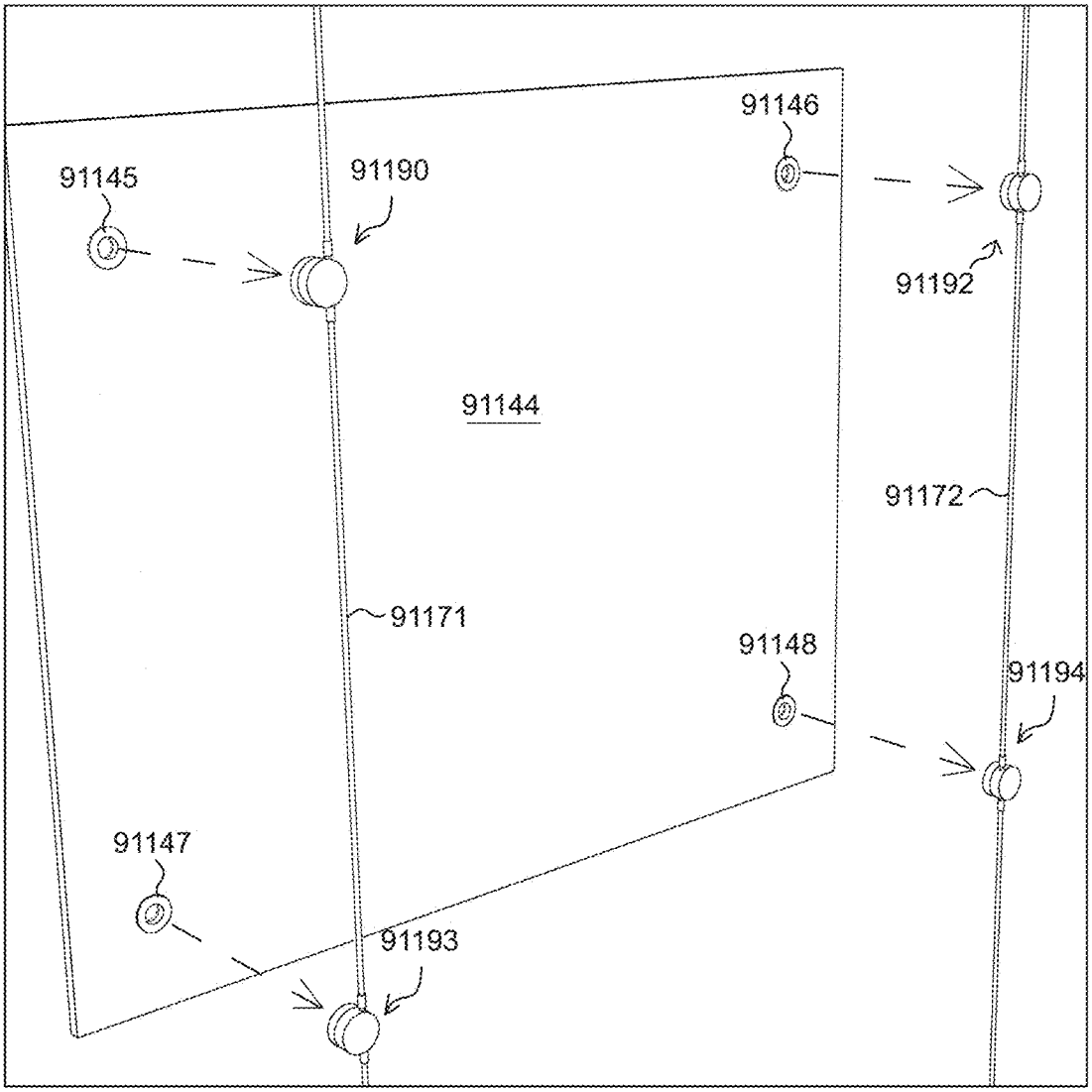


Fig. 12G


91146
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91194
91147
91193

Fig. 12H

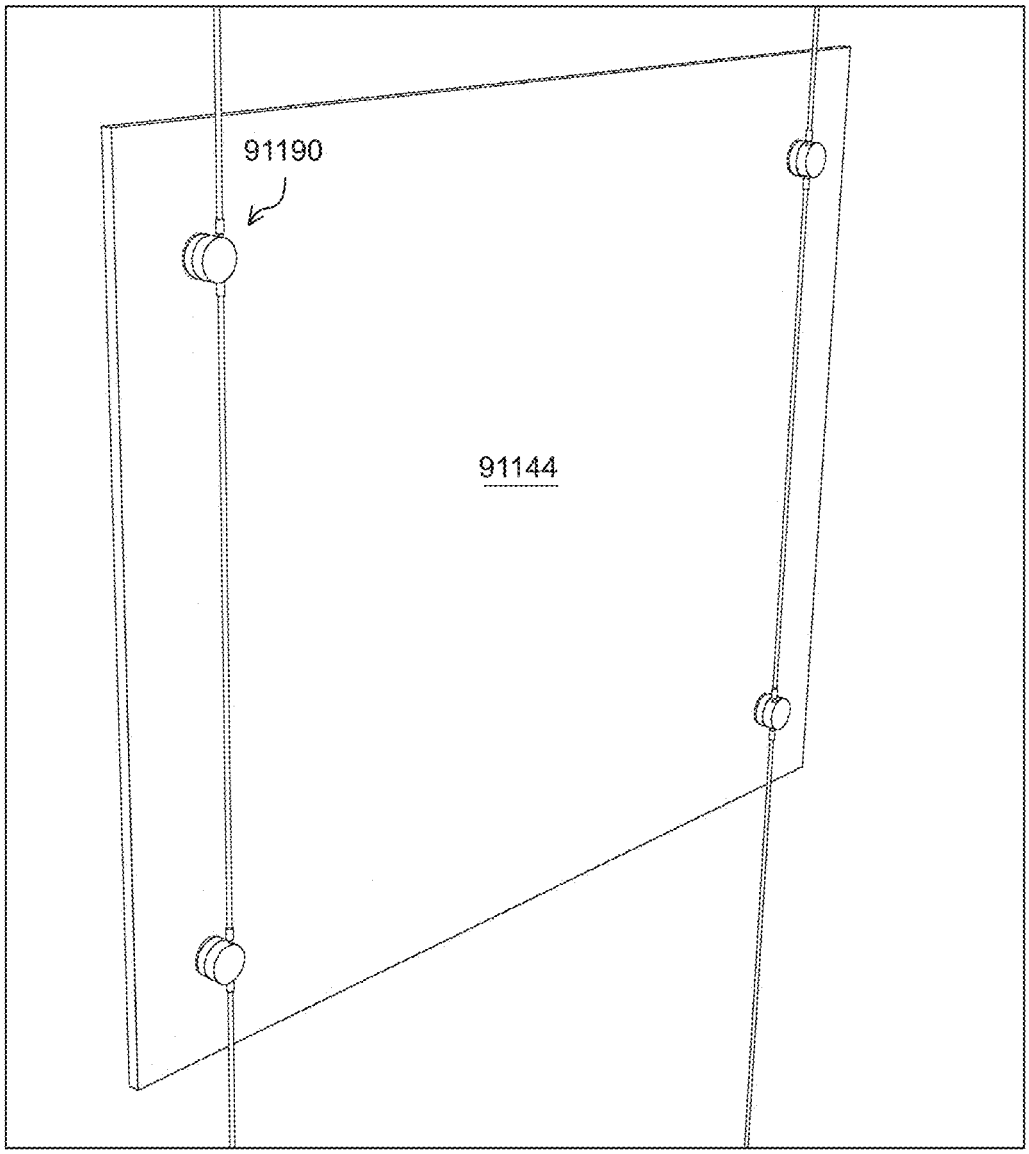

Fig. 12I

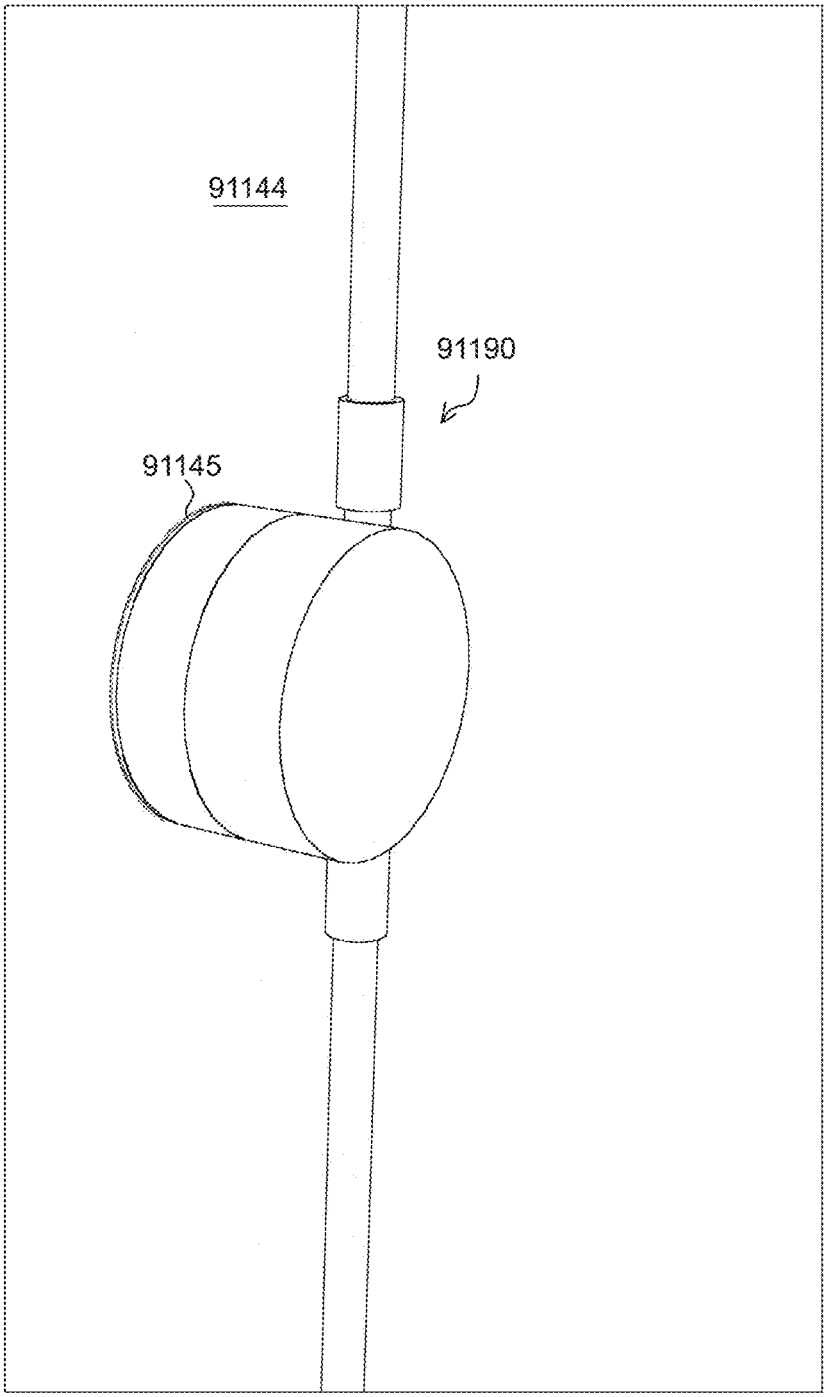

Fig. 12J

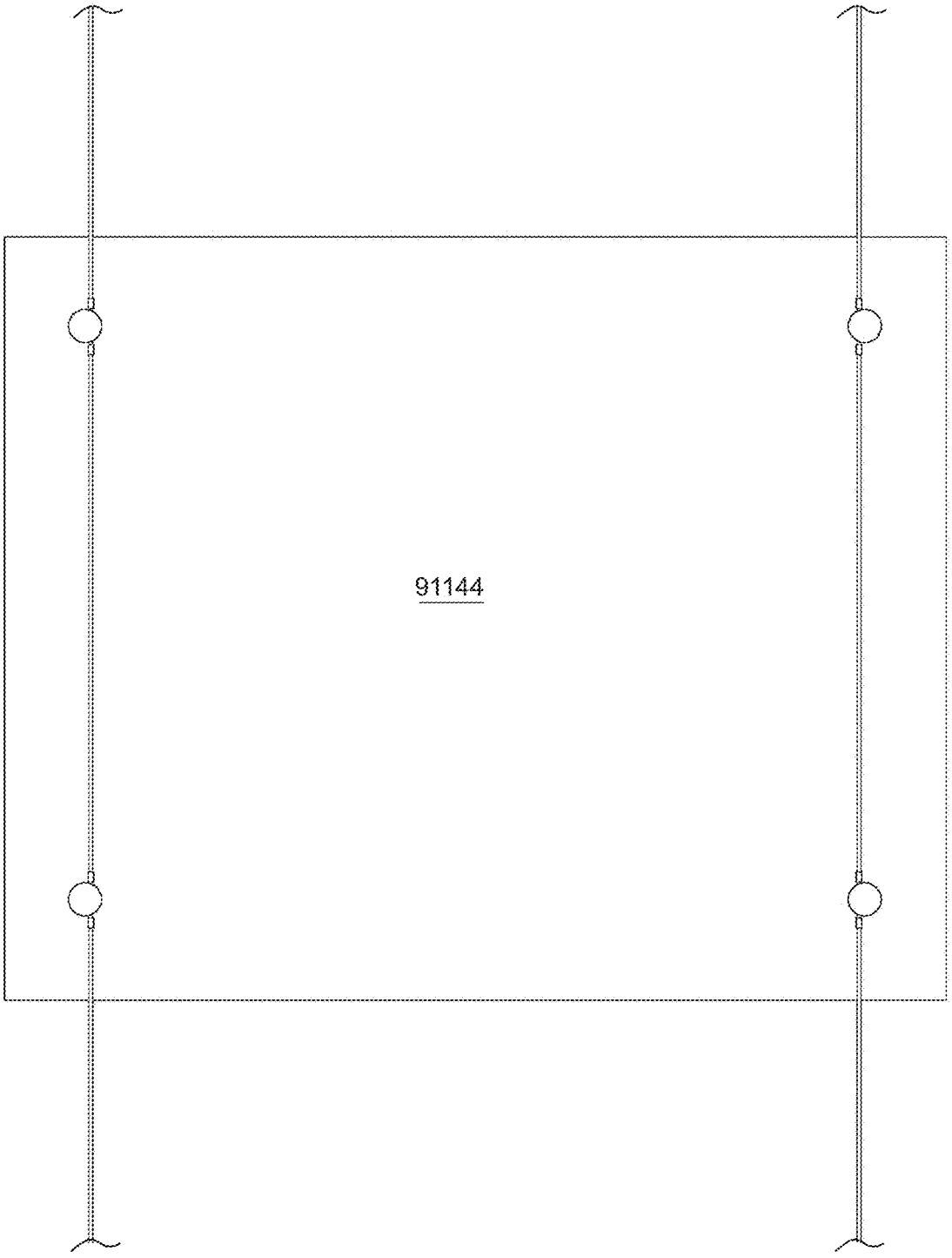

Fig. 12K

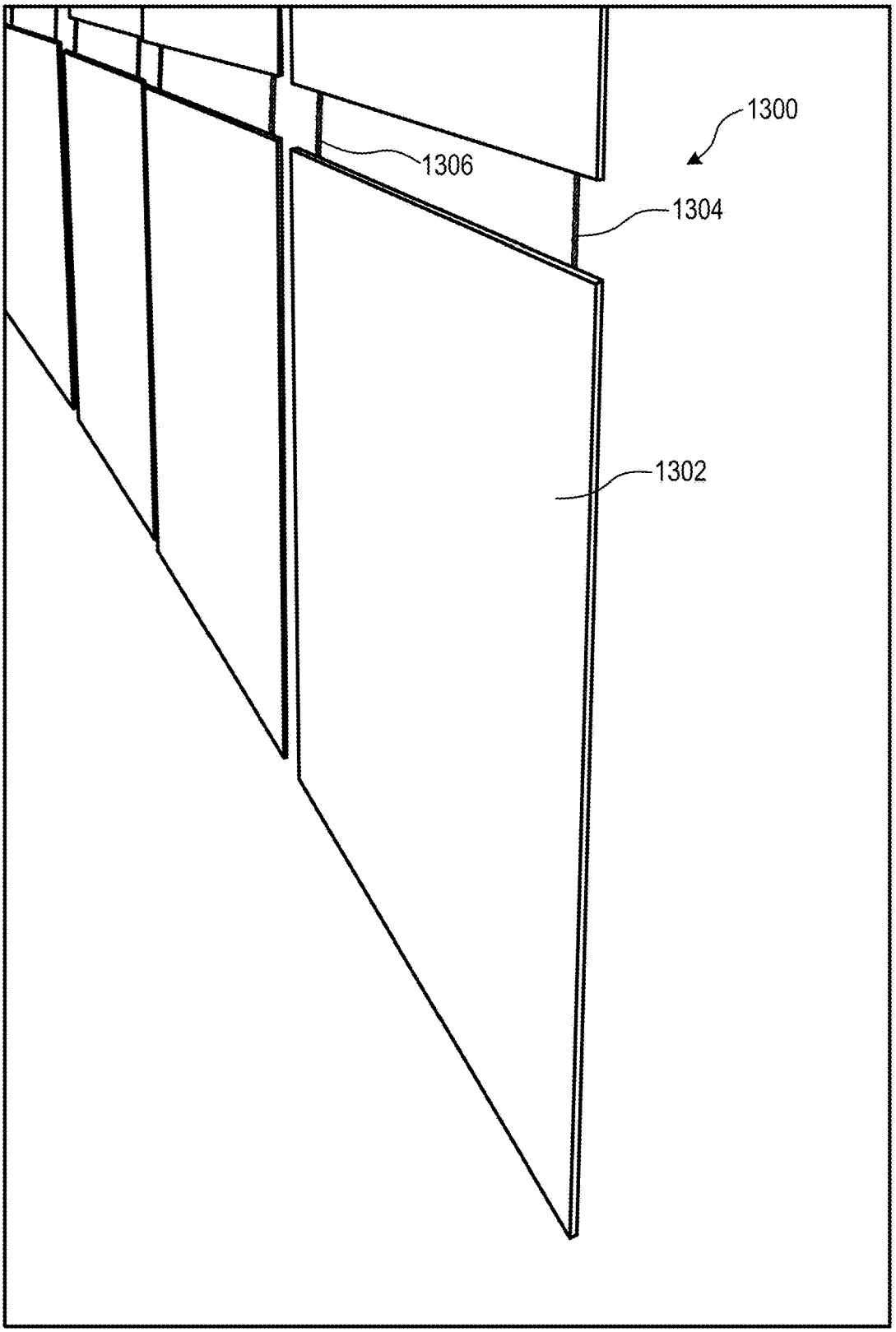

Fig. 13

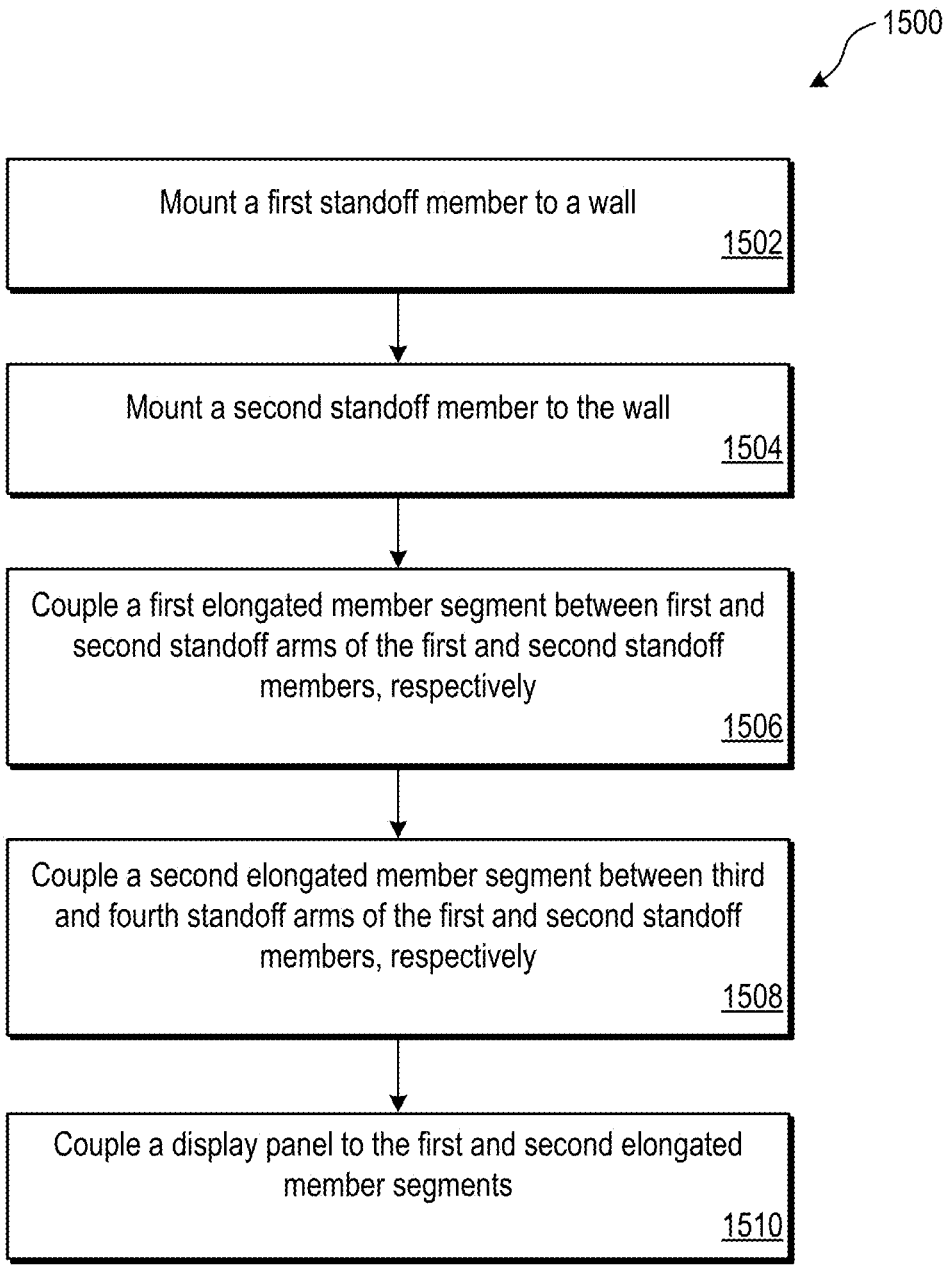
1500
Mount a first standoff member to a wall
1502
Mount a second standoff member to the wall
1504
Couple a first elongated member segment between first and second standoff arms of the first and second standoff members, respectively
1506
Couple a second elongated member segment between third and fourth standoff arms of the first and second standoff members, respectively
1508
Couple a display panel to the first and second elongated member segments
1510

Fig. 14

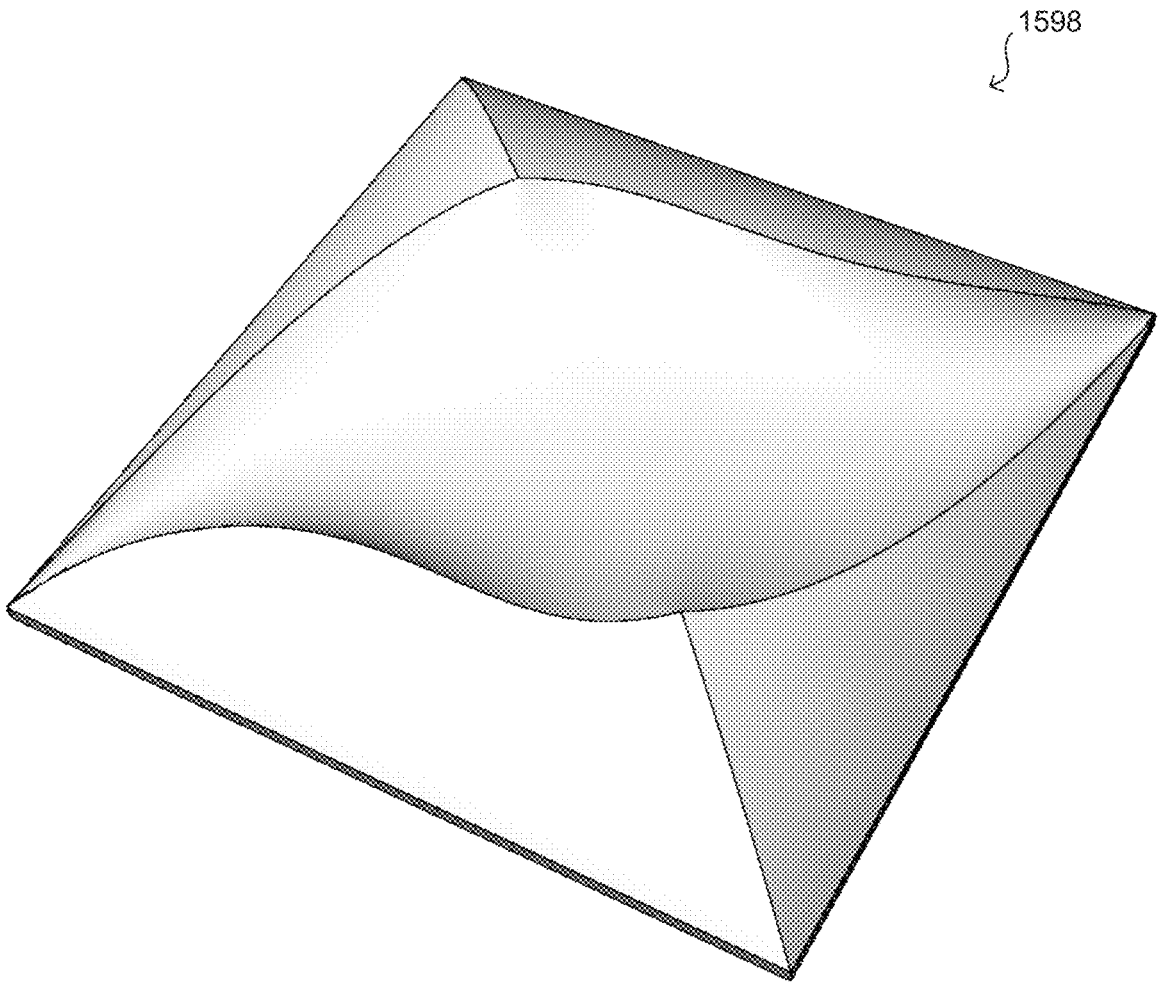

Fig. 15A

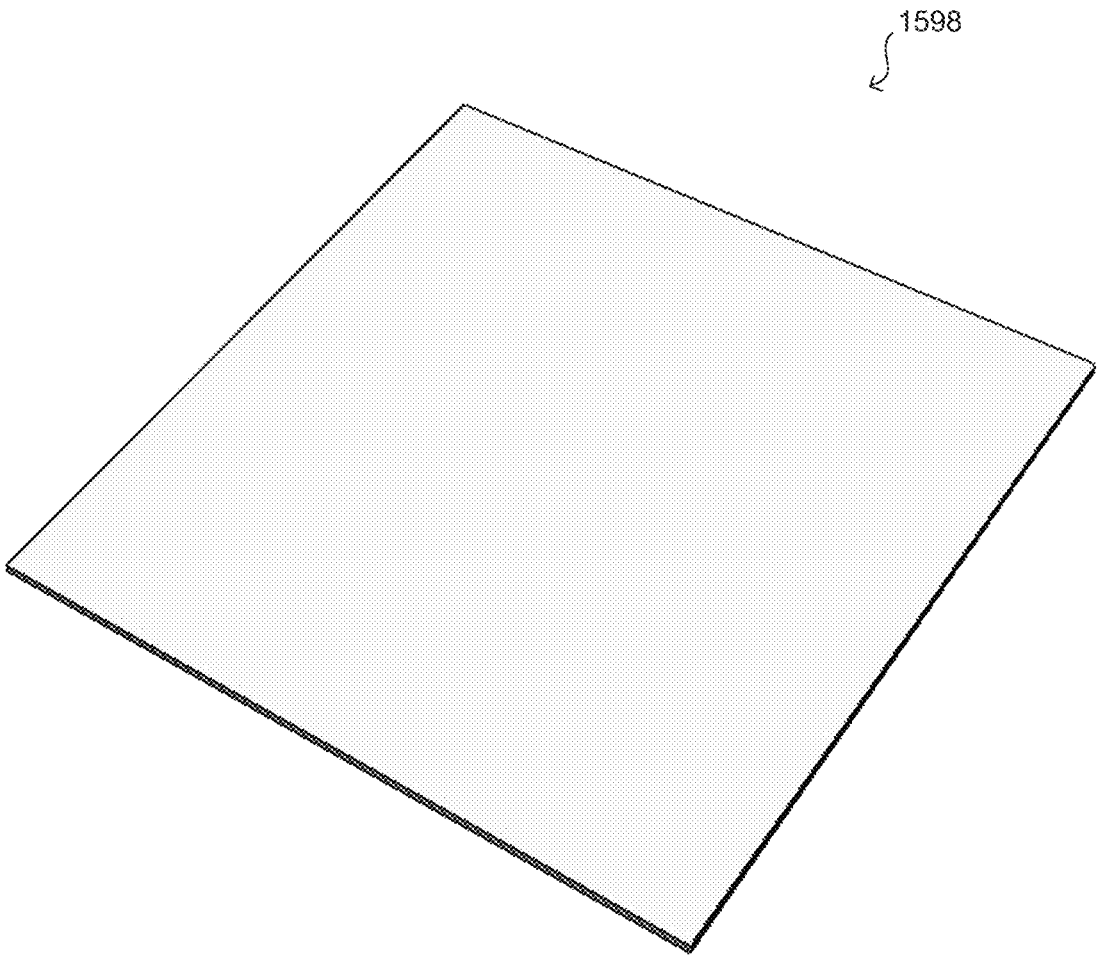

Fig. 15B

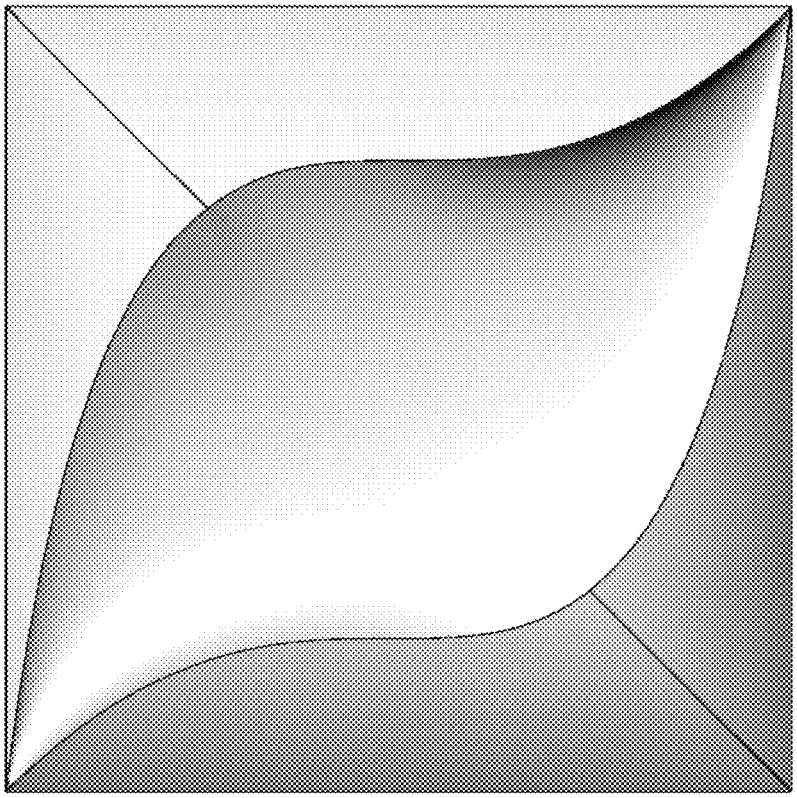

Fig. 15C

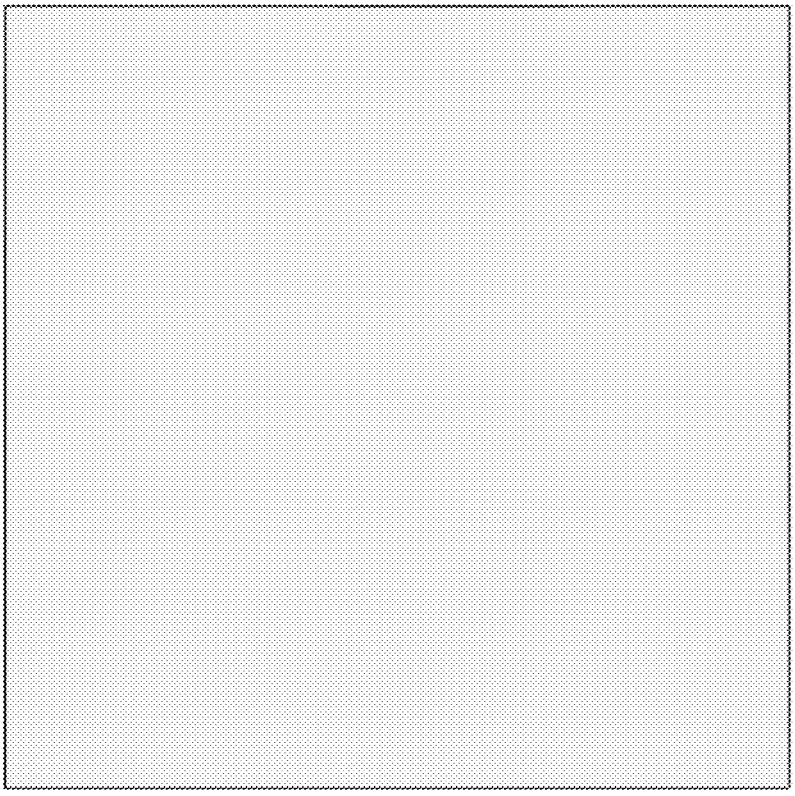

Fig. 15D

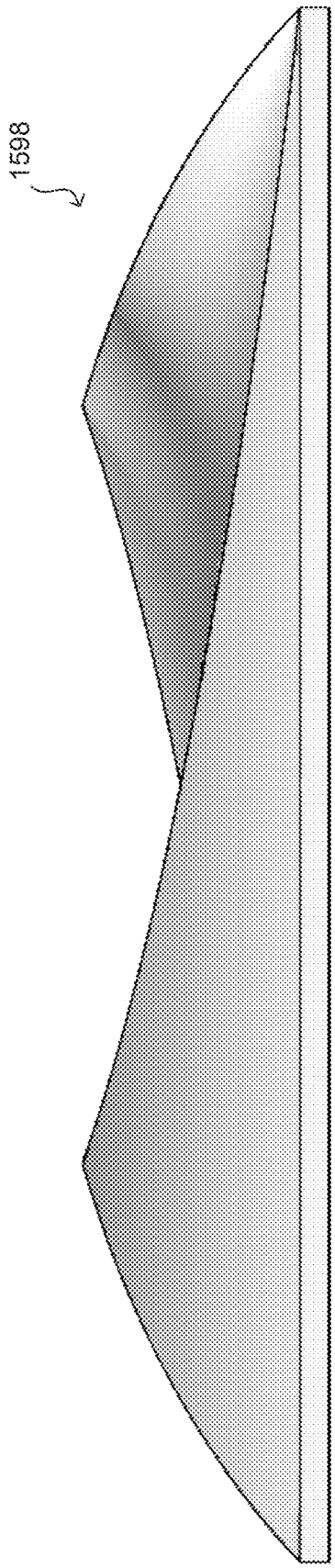

Fig. 15E

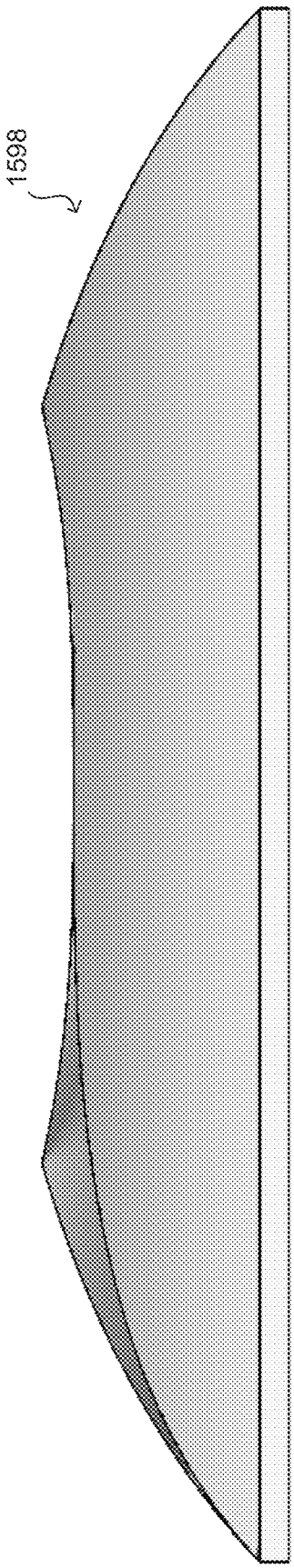

Fig. 15F

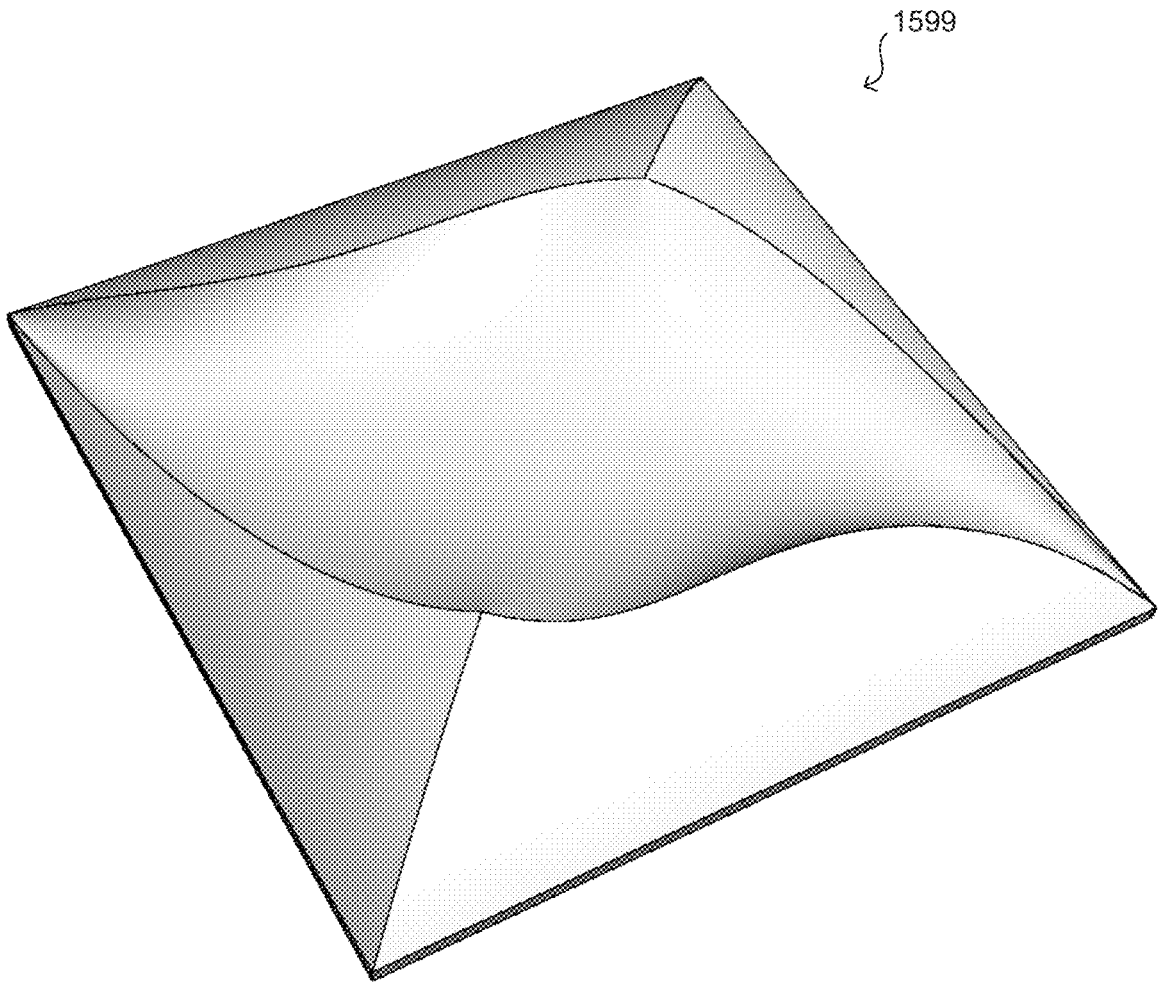

Fig. 15G

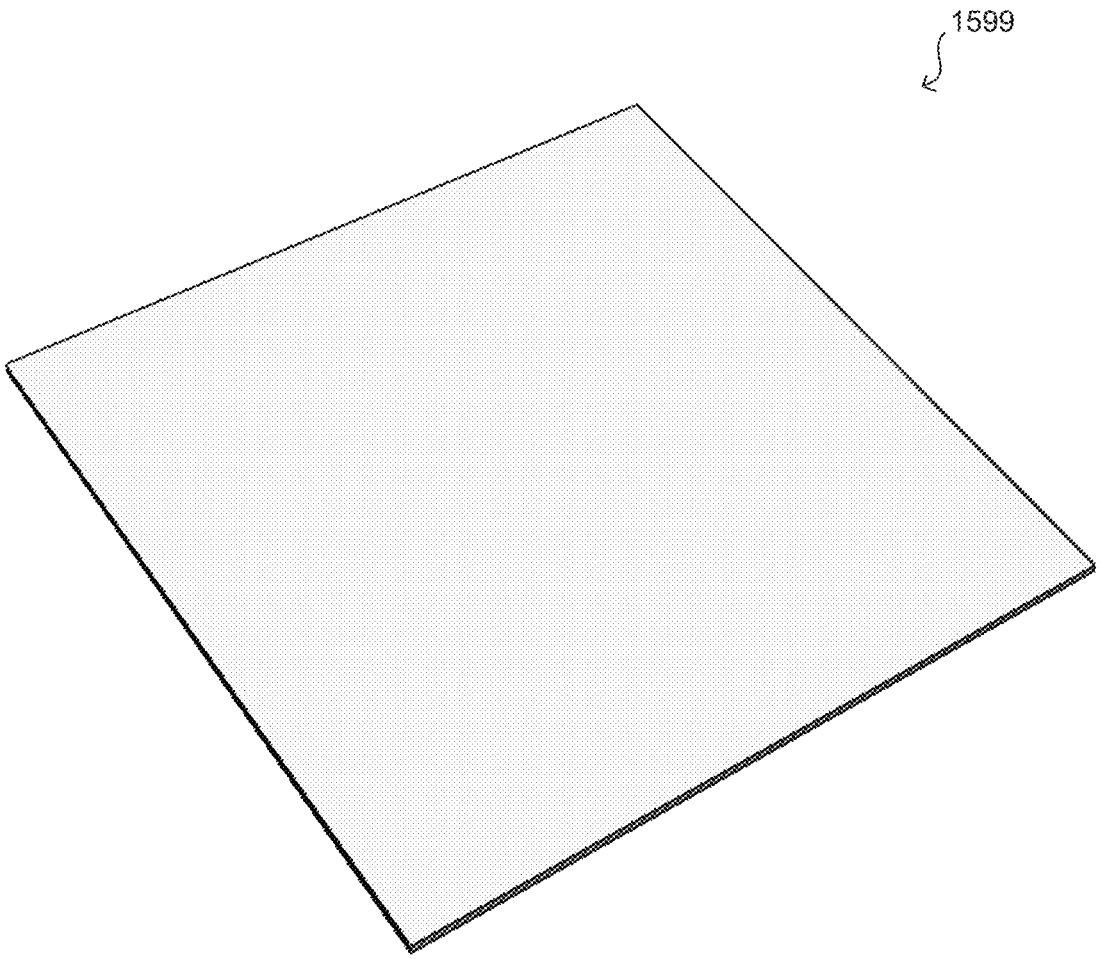

Fig. 15H

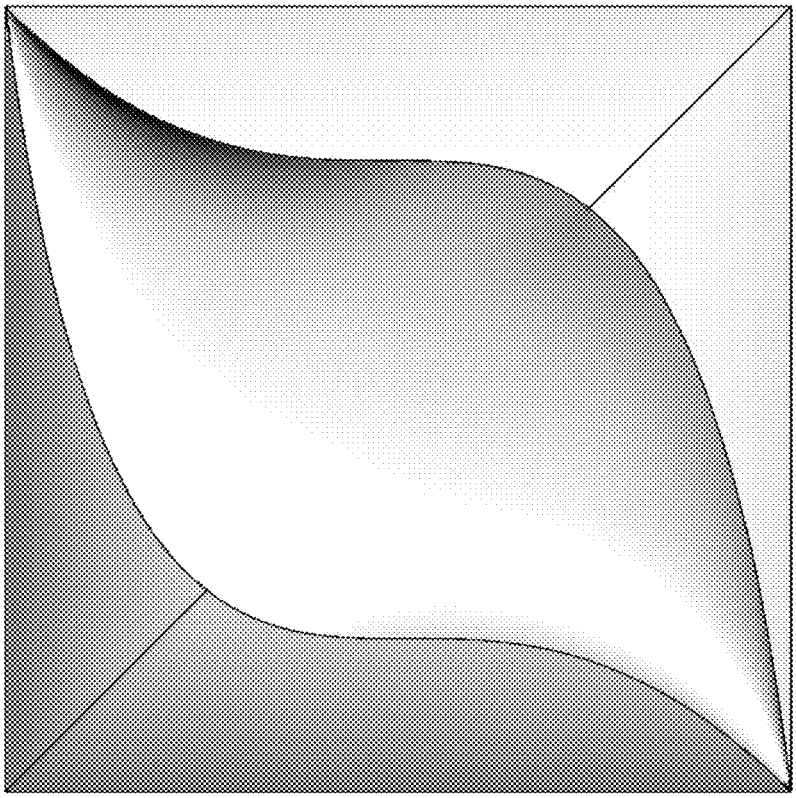

Fig. 15I

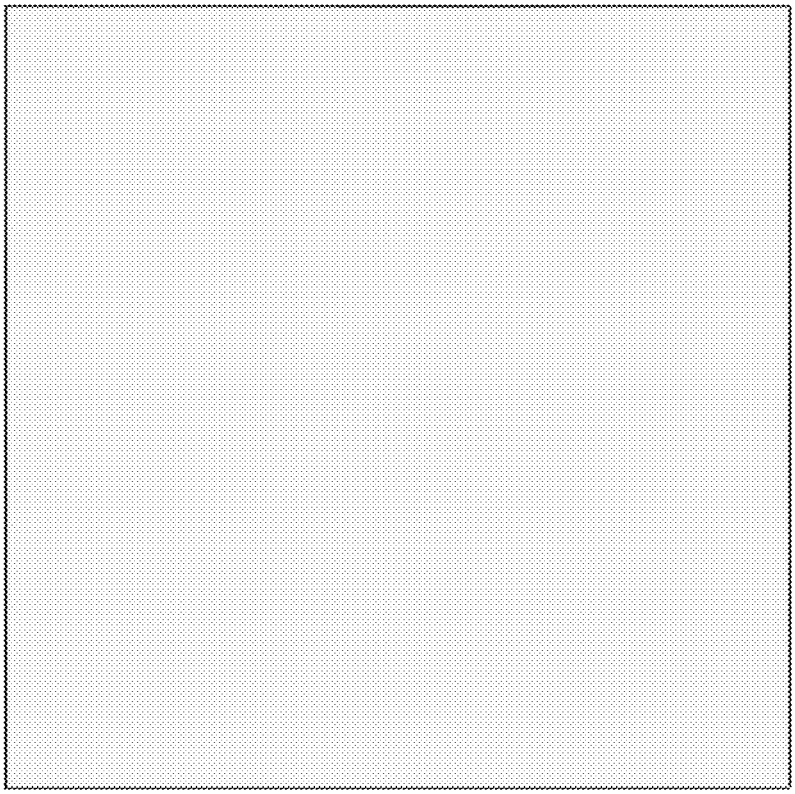

Fig. 15J

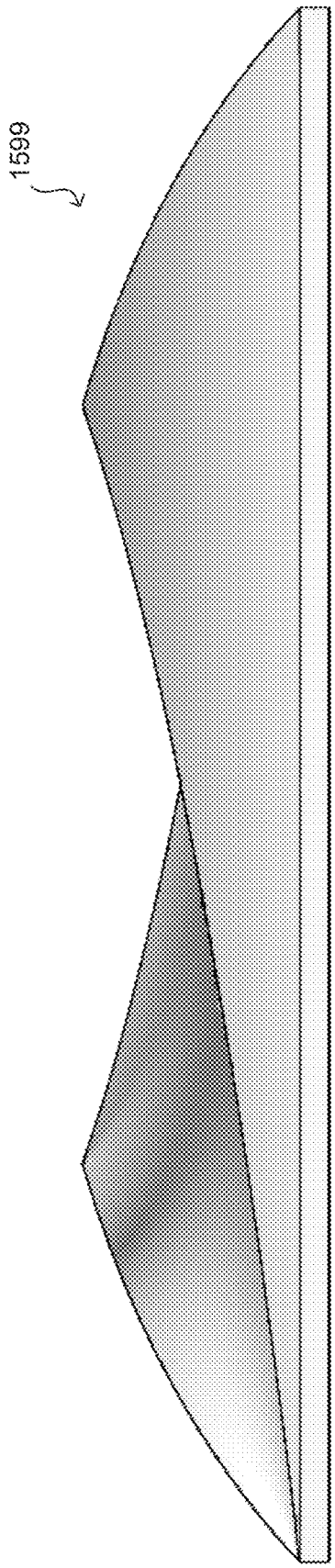

Fig. 15K

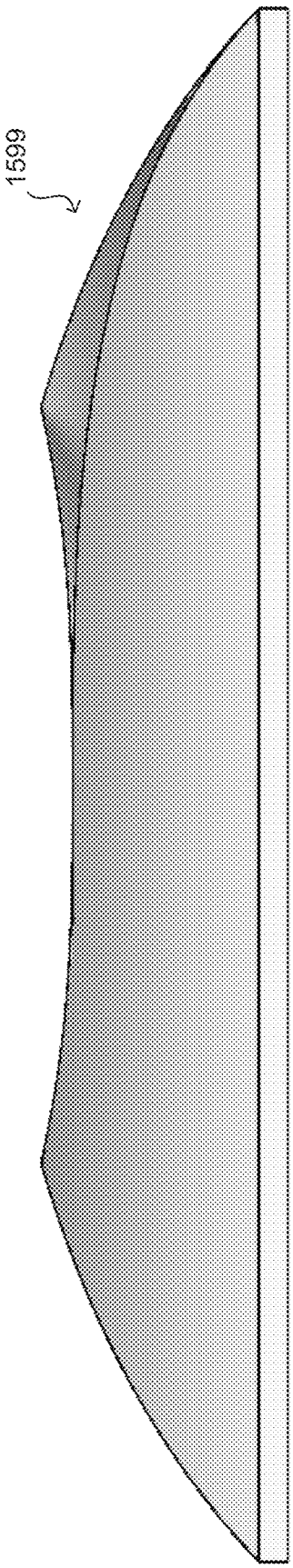

Fig. 15L

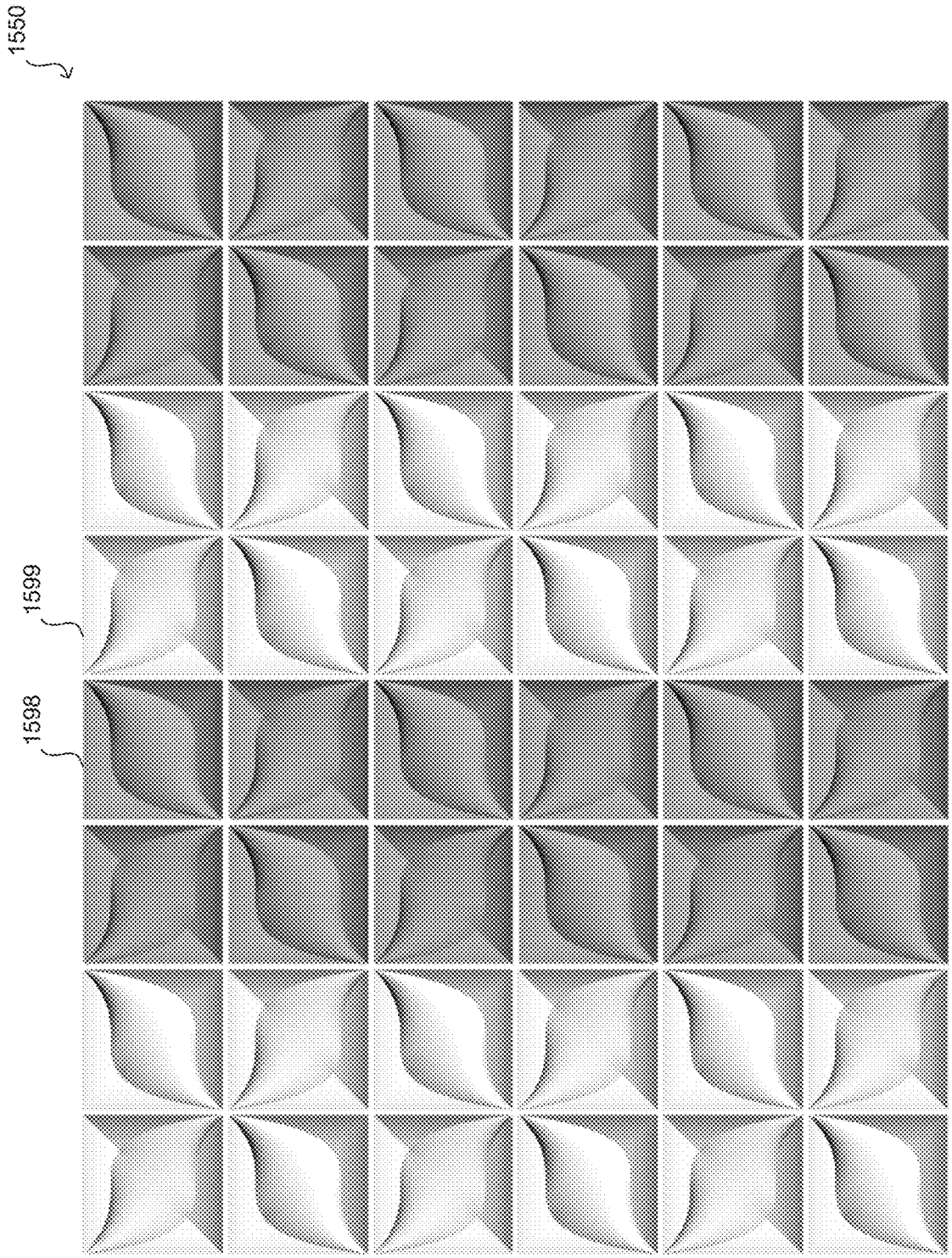

Fig. 15M

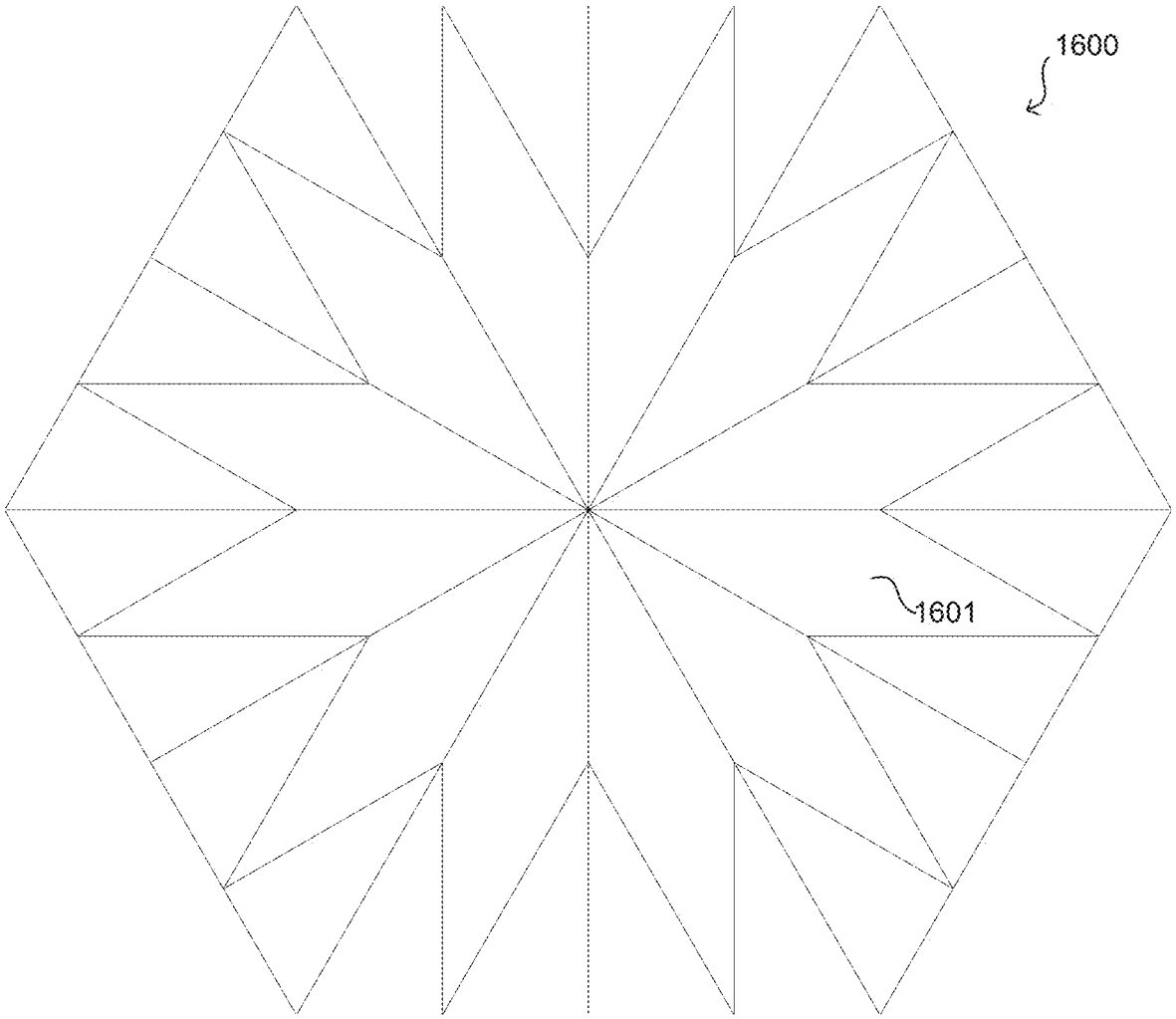

Fig. 16A

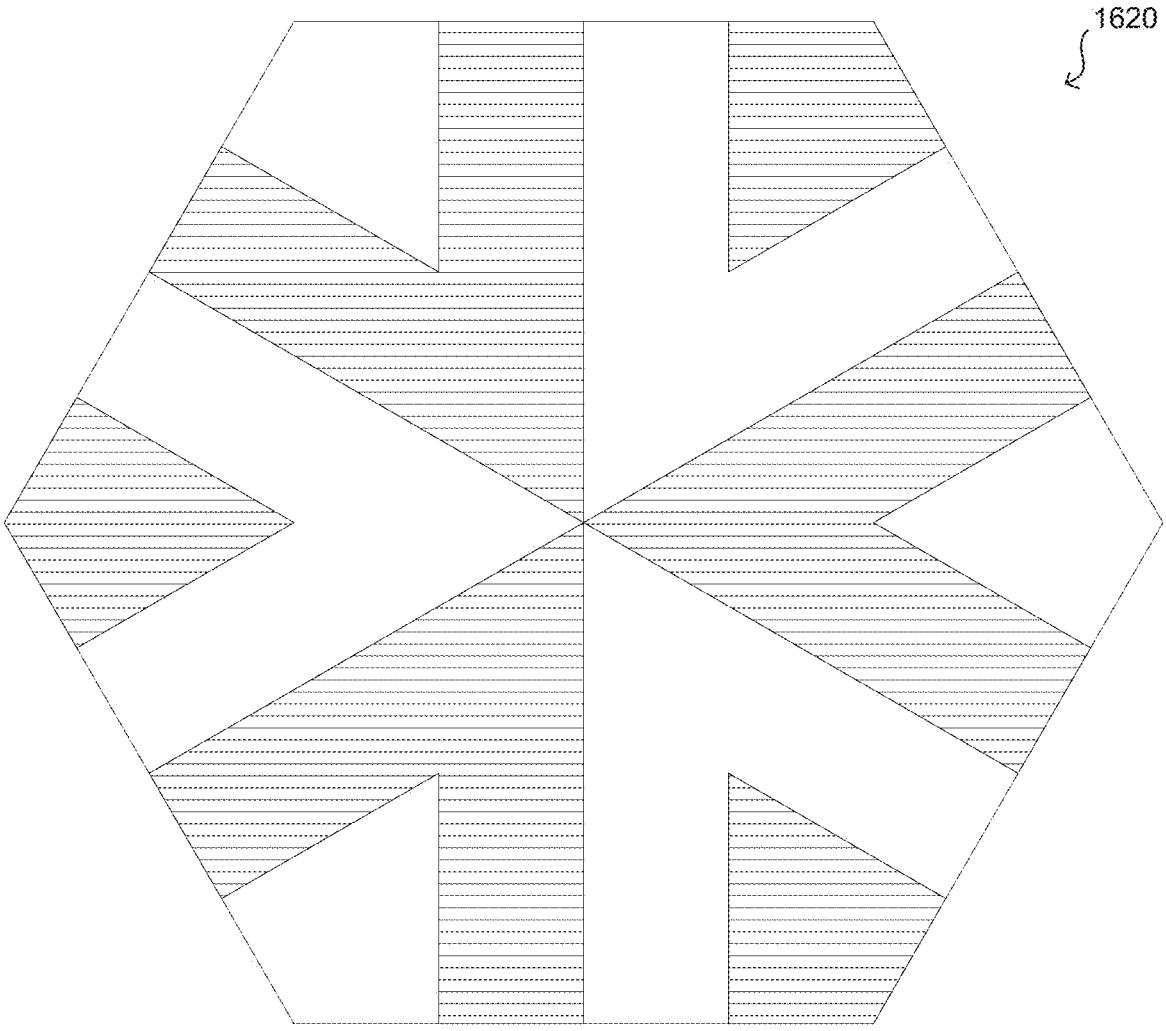

Fig. 16B

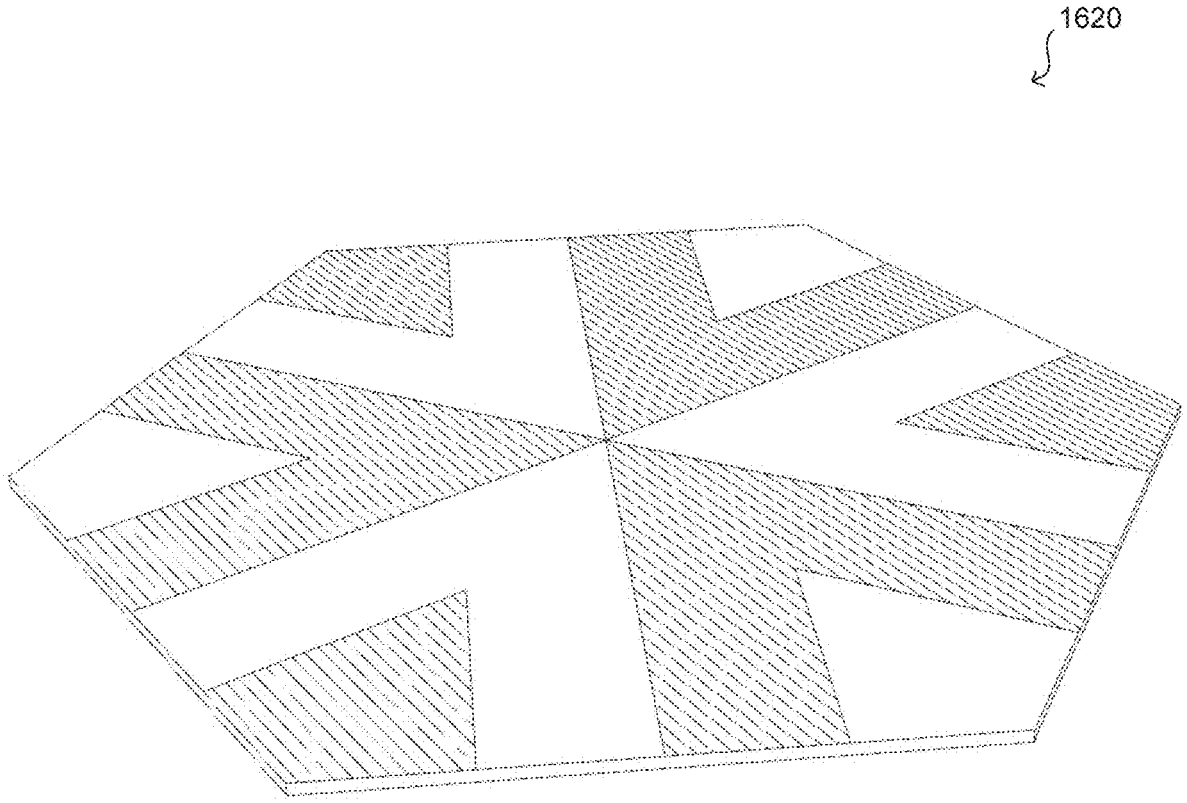

Fig. 16C

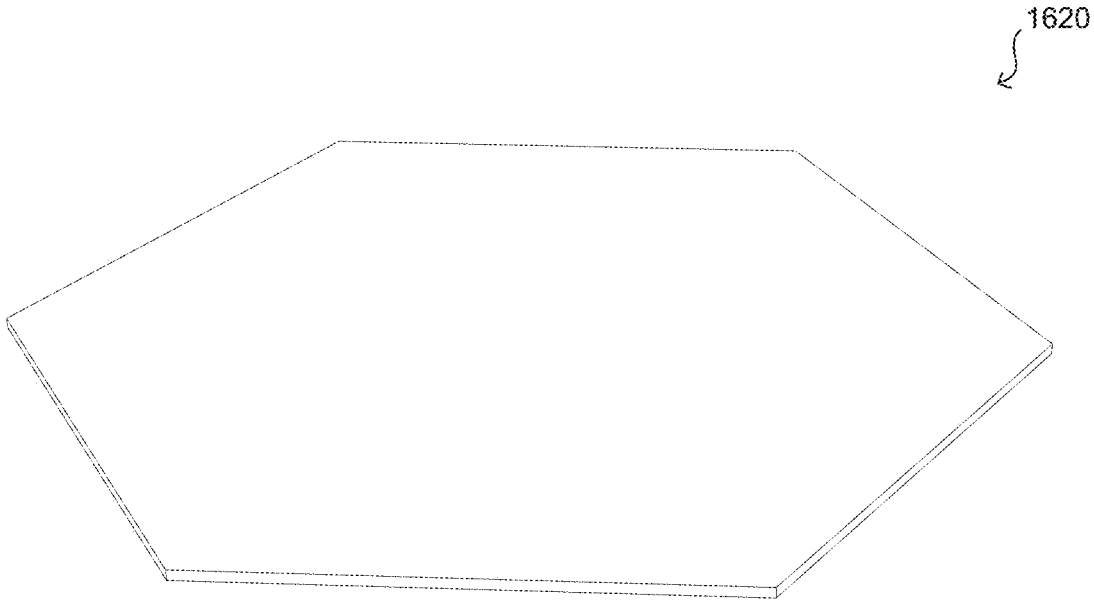

Fig. 16D

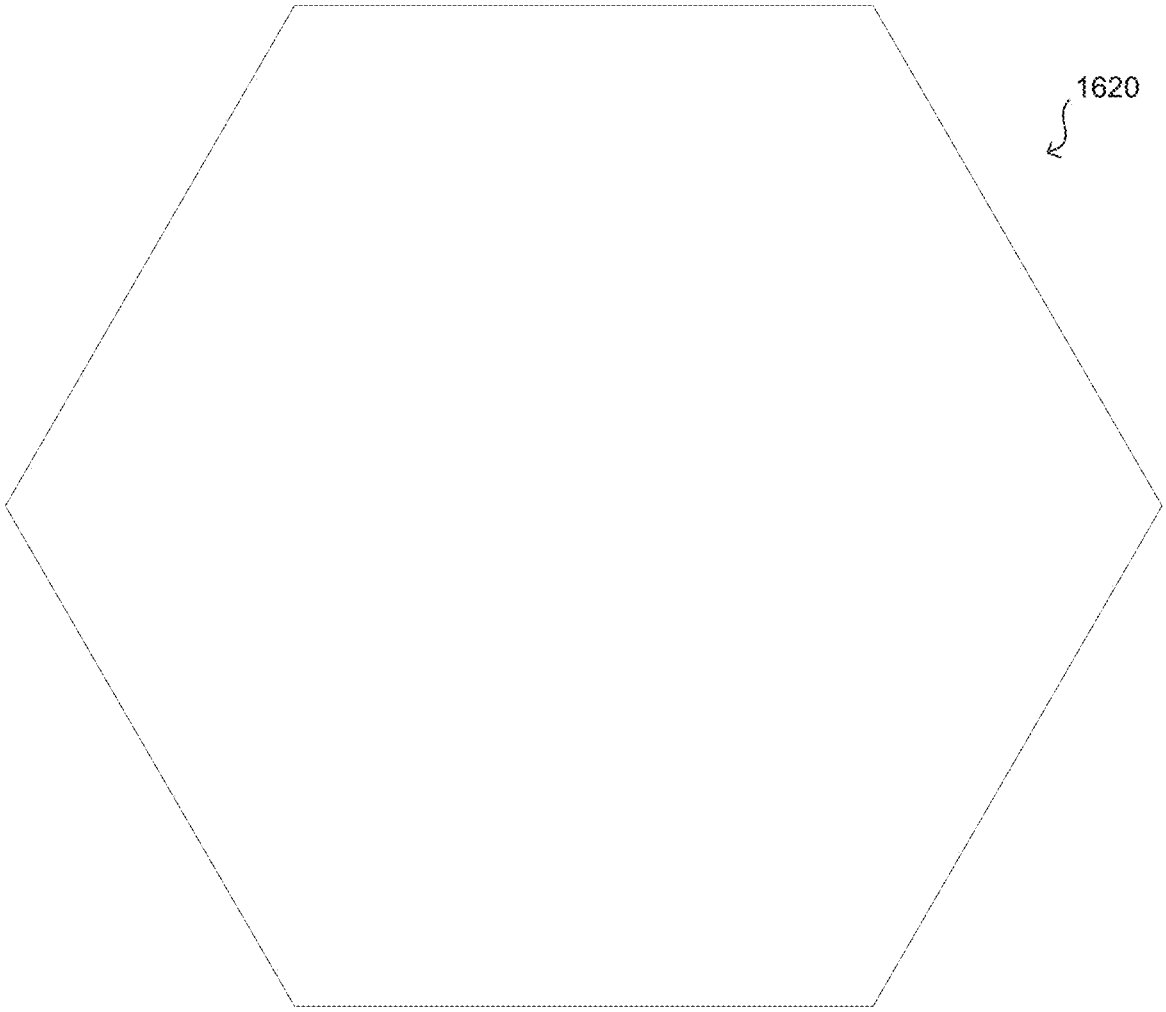

Fig. 16E

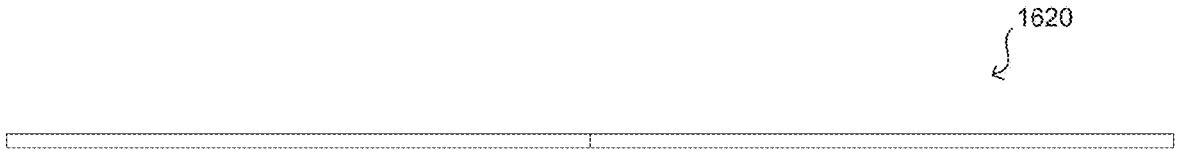

Fig. 16F

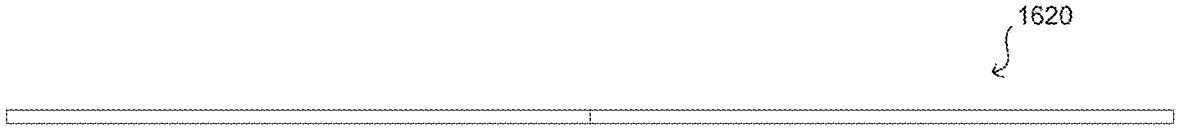

Fig. 16G

Fig. 16H

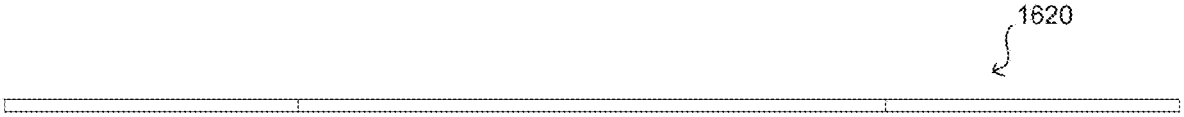

Fig. 16I

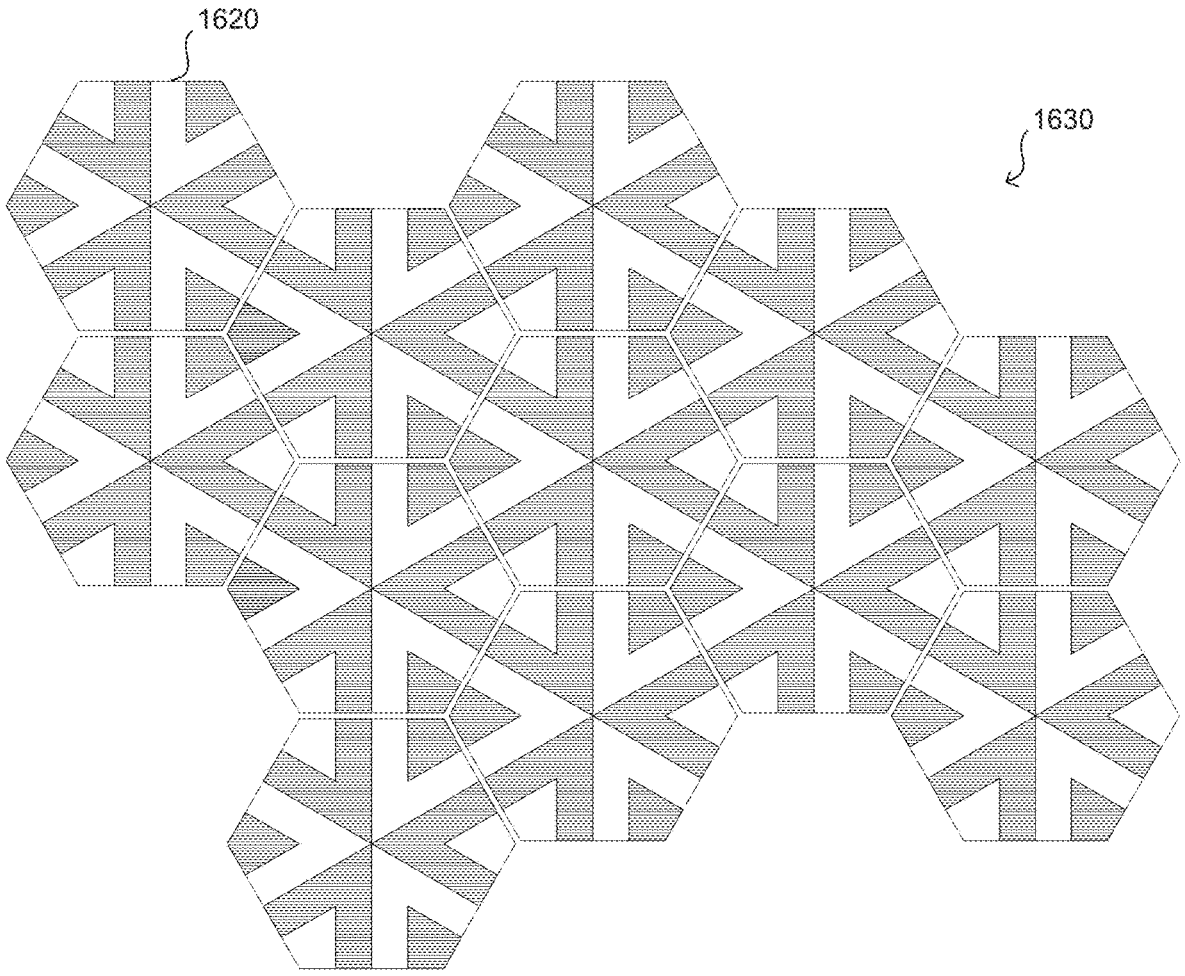

Fig. 16J

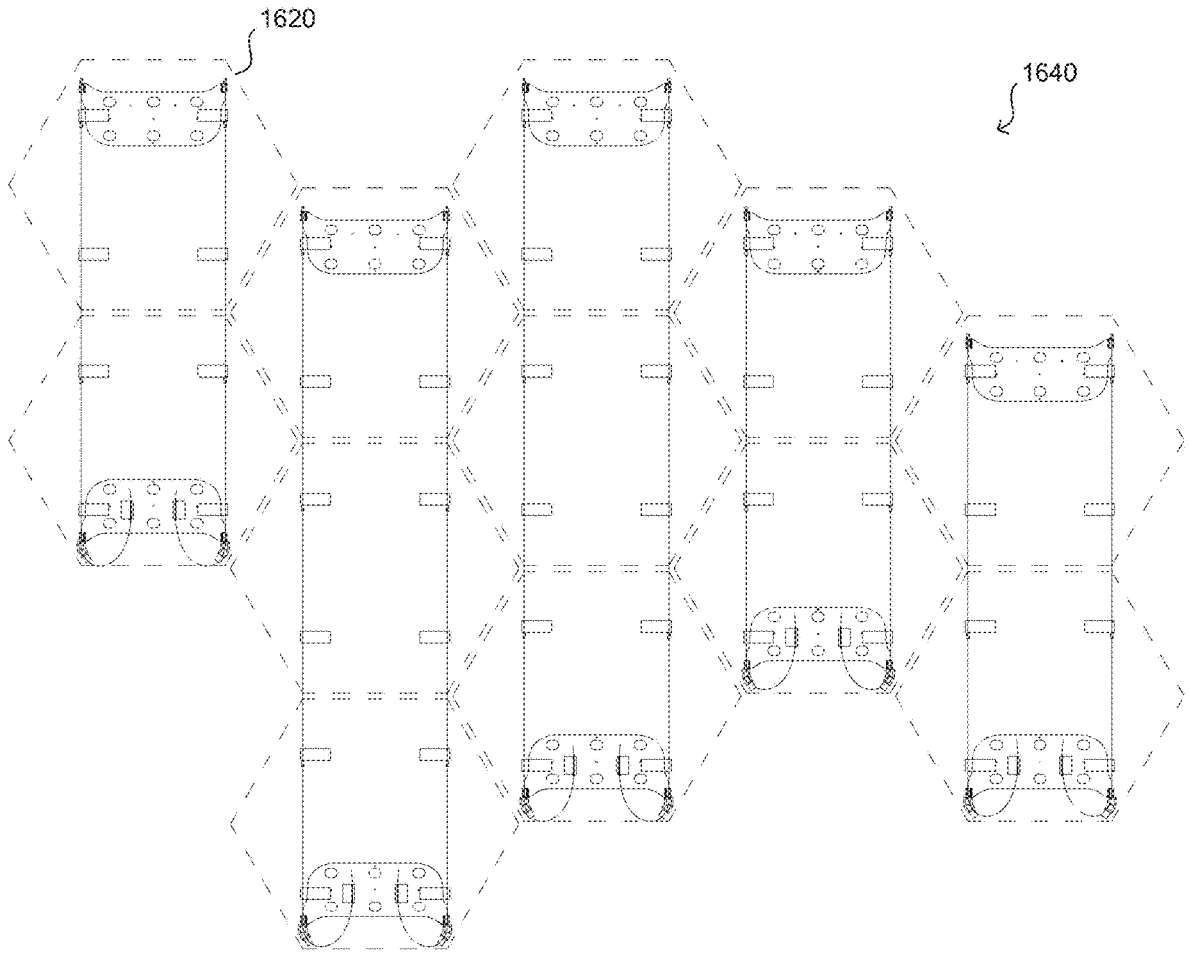

Fig. 16K

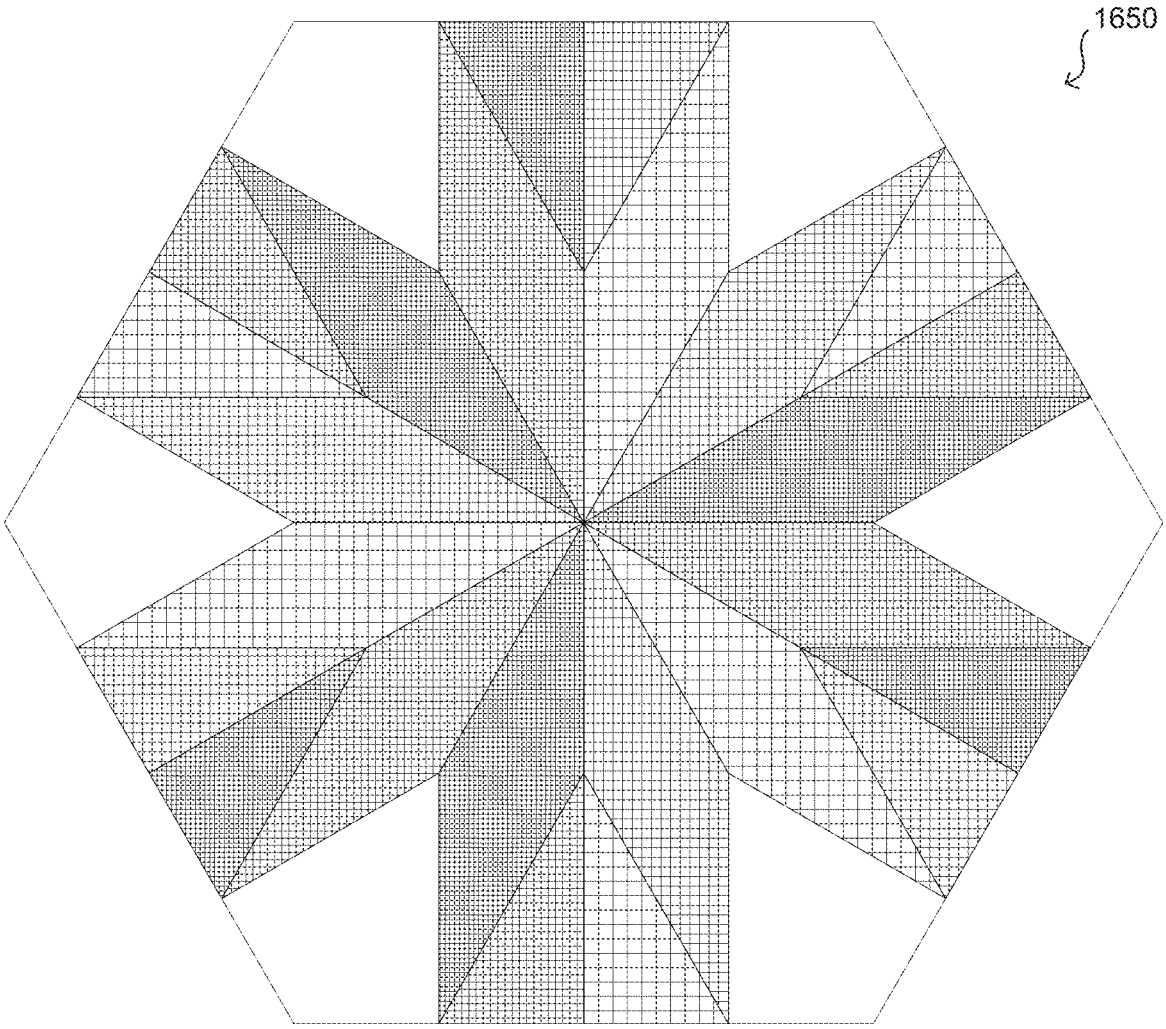

Fig. 16L

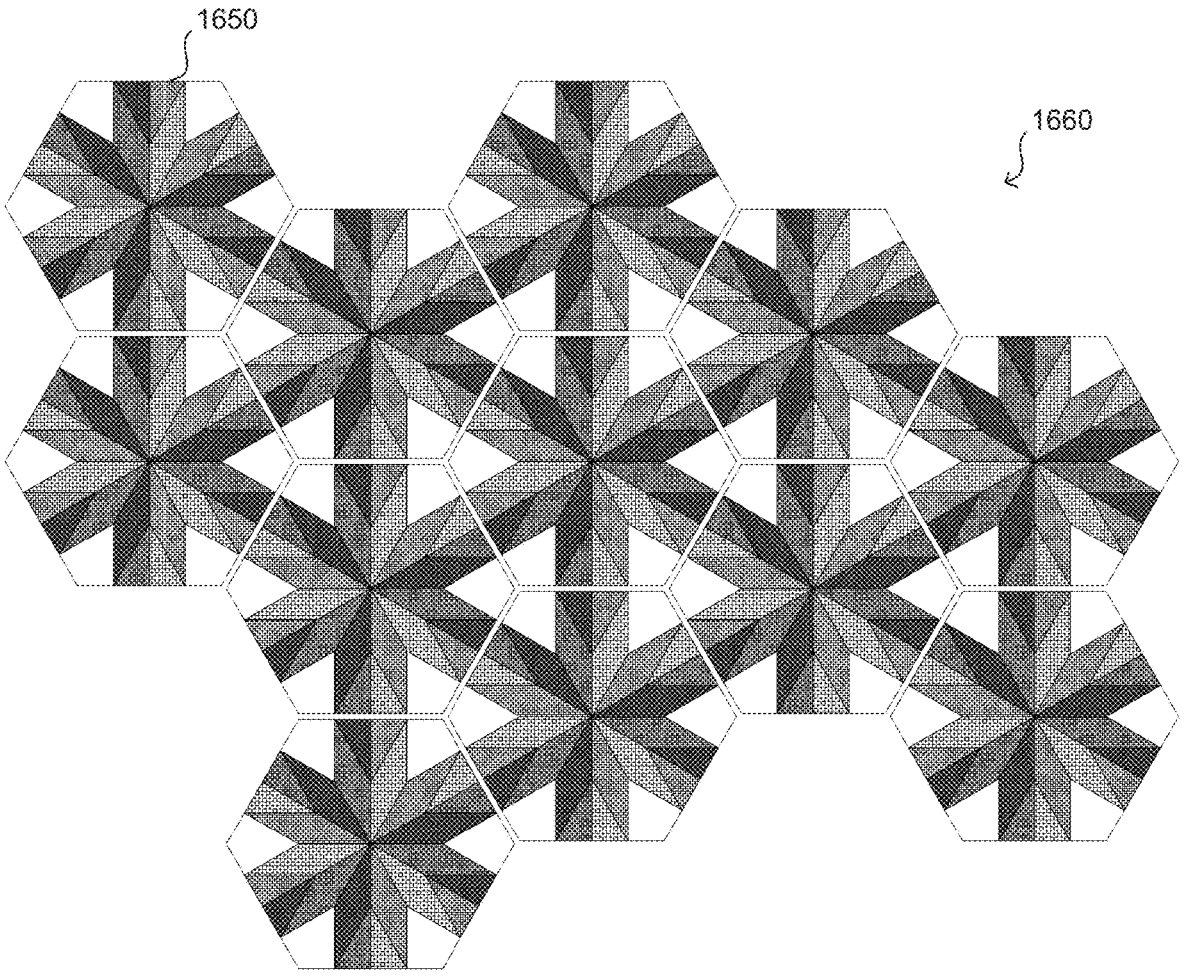

Fig. 16M

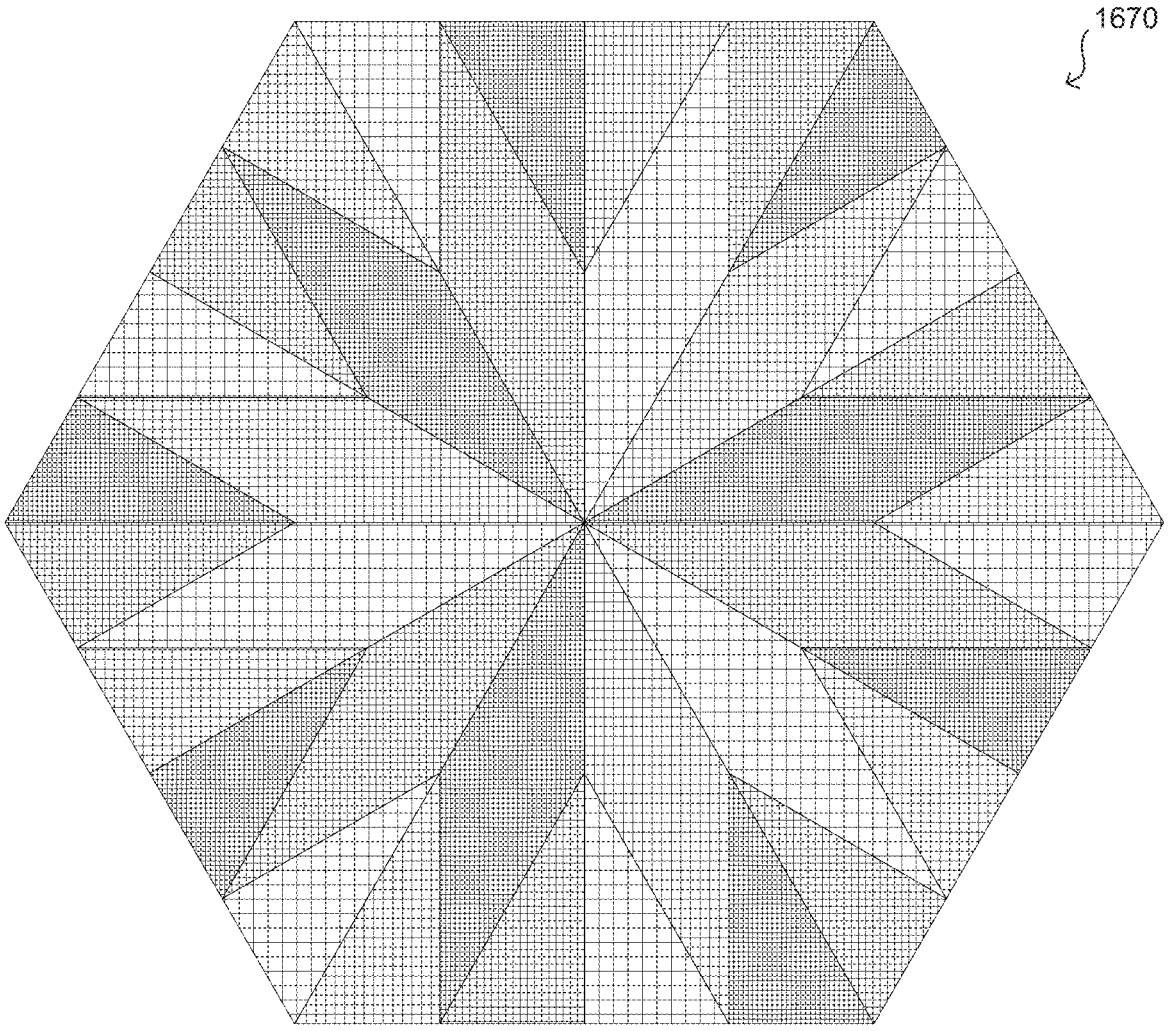

Fig. 16N

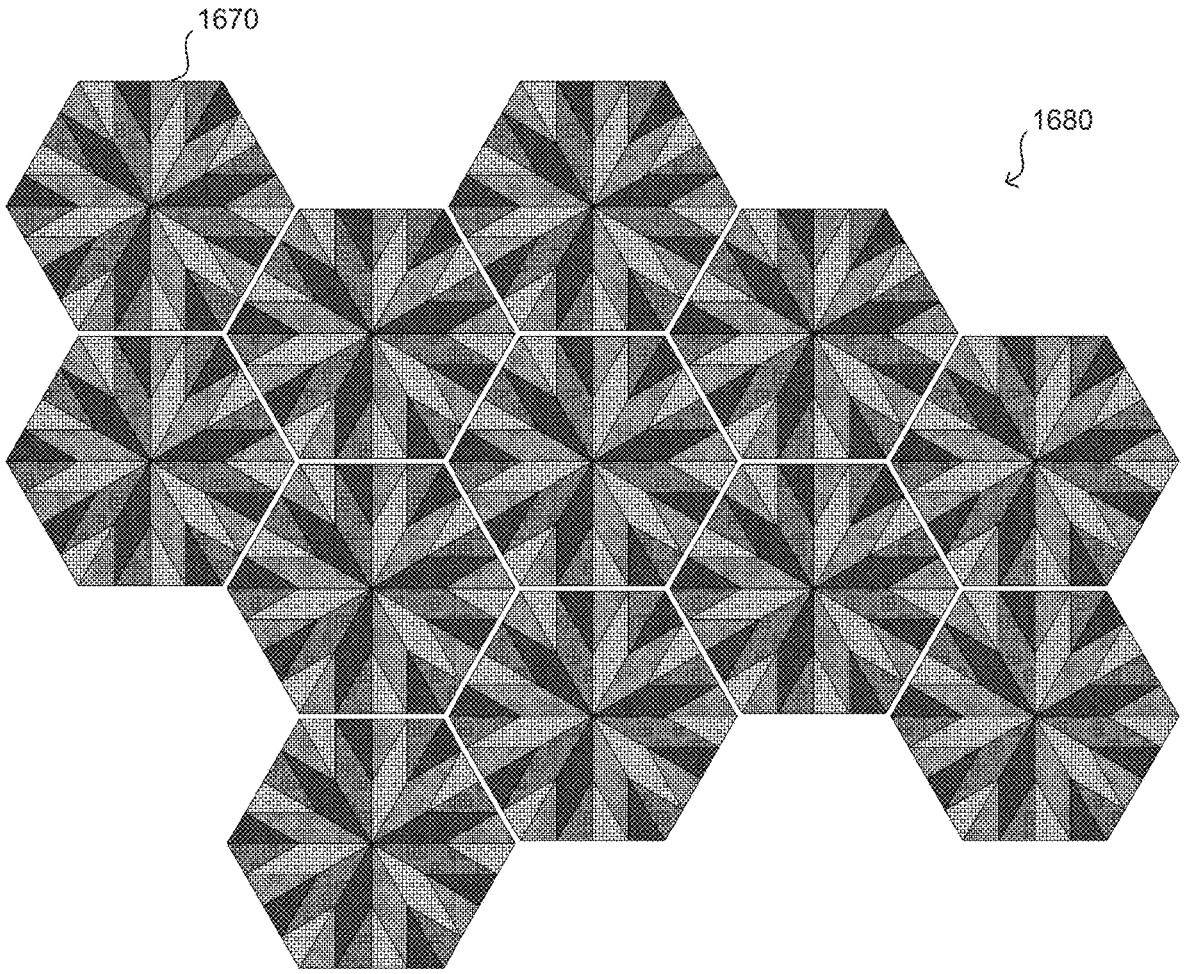

Fig. 16O

SUSPENDED SEGMENTED DISPLAY ARRAY WITH LOW VISIBILITY HARDWARE

REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of priority under 35 U.S.C.§ 119(e) to U.S. Provisional Patent Application No. 62/451,721 filed on Jan. 28, 2017 by the present inventor, which is herein incorporated by reference. This application also claims the benefit of priority under 35 U.S.C.§ 119(e) to U.S. Provisional Patent Application No. 62/452,339 filed on Jan. 30, 2017 by the present inventor, which is herein incorporated by reference.

TECHNICAL FIELD

The present disclosure relates to systems for displaying art, and, more particularly, to systems for displaying decorative panels adjacent to building surfaces.

BACKGROUND

Positioning display elements in an array allows for the presentation of information and, in the context of ornate display elements, makes for visually expressive decoration which can take on many creative forms. Large-scale installations of such display arrays, however, can be difficult to install, costly, cumbersome when changing out the display panels, and the supporting hardware can be overly visually prominent.

SUMMARY

Described herein are embodiments of segmented display arrays, methods of assembling the same, and components thereof. These embodiments of segmented display arrays use elongated member segments (e.g., cables, cords, rope, wire, etc.) that may be routed to substantially lie within a plane. Display panels, such as mounted photos or graphics, are coupled to the elongated member segments using retention members. Standoff members, which are attached to a wall or other building surface, serve to secure these elongated member segments in position and offset the elongated member segments and associated display panels from the wall. In some embodiments, two elongated member segments are generally associated with each display panel, and two or more retention members are used to establish the coupling between the elongated member segments and each display panel. Such a segmented display array allows for highly versatile usage, where a broad range of display panel types and sizes can be used for a given hardware installation. For example, mounted art prints can be secured to this system, as can translucent acrylic sheets, or elements of a collage of varying sizes. Also, display panel change-out is well facilitated.

Embodiments herein provide simple and effective elongated member segment coupling wherein the elongated member segments are positioned on the standoff members near the outermost regions of the arms of the standoff members (referred to as "standoff arms"), minimizing hardware interference issues with respect to the display panels that attach to the elongated member segments in close proximity to the standoff members. The standoff member embodiments themselves are strong, inexpensive, and simple to install. Some standoff member embodiments do not necessitate pronounced localized bending of the associated elongated member segments (elongated member segment bending can be undesirable for some types of elongated member segments which may form kinks when bent under load). Moreover, some embodiments presented herein allow for the capture of elongated member segments from the side, as opposed to requiring that elongated member segments be thread through small apertures. The elongated member segments, as a result, can have large hardware elements affixed thereto (to facilitate, for example, display panel attachment).

Embodiments presented herein have additional advantages. For example, in accordance with one embodiment, a standoff member comprises a thin and lightweight unitary sheet of material that is formed into its final shape. Here, a wall attachment base lies flush with the wall and receives anchors for wall mounting, while generally planar standoff arms are disposed on each end of this base and interface with elongated member segments such that the load is applied along the edge of the standoff arms and the load is directed in-plane with respect to the standoff arms. This results in maximal standoff arm stiffness and strength, and minimal out-of-plane standoff arm bending and/or twisting. Thus such embodiments of standoff members can be made of lightweight materials yet can support relatively heavy loads. Some embodiments incorporate tapering of the standoff arms, further optimizing material usage therefore minimizing weight. A lightweight standoff is desirable for ease of handling and transport, as well as to facilitate easier initial positioning of the standoff on the wall during installation. Unitary construction of the standoff member further makes for lower manufacturing cost.

Compared to some of the previous segmented display assemblies which require four standoff members be used to support a single column of display panels (i.e. one pair of opposing standoff members per elongated member segment, with two such sets required per column of display panels), a lower component count is achieved with embodiments of the present disclosure where a single standoff member may provide coupling to two or more elongated member segments. Moreover, the present embodiments achieve a fixed offset distance between elongated member segments, thus ensuring elongated member segment alignment with pre-positioned retention members on the display panels. Further, some embodiments herein provide multiple apertures in the wall attachment base to allow for the selection of wall anchoring locations of greatest convenience. The apertures themselves may be slots, which may have their long dimension horizontal, allowing fine adjustment of standoff member location when the anchors are in place preceding final tightening. Further, some embodiments presented herein include standoff members having wall attachment bases with straight horizontal edges that readily facilitate alignment with a template or carpenter's level during installation, ensuring installation accuracy.

The embodiments of the present disclosure are further advantageous as they provide a simple and effective elongated member segment tensioning assembly that is maintenance free, does not require adjustment (as do some turnbuckles used in some previous assemblies), and is not visually prominent. Some standoff member embodiments of the present disclosure result in a small visual "footprint" when the associated surrounding display panels are installed, allowing for a large range of viewing angles of the display panels in which the standoff member embodiments cannot be seen. This can be highly relevant for embodiments of segmented display arrays, given there can be visually

prominent gaps between adjacent display panels in which a viewer of the display array may not wish to see supporting hardware.

This summary is provided to introduce a selection of concepts in a simplified form that, along with additional concepts, are described in further detail in the detailed description and drawings contained herein. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter. Yet other concepts, forms, embodiments, advantages, benefits, features, and aspects of the present invention will become apparent from the detailed description and drawings contained herein, as well as from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The present disclosure is illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings.

FIG. **1**A is a front view of a first embodiment of a standoff member.

FIG. **1**B is a top view of the first embodiment of the standoff member.

FIG. **2**A is a front view of a second embodiment of a standoff member.

FIG. **2**B is a front view of a third embodiment of a standoff member.

FIG. **2**C is a front view of a fourth embodiment of a standoff member.

FIG. **2**D is a perspective view of a fifth embodiment of a standoff member.

FIG. **2**E is a close up view of the fifth embodiment of a standoff member.

FIG. **3**A is a front view of an embodiment of a standoff arm illustrating its coupling to an embodiment of an elongated member segment.

FIG. **3**B is a front view of the embodiment of the standoff arm further illustrating its coupling to the embodiment of the elongated member segment.

FIG. **3**C is a front view of an embodiment of a standoff arm illustrating its coupling to an embodiment of an elongated member segment via an open-loop capture band.

FIG. **4**A is a front view of an embodiment of a standoff member mounted to a wall and coupled to elongated member segments.

FIG. **4**B is a top view of the embodiment of the standoff member mounted to the wall and coupled to the elongated member segments.

FIG. **4**C is a front perspective view showing the mounting of the standoff member embodiment to the wall via a wall anchor and washer.

FIG. **4**D is a front close-up view of the view presented in FIG. **4**A with a connection point visible.

FIG. **4**E is a front view of a portion of a standoff member with a truss-like standoff arm.

FIG. **4**F is a front perspective view of a standoff arm of an open tube-like structure.

FIG. **5**A illustrates coupling of an elongated member segment embodiment to a standoff arm of a standoff member embodiment using a tensioning assembly embodiment.

FIG. **5**B further illustrates coupling of the elongated member segment embodiment to the standoff arm of the standoff member embodiment using the tensioning assembly embodiment.

FIG. **6**A is a front view of an embodiment of a standoff member mounted to a wall and coupled to elongated member segment embodiments via tensioning assembly embodiments.

FIG. **6**B is a close-up front view of the embodiment of the standoff member mounted to the wall in FIG. **6**A showing a connection point.

FIG. **7**A illustrates an embodiment of a segmented display array wherein display panel embodiments are translucent (dashed lines)

FIG. **7**B further illustrates the segmented display array wherein the display panel embodiments are now opaque and collectively form a portion of a single coherent image.

FIG. **7**C shows the original single coherent image.

FIG. **7**D shows a side view of a top panel (and underlying hardware) of the embodiment of a segmented display array.

FIG. **7**E shows a side view of a bottom panel (and underlying hardware) of the embodiment of a segmented display array.

FIG. **7**F is a front view of an embodiment of a segmented display array.

FIG. **8**A is a front view of an embodiment of a standoff member having a plurality of standoff arms along a common edge.

FIG. **8**B is a side view of the embodiment of the standoff member having the plurality of standoff arms along the common edge.

FIG. **9**A illustrates a segmented display array assembled from standoff members each having a plurality of standoff arms.

FIG. **9**B shows a front perspective detail view of the upper end routing and coupling of an elongated member from the segmented display array assembled from standoff members each having a plurality of standoff arms.

FIG. **9**C shows a front perspective detail view of the lower end routing, coupling, and tensioning of the elongated member from the segmented display array assembled from standoff members each having a plurality of standoff arms.

FIG. **9**D shows the view of FIG. **9**C where wall offset distances are indicated.

FIG. **9**E shows an alternately routed and coupled elongated member segment at its upper end prior to final assembly.

FIG. **9**F shows the alternately routed and coupled elongated member segment at its upper end after being assembled.

FIG. **9**G shows another alternately routed and coupled elongated member segment at its upper end prior to final assembly.

FIG. **9**H shows an embodiment of a segmented display array incorporating sculptural panels.

FIG. **9**I is an embodiment of a segmented display array showing four elongated member segments and four pairs of opposing standoff arms.

FIG. **10** is an embodiment of a standoff member that is capable of coupling to large capture bands.

FIG. **11**A is a front view of an embodiment of a retention member.

FIG. **11**B is a side view of the embodiment of the retention member.

FIG. **11**C is a perspective view of the embodiment of the retention member.

FIG. **12**A is a perspective view of a rear portion of a display array.

FIG. **12**B is a perspective view of a retention member coupled to an elongated member segment.

FIG. **12**C presents a step-by-step sequence showing the coupling process of a retention member to an elongated member segment.

FIG. **12**D Exploded front perspective view of dual magnet coupling assembly with retaining pin.

FIG. **12**E Top view of magnet carrier, showing retaining pin and base.

FIG. **12**F Side view of magnet carrier, showing passage for elongated member segment.

FIG. **12**G Front perspective view of dual magnet coupling system with panel.

FIG. **12**H Pre-mate-up perspective view of dual magnet coupling system with panel.

FIG. **12**I Post-mate-up perspective view of dual magnet coupling system with panel.

FIG. **12**J Close-up of dual magnet mate-up in FIG. **12**I.

FIG. **12**K Rear view of panel and mated-up magnet sets.

FIG. **13** is a perspective view illustrating an extreme line of sight angle of a segmented display array.

FIG. **14** is a flow diagram illustrating a method for assembling a segmented display array in accordance with embodiments of the present disclosure.

FIG. **15**A is a front perspective view of a first embodiment of a sculptural display panel.

FIG. **15**B is a rear perspective view of the first embodiment of the sculptural display panel.

FIG. **15**C is a front view of the first embodiment of the sculptural display panel.

FIG. **15**D is a rear view of the first embodiment of the sculptural display panel.

FIG. **15**E is a right side view of the first embodiment of the sculptural display panel (the left side view appears identical)

FIG. **15**F is a top view of the first embodiment of the sculptural display panel (the bottom view appears identical)

FIG. **15**G is a front perspective view of a second embodiment of a sculptural display panel.

FIG. **15**H is a rear perspective view of the second embodiment of the sculptural display panel.

FIG. **15**I is a front view of the second embodiment of the sculptural display panel.

FIG. **15**J is a rear view of the second embodiment of the sculptural display panel.

FIG. **15**K is a right side view of the second embodiment of the sculptural display panel (the left side view appears identical)

FIG. **15**L is a top view of the second embodiment of the sculptural display panel (the bottom view appears identical)

FIG. **15**M is a front view of an arrangement of a plurality of the first and second embodiments of the sculptural display panels.

FIG. **16**A is a front view of a patterned hexagonal display panel showing patterned zones.

FIG. **16**B is a front view of a first embodiment of a patterned hexagonal display panel.

FIG. **16**C is a front perspective view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**D is a rear perspective view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**E is a rear view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**F is a right view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**G is a left view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**H is a top view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**I is a bottom view of the first embodiment of the patterned hexagonal display panel.

FIG. **16**J is a front view of an arrangement of a plurality of the first embodiment of the patterned hexagonal display panel.

FIG. **16**K is a front view of the display panel plurality of FIG. **16**J (dashed lines) with wall attachment hardware incorporated.

FIG. **16**L is a front view of a second embodiment of a patterned hexagonal display panel.

FIG. **16**M is a front view of an arrangement of a plurality of the second embodiment of the patterned hexagonal display panel.

FIG. **16**N is a front view of a third embodiment of a patterned hexagonal display panel.

FIG. **16**O is a front view of an arrangement of a plurality of the third embodiment of the patterned hexagonal display panel.

DETAILED DESCRIPTION

Introductory Remarks

For the purposes of promoting and understanding the principles of the present disclosure, reference will now be made to the embodiments illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of these embodiments is thereby intended. Alterations and further modification in the described embodiments, and further applications of the principles of the embodiments as described herein are contemplated as would normally occur to one skilled in the art to which the disclosure relates.

In the following description, numerous specific details are set forth, such as specific materials, dimensions, etc., to provide a thorough understanding of the embodiments of the present disclosure. The particular features, structures, materials, or characteristics may be combined in any suitable manner in one or more embodiments. The words "example" or "exemplary" are used herein to mean serving as an example, instance, or illustration. Any aspect or design described herein as "example" or "exemplary" is not necessarily to be construed as preferred or advantageous over other aspects or designs. Rather, use of the words "example" or "exemplary" is intended to present concepts in a concrete fashion.

As used herein, the terms "comprises," "comprising," "includes," "including,", "has," "having" or any other variation thereof, are intended to cover a non-exclusive inclusion. For example, a process, method, article, or apparatus that comprises a list of elements is not necessarily limited to only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. Further, as used in this application, the term "or" is intended to mean an inclusive "or" rather than an exclusive "or". That is, unless specified otherwise, or clear from context, "X includes A or B" is intended to mean any of the natural inclusive permutations. That is, if X includes A; X includes B; or X includes both A and B, then "X includes A or B" is satisfied under any of the foregoing instances. In addition, the articles "a" and "an" as used in this application and the appended claims should generally be construed to mean "one or more" unless specified otherwise or clear from context to be directed to a singular form.

Reference throughout this specification to "an embodiment", "certain embodiments", or "one embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least

one embodiment. Thus, the appearances of the phrase "an embodiment", "certain embodiments", or "one embodiment" in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments.

Subsection titles are used throughout the present Detailed Description section. These are not intended to define, describe, or limit the scope of the associated content, but rather simply seek to enhance document readability.

The terms "suspended segmented display array" or "segmented display array" are herein used throughout. In this context, consistent with the teachings of the present specification, "segmented" is understood to be two or more parts that collectively form a whole, and not necessarily an original whole that is broken into parts. Further, the term "array" is understood to be in reference to an arrangement of elements that might be regular (i.e., with uniform rows and columns), irregular (i.e., with no observable organization), or a mix of regular and irregular.

As used herein, the terms "elongated member segment(s)" or "elongated member" are understood to refer to cable, cord, thread, rope, string, wire, monofilament, tubing, bars, rod, wire rope, and other such elements. As used herein, the term "standoff member(s)" refers to any component that is mountable to a surface and offsets other components coupled to the standoff member (e.g., via "standoff arms" of the standoff member) away from the surface. The standoff members described herein offset the elongated member segments, and therefore the display panels, from the wall, creating the appearance that the display panels are "floating" and not directly attached to the wall.

Throughout the present disclosure, the term "display panel(s)" is used and typically shown as a characteristically two-dimensional part. This is, however, understood to represent a great many possibilities. By way of non-limiting example, display panels can be: prints on paper, mounted prints, graphics, signage, ads, fabric, translucent plastic, relief cut material, lit material, painted images, acoustic material, metal, wood, glass, acrylic, stretch canvas, artwork of all types, shadow boxes, whiteboards, flat screen digital displays, video panels, and three-dimensional/sculptural art of all sorts. Display panels can further be overlapping and amorphous in form. Also, any combination of these exemplary elements can be used simultaneously.

As used herein, a "wall" refers to a generally planar, generally vertical, interior or exterior building surface.

Standoff Embodiments & Materials Thereof

FIGS. **1**A and **1**B are front and top views, respectively, of an embodiment of a standoff member **100**. The standoff member **100** comprises a wall attachment base **102**, a first standoff arm **104**, and a second standoff arm **106**. In some embodiments, the wall attachment base **102** is rectangular in shape, with the first standoff arm **104** and the second standoff arm **106** being disposed at a first end **102**A and a second end **102**B, respectively, of the wall attachment base **102**. In other embodiments, the wall attachment base **102** may take on different shapes, such as being square or having curved edges. The wall attachment base **102** has thickness **199** and width **171** (which will be the vertical dimension of the wall attachment base **102** when the standoff member **100** is in its wall-mounted position).

The wall attachment base **102** may include a plurality of apertures **108** formed therethrough to allow the passage of anchors, which can be used to mount the wall attachment base **102** to a wall. These apertures **108** may be slots, as illustrated. In some embodiments, the wall attachment base **102** may not include the plurality of apertures **108** and the wall attachment base **102** may be mounted to the wall using a different mounting mechanism. For example, the wall attachment base **102** may be mounted to the wall using an adhesive material attached to an opposite side of the wall attachment base **102** or any other suitable attachment mechanism as would be appreciated by one of ordinary skill in the art. In some embodiments, one or more portions of the wall attachment base **102** are planar. In other embodiments, the wall attachment base **102** is non-planar.

The first standoff arm **104** and the second standoff arm **106** may be planar or non-planar, in portions or throughout. FIGS. **1**A and **1**B illustrate the first standoff arm **104** and the second standoff arm **106** as being planar. For example, the first standoff arm **104** is oriented at an angle of θ_1 with respect to the wall attachment base **102** at a joint **112** which is where the first standoff arm **104** couples to the wall attachment base **102**. Similarly, the second standoff arm **106** is oriented at an angle of θ_2 with respect to the wall attachment base **102** at a joint **114** which is correspondingly where the second standoff arm **106** couples to the wall attachment base **102**. When the standoff member is in its installed state, these angles are in relation to the wall, and therefore are also meaningful for non-planar wall attachment base embodiments. In some embodiments, θ_1 and θ_2 may each range from 5° to 170°, 25° to 65°, 35° to 55° (e.g., 45°). In some embodiments, θ_1 and θ_2 are the same and in other embodiments they may be different. The first standoff arm **104** and the second standoff arm **106** may each have a slot **116** and a slot **118**, respectively, formed therein, which may be used to couple to elongated member segments, as will be described in greater detail below. The first standoff arm **104** has length **198**; the second standoff arm **106** has length **188**.

FIGS. **2**A-**2**C show front views of various embodiments of a standoff member for comparative purposes, which are similar in structure to the standoff member **100** of FIGS. **1**A and **1**B. The dimensions of a standoff member may be selected based on the specific sizes of display panels to be accommodated, and other such considerations.

Returning attention to FIGS. **1**A and **1**B, it is noted that in some embodiments, the standoff member **100** may be formed from a single unitary piece of material, such as an aluminum sheet. The standoff member **100**, for example, may first be cut from the single unitary piece of material, and the first standoff arm **104** and the second standoff arm **106** may be angularly oriented, as shown in FIG. **1**B, by mechanical deformation at the respective joints **112**, **114**. Other sheet material known in the art may be used for this purpose as well, including transparent plastic sheet material. Such a part may also be molded or made by a host of different processes.

FIGS. **2**D and **2**E show a perspective view of an embodiment of a standoff member **200** similar in structure to the standoff member shown in FIG. **2**A. In this embodiment, the standoff member **200** is comprised of a multilayered sheet material **201** having, for present illustrative purposes, a flexible polymer as an innermost layer **250**, and two outermost layers **260** comprising a metal. By way of non-limiting example, a suitable multilayered sheet material that is commercially available is ⅛" thick Aluminum Composite Material (ACM), wherein polyethylene makes up the innermost layer, and aluminum makes up the two outermost layers. Dibond® brand ACM by **3**A Composites Inc, of Davidson N.C. is a specific example of such a multilayered sheet material readily adapted for embodiments of the present disclosure. Standoff member embodiments presented herein

may be made from multiple materials (joined, fastened, adhered, bonded, or welded together), single unitary sheet material, multilayered sheet material, and/or any combination thereof.

In some embodiments, the first standoff member **100** may be formed from a dual-layer sheet material (e.g., metal on metal, plastic on plastic, plastic on metal, or other material combinations). Suitable plastic materials for the various embodiments may include polyethylene, polypropylene, other plastic materials, and combinations thereof. Suitable metals for the various embodiments may include aluminum, copper, stainless steel, magnetic materials (e.g., for mounting to a metal wall via magnetic coupling), or other plastic materials, and combinations thereof. In other embodiments, one or more of first standoff arm **104** or the second standoff arm **106** may be formed from separate sheets of material (and/or of different compositions), and may, for example, be attached to the wall attachment base **102** via adhesives, welding, mechanical coupling, or any other suitable attachment mechanism as would be appreciated by one of ordinary skill in the art.

Standoff Arms & Elongated Member Segment Coupling Thereto

FIG. **3**A illustrates coupling of an elongated member segment **320** to a standoff arm **306** of a standoff member **300**. Each of the components of the standoff member **300** may be the same as, or similar to, their identically named counterparts of FIGS. **1**A and **1**B. The standoff member **300** includes a wall attachment base **302** with the standoff arm **306** coupled thereto at an end of the wall attachment base **302** at a joint **314**. The wall attachment base **302** includes a plurality of apertures **308** for coupling the standoff member **300** to a wall. In some embodiments, as illustrated, these apertures **308** are slots. By departing from circularity and taking on this form, these slotted apertures **308** afford the standoff member **300** greater positional adjustability with respect to the wall in the direction in which the apertures **308** are slotted (i.e. elongated), which is in the horizontal sense in the embodiment shown in FIG. **3**A. Additionally, in some embodiments, as illustrated, the standoff arm **306** is tapered from a proximal end **306**A (i.e. an end coupled to the wall attachment base **302**) to a distal end **306**B (i.e. the standoff arm's **306** other end) such that a width **307**A of the standoff arm **306** at the proximal end **306**A is greater than a width **307**B of the standoff arm **306** at the distal end **306**B. In other embodiments, the width **307**A is the same as the width **307**B. In some embodiments, at least a portion of the standoff arm **306** is planar.

The elongated member segment **320** may be, for example, a braided wire cable. While a wide range of types and sizes can be used for this purpose, it has been found that 3/64" diameter **302**/**304** stainless steel wire rope braided in a 7×7 configuration works well. Other components may be used as well, including rope, string, cord, monofilament, tubing, bars, and rods. As illustrated, the elongated member segment **320** includes a terminal **322** at one of its ends, which has a diameter greater than that of the elongated member segment **320**. The terminal **322** may be formed, for example, from solidified glue, epoxy, or resin; it may be an adhesive, a tape, a wrapped plastic, a heat shrink plastic, or other suitable material. The terminal may further be a crushed piece of metal, a crimped sleeve, a metal or foil strip wrapped around the elongated member segment **320**, a melted or welded metal, or a clip or mechanical clamp. Many other materials and components known in the art can be used to serve the purpose of the terminal **322**.

In some embodiments, the standoff arm **306** has a slot **318** formed therein at the distal end **306**B, that is used to couple the elongated member segment **320** to the standoff arm **306**. As illustrated in FIG. **3**A, the elongated member segment **320** is inserted through capture band **324** that is sized such that a portion of the capture band **324** is receivable by the slot **318**. This is accomplished in the present illustrative embodiment by the capture band **324** being a hallow elongated cylinder having appropriately-sized inner and outer diameters. In other embodiments, the capture band is laterally elongated in one direction, akin to a partially crushed hallow cylinder, and it can further be an open-loop. Both of these exemplary embodiments will subsequently be shown. FIG. **3**B illustrates a portion of the capture band **324** being inserted into the slot **318**. As a downward force is applied to the elongated member segment **320**, the elongated member segment **320** will pass through the capture band **324** until the terminal **322** abuts the capture band **324** (and also typically a point at or near the distal-most tip **399** (FIG. **3**A) of the standoff arm **306**), thus coupling the elongated member segment **320** to the slot **318** (and therefore to the standoff arm **306**).

FIG. **3**C illustrates the use of an open loop capture band **356**. That is, this figure shows an alternate means of coupling an elongated member segment **355** to a standoff arm **359** using the open loop capture band **356**. Secondary hardware, such as fastener **358**, is used to couple the capture band **356** to the standoff arm **359**, and therefore the elongated member segment **355**, to the standoff arm **359**.

Standoff Wall Attachment & Loading

FIGS. **4**A and **4**B are front and top views, respectively, of an embodiment of a standoff member **400** mounted to a wall **401** and coupled to elongated member segments **420**, **430**. The standoff member **400** includes a wall attachment base **402** with standoff arms **404**, **406** coupled thereto and extending therefrom at respective joints **416**, **414**. The wall attachment base **402** may include, as illustrated, a plurality of apertures **408** through which wall anchors **409** pass for coupling the standoff member **400** to the wall **401**. By way of non-limiting example, washers **460** facilitate the mating of anchors **409** to the wall attachment base **402**, as shown in FIGS. **4**A and **4**B, and in detail in FIG. **4**C. An example of an anchor suitable for serving in this capacity is Wall-Dog™ by Powers® Fasteners of Brewster, N.Y., which can be screwed into drywall and can make use of a #12 washer to facilitate wall attachment base mating. Many other arrangements known in the art can be used for anchoring, including all manner of drywall anchors, toggle bolt anchors, concrete screws, wood screws, steel stud screws, and screws suitable for masonry and plaster, to name a few. The wall attachment base **402** has a vertical dimension **453** as shown in FIG. **4**A. This vertical dimension **453** is constant in the present embodiment yet it is understood that it can vary with horizontal position and therefore there can be a largest vertical dimension of the wall attachment base **402** differing from a smallest vertical dimension.

Returning to FIG. **4**A, the standoff arm **406** has a slot **418** formed therein (analogous to slot **318** shown in FIG. **3**A); the elongated member segment **420** is coupled to this slot **418** via a capture band **424**. Attached to elongated member segment **420** is terminal **422** that may abut the capture band **424** and also may abut the standoff arm **406** at or near a distal most point on standoff arm **406** (as will be shown), thereby securing the elongated member segment **420** in place as a downward force is applied to the elongated member segment **420**. Similarly, the standoff arm **404** has a slot **428** formed

therein and the elongated member segment **430** is coupled analogously to the described coupling of elongated member segment **420**.

In the present disclosure, the "connection point" is defined as the outermost location on a standoff arm (i.e. furthest from the wall attachment base) where the standoff arm presses against a corresponding elongated member segment, or against coupling hardware associated with this elongated member segment. If there are two such outermost locations for a given standoff arm, then the midpoint of a line drawn between them shall be considered the connection point. For three or more such points, the connection point would be what is known in mathematics as the centroid—the point that minimizes the sum of the squared distances between itself and each point in the group.

Focusing on the interface of the elongated member segment **420** with the standoff arm **406**, FIG. **4**D is considered. Here the capture band **424** is shown in cut-away view, and a tension force in the elongated member segment **420** is considered (resulting from, for example, display panel weight). The terminal **422** is wedged against capture band **424** and against the standoff arm **406** at connection point **471**. It is clear that the connection point for a given standoff arm is simply the distal-most point on the standoff arm that experiences direct or indirect (via coupling hardware) elongated member segment loading.

Returning to FIG. **4**A, while keeping FIG. **4**B in mind, it is appreciated that the standoff arm **406** positions the connection point **471** away from the wall at a connection point height **480**, which is understood to be with respect to some datum such as the ground. Additionally, the closest point **472** of the corresponding wall attachment base **402** is at a closest point height **481** with respect to the same datum as that of connection point height **480**. The difference between these heights **480**, **481** is a vertical distance **473** as shown. This vertical distance **473** may be a small fraction of the wall attachment base **402** largest vertical dimension **453**, it may be a multiple of this dimension, it may be zero, and it may extend in the opposite sense (i.e., downward in FIG. **4**A).

As seen in FIG. **4**A, each of the elongated member segments **420**, **430** have respective sleeves **426**, **436** formed, crushed, crimped, or adhered (etc.) thereon, to secure display panels in place by restricting their motion along the elongated member segments **420**, **430**, as will be shown. These sleeves **426**, **436** may be formed from solidified glue, epoxy, or resin; they may be an adhesive, a tape, a wrapped plastic, a heat shrink plastic, or other suitable material. The sleeves **420**, **430** may further be crushed metal, crimped thin-walled tube sections, metal or foil strips wrapped around the elongated member segments **420**, **430**, melted or welded metal, or a clip or mechanical clamp. Many other materials and components known in the art can be used to serve the purpose of the sleeves **426**, **436**.

There are many acceptable values for the angles of the standoff arms **404**, **406** with respect to the portion of the wall **401** behind the wall attachment base **402**. FIG. **4**B illustrates this angle **479** for standoff arm **406** as obtuse, which is particularly favorable in relation to minimizing hardware visibility once display panels are installed, as will subsequently be shown.

Standoff arms **406**, **404** are depicted as generally planar in this exemplary embodiment (see, in particular, FIG. **4**B) and are noted to be loaded by respective elongated member segments **420**, **430** at or very near their distal edges (FIGS. **4**A, **4**B). This loading is, by definition, aligned with the direction of the elongated member segments **420**, **430** (i.e., aligned with the direction that the elongated member segments **420**, **430** are "tensioned"), which is in the vertical sense. The generally planar standoff arms **406**, **404** are also oriented in the vertical sense (see FIG. **4**B), and therefore, given the edge loading mentioned, undergo minimal out-of-plane bending or twisting due to the loading applied from the elongated member segments **420**, **430**. Expressed more generally, the respective elongated member segments **420**, **430** are coupled to and substantially parallel with the generally planar standoff arms **406**, **404**. (This substantially parallel description is intended to encompass the case when an elongated member segment falls within, i.e., is coincident with, the plane described by a generally planar standoff arm.) Under these loading condition, the standoff arms **406**, **404** behave like structural beams (see next paragraph), having high load carry capacity and maximizing material usage, meaning they are stiff and light weight.

As seen in FIG. **4**A, the standoff arm **406** has an upper portion **451** that is positioned directly above a lower portion **452** (which is clear in FIG. **4**B, in which the upper portion **451** is visible while the lower portion **452** is not). The upper portion **451** and lower portion **452** serve as flanges akin to an I-beam, providing stiffness for the standoff arm **406**. Other embodiments of standoff arms also having upper portions directly above corresponding lower portions are contemplated, such as, in FIG. **4**E, upper portion **46** in relation to lower portion **47** (for truss-like standoff arm **495**), and, in FIG. **4**F, upper portion **48** in relation to lower portion **49** (for the open tube-like structure of standoff arm **496**).

It is noted that, while the present discussion applies to the foregoing exemplary embodiments, other embodiments have different material and load orientations and may exhibit different performance characteristics.

Elongated Member Segment Tensioning Assembly

FIGS. **5**A and **5**B illustrate coupling of an elongated member segment **520** to a standoff arm **506** of a standoff member **500** using a tensioning assembly **570**. Each of the components of the standoff member **500** may be the same as, or similar to, their identically named counterparts of the preceding figures. The standoff member **500** includes a wall attachment base **502** with the standoff arm **506** coupled to and extending from the wall attachment base **502** at a joint **516**. The wall attachment base **502** may include a plurality of slots apertures **508** for coupling the standoff member **500** to a wall. In some embodiments, at least a portion of the standoff arm **506** is planar. The standoff arm **506** may further include a retention member **534** having a slot **534**A in which a portion of the elongated member segment **520** fits and is therein retained.

The tensioning assembly **570** includes a plurality of components that, together, couple the elongated member segment **520** to the slot **518** and induce tension in the elongated member segment **520**. As illustrated, the tensioning assembly **570** includes a capture band **524**, flange washers **526**, **530**, a spring **528**, and a gripper **532**. The capture band **524** may be the same as or similar to its identically named counterpart of FIGS. **3**A and **3**B. The flange washer **526** is in the form of an elongated hollow cylinder with a first outer diameter that is larger than an inner diameter of the spring **528**, and a second outer diameter that is smaller than the inner diameter of the spring **528**, such that only the portion of the flange washer **526** having the second outer diameter fits within the spring **528**. The flange washer **530** may be identical to or similar to the flange washer **526**. The spring **528** may be a standard metal spring that is compressible and may have a relatively low stiffness (e.g., compressible between an individual's index finger and thumb) or a somewhat higher stiffness. By way of non-

limiting example, a compression spring having a 1.35 inch undeformed length and 0.45 inch maximally deformed (compressed) length, with a stiffness of 5.5 lbs./in. is well-suited for this application. Other elastic elements that would be appreciated by one of ordinary skill in the art having a range of stiffnesses and working lengths may also be used for this purpose

The exemplary embodiment of the gripper **532** shown is composed of a hollow cylinder through which the elongated member segment passes, and a clamping screw **532**A that passes through an outer wall of the gripper **532** into its interior, and is used to clamp against the elongated member segment **520**. In some embodiments, other types of mechanical clamps may be used as the gripper **532**. In other embodiments, an adhesive material may be secured to the elongated member segment **520** and may act as the gripper **532** by providing a stationary structure against which the flange washer **530** and/or other components of the tensioning assembly **570** abut.

FIG. **5**B illustrates the tensioning assembly **570** with the elongated member segment **520** passing through each of the components. In order to induce tension in the elongated member segment **520**, for example, spring **528** is compressed slightly by the flange washer **530** and the gripper **532**. Once compressed, the clamping screw **532**A is tightened against the elongated member segment **520** to secure the gripper **532** against the elongated member segment near a first end (shown) of the elongated member segment **520**, while an opposite end (not shown) of the elongated member segment **520** and the standoff member **500** are stationary relative to each other (e.g., when the standoff member **500** is surface-mounted and the opposite end of the elongated member segment **520** is coupled to separate standoff member that is mounted to the same surface as the standoff member **500**). This results in a restoring force in the spring, which induces tension in the elongated member segment **520** between the gripper **532** and the stationary opposite end of the elongated member segment **520**. In the event that the elongated member segment **520** elongates slightly over time (due to, for example, the weight of display panels that it supports), or the standoff member **500** itself settles slightly on a wall to which it is anchored, the spring **528** in the tensioning assembly **570** will accommodate such displacement while still maintaining tension in the elongated member segment **520**. The tensioning assembly **570** thus provides maintenance free operation.

FIG. **6**A is a front view of an embodiment of a standoff member **600** mounted to a wall **601** and coupled to elongated member segments **620**, **640**. Each of the components depicted may be the same as, or similar to, their identically named counterparts of FIGS. **5**A and **5**B. The standoff member **600** includes a wall attachment base **602** with standoff arms **604**, **606** coupled to and extending from the wall attachment base **602** at respective joints **614**, **616**. The wall attachment base **602** includes a plurality of apertures **608** for coupling the standoff member **600** to the wall **601**, e.g., via anchors **609** used in concert with washers **660**.

The standoff arm **606** has a slot **618** formed therein, to which the elongated member segment **620** is coupled via tensioning assembly **670**. The tensioning assembly **670** may be the same as, or similar to, the tensioning assembly **570**, and includes a capture band **624**, flange washers **626**, **630**, a spring **628**, and a gripper **632** (with clamping screw **632**A). The standoff arm **606** may further include a retention member **634** having a slot **634**A that is sized such that a portion of the elongated member segment **620** fits and is retained therein.

Similarly, the standoff arm **604** has a slot **638** formed therein, to which the elongated member segment **640** is coupled via tensioning assembly **680**. The tensioning assembly **680** may be the same as, or similar to, the tensioning assembly **670**, and includes a capture band **644**, flange washers **646**, **650**, a spring **648**, and a gripper **652** (with clamping screw **652**A). The standoff arm **604** may further include a retention member **654** having a slot **654**A that is sized such that a portion of the elongated member segment **640** fits and is therein retained.

Each of the elongated member segments **620**, **640** have respective sleeves **622**, **642** formed, crushed, crimped, or adhered (etc.) thereon, which secure display panels thereto by restricting their motion along the elongated member segments **620**, **640**.

FIG. **6**B shows a close-up of standoff arm **606** with a cutaway view of capture band **624**. Connection point **695** is shown, being noted to be the furthest contact point of the elongated member segment (and coupling hardware) from the wall attachment base **602**.

Segmented Display Array Embodiment

FIG. **7**A illustrates an embodiment of a segmented display array **700**. Here display panels **7011**, **7012**, **7013**, **7021**, **7022**, **7023**, **7031**, **7032**, **7033** are shown and, though they are in the foreground, are indicated by dashed lines and made transparent so that the underlying hardware can be seen. Each of standoff members **702**, **704**, **706**, **708**, **710**, **712** are mounted to a wall **701** (e.g., as illustrated in FIGS. **4**A, **4**B, and **6**A), and elongated member segments **714**, **716**, **718**, **720**, **722**, **724** are routed between associated opposing standoff members (e.g., also as illustrated by FIGS. **4**A and **6**A). Sleeves **762**, which secure the display panels in place, are shown on each of the elongated member segments **714**, **716**, **718**, **720**, **722**, **724**. This is accomplished via the use of retention members that are affixed to the back of the display panels **7011**, **7012**, **7013**, **7021**, **7022**, **7023**, **7031**, **7032**, **7033**, where two sleeves **762** support two associated retention members on each display panel **7011**, **7012**, **7013**, **7021**, **7022**, **7023**, **7031**, **7032**, **7033**. To illustrate this, retention members **791**, **792**, **793**, **794** are shown just on display panel **7031** (these are understood to exist in an analogous manner for each display panel). These are bonded, or otherwise affixed to the display panel **7031** and retain the associated elongated member segments **714**, **716**. The two sleeves **762** that are within the bounds of the display panel **7031**, being associated with elongated member segments **714**, **716**, limit the sliding of retention members **791**, **792** along respective elongated member segments **714**, **716** and therefore secure in place display panel **7031**. Subsequent discussion will make this embodiment more clear. Many other retention members know in the art may be used for the purpose of securing the display panels in place, including elastically opposing clamps, magnets, and more.

The top row of display panels **7011**, **7012**, **7013** limit (and, from some angles block) the visibility of the underlying standoff members **702**, **704**, **706** in relation to an observer of the segmented display array **700**. The bottom row of display panels **7031**, **7032**, **7033** correspondingly also limit (and, from some angles block) the visibility of the underlying standoff members **708**, **710**, **712** in relation to an observer of the segmented display array **700**. This is illustrated in FIG. **7**B where the display panels **7011**, **7012**, **7013**, **7021**, **7022**, **7023**, **7031**, **7032**, **7033** are shown in opaque form, with different images on each panel that collectively form a portion of a single coherent image **799** shown in FIG. **7**C.

FIGS. 7D and 7E show right side views of portions of the top right display panel **7013** and the bottom right display panel **7033**, respectively. The associated respective standoff members **706**, **712** are also shown here mounted to the wall **701**. Visible further, securing the display panels **7013**, **7033** to the right-most elongated member segment **724** (in concert with two other retention members not shown), are the respective retention members **744**, **745**, whose form and function will be subsequently illustrated in more detail herein.

Many other hardware and display panel arrangements are understood to be represented by the foregoing illustrative embodiment. For example, in addition to the arrangement shown here of there being three rows and three columns of display panels (i.e., 3×3), the array could be 3×4, 4×4, 8×5, 5×10, and many other such arrangements. Further, differing sizes and irregularly shaped or non-uniformly arranged display panels may also be used.

It is further noted that, as shown in FIG. 7A, the loaded portions of the elongated member segments **714**, **716**, **718**, **720**, **722**, **724** are straight for the most part, not being required to go through any sharp angular transitions. For example, the region of elongated member segment **714** between its associated terminal **771** (analogous to terminal **422**, shown in detail in FIG. **4**A) and its associated bottom gripper **772** (analogous to gripper **532**, shown in detail in FIG. **5**B) is not forced through any sharp corners. This is advantageous, as sharp angular transitions would create kinks in embodiments where the elongated member segments are composed of cable or the wire rope.

Though minimal visibility of underlying supporting hardware, as illustrated by the embodiment of the segmented display array **700** presented in FIGS. 7A, 7B, 7D, and 7E is often desirable, this does not preclude partial or full visibility of this hardware falling within the scope of the present disclosure.

Additional Segmented Display Array Embodiment

Shown in FIG. 7F is an embodiment of segmented display array **74499** showing an embodiment of a first and second standoff member **70051**, **70053** respectively, having respective planar bases **71160**, **71162**. Extending angularly from the standoff member **70051** are planar arms **71151**, **71150** incorporating respective connection points **78802**, **78801** near their ends. These connection points **78802**, **78801** are positioned apart by distance **74401** which is further than the longest dimension **78899** of the associated planar base **71160**. The second standoff member has corresponding positioning of its connection points **78804**, **78803**. A first elongated member segment **72251** is coupled between the connection point **78801** (which is associated with the planar arm **71150** which is associated with the first standoff member **70051**) and connection point **78803** (which is associated with the planar arm **71154** which is associated with the second standoff member **70053**). Similarly, a second elongated member segment **72252** is coupled between the connection point **78802** (which is associated with the planar arm **71151** which is associated with the first standoff member **70051**) and the connection point **78804** (which is associated with the planar arm **71155** which is associated with the second standoff member **70053**). Embodiments of display panels **70011**, **70021**, **70031** are coupled between the first and second elongated member segments **72251**, **72252**. In an analogous manner, respective third and fourth standoff members **70052**, **70054** and associated hardware facilitate the coupling of display panels **70012**, **70022**, **70032** to respective third and fourth elongated member segments **72253**, **72254**.

Embodiment Including Plurality of Standoff Arms

FIGS. **8**A and **8**B are front and side views, respectively, of an embodiment of standoff member **800** with a plurality of standoff arms, which is suitable for supporting a plurality of elongated member segments. The standoff member **800** comprises a wall attachment base **802**, which includes a plurality of apertures **822** formed therethrough to facilitate the passage of anchors, which can be used to mount the wall attachment base **802** to a wall **801**. The wall attachment base **802** has thickness **892**. The standoff member **800** further comprises standoff arms **804**, **808**, **812**, **816** extending therefrom. In other embodiments, a different number of standoff arms may be used (e.g., one, two, three, five, etc.). In some embodiments, as illustrated, the standoff arms **804**, **808**, **812**, **816** are disposed along a common edge **820** of the wall attachment base **802** and oriented with respect to the wall attachment base **802** at an angle θ_3. When the standoff member **800** is in its installed state, this angle is in relation to the wall, and therefore also meaningful for non-planar wall attachment base embodiments. In some embodiments, one or more of the standoff arms may be oriented at different angles. Each of the standoff arms **804**, **808**, **812**, **816** have length **891**, yet in some embodiments may have differing lengths. Each of the standoff arms **804**, **808**, **812**, **816** may have one or more slots **806**, **810**, **814**, **818**, respectively, formed therein for seating elongated member segments, and respective slots **846**, **850**, **854**, **858** formed therein for coupling elongated member segments to the standoff arms, as will be shown.

FIG. **9**A illustrates an embodiment of a segmented display array **900** assembled from a first standoff members **902** and, below and separate, a second standoff member **906**. These standoff member embodiments **902**, **906** may be the same or similar to the standoff member **800**. Analogous to previous embodiments disclosed herein (e.g., FIGS. **4**A, **4**B, and **6**A), the first and second standoff members **902**, **906** are attached to a wall **901** via wall anchors **909** and washers **960**. The first standoff member **902** has horizontally separated standoff arms, including respective horizontally separated first and second standoff arms **916**, **978** which are separated by distance **941**. The second standoff member **906** also has horizontally separated standoff arms, including respective horizontally separated first and second standoff arms **904**, **979**. Each standoff arm, including standoff arms **916**, **978**, **904**, **979** have horizontally separated first and second connection points that are each positioned away from the wall **901**. For example, standoff arm **916** has horizontally separated respective first and second connection points **917**, **921**. As another example, standoff arm **904** has horizontally separated respective first and second connection points **915**, **920**. This pattern continues for the remaining standoff arms.

An elongated member segment **950** is coupled between the first connection points **917**, **915** of the first and second standoff arms **916**, **904** of the first and second standoff members **902**, **906**. An elongated member segment **952** is coupled between the second connection points **921**, **920** of the first and second standoff arms **916**, **904** of the first and second standoff members **902**, **906**. This pattern is continued for all elongated member segments **950**, **952**, **954**, **956**, **957**, **960**, **962**, **964** as illustrated, which are noted by way of non-limiting example to substantially lie in plane **970**.

Two display panels **990**, **992** are coupled to the first and second elongated member segments **950**, **952**. Two additional display panels **991**, **993** are coupled to the third and fourth elongated member segments **954**, **956** and are horizontally separated from the other two display panels **990**, **992** by distance **943**. These display panels **990**, **991**, **992**,

993 together form a 2×2 array. Larger or smaller arrays can be formed, such as 1×2, 2×1, 2×3, 3×3, 4×4, 5×4, etc.

The coupling of the display panels **990**, **991**, **992**, **993** to the elongated member segments **950**, **952**, **954**, **956** is accomplished in this illustrative embodiment via sleeves **972** which are affixed to the elongated member segments **950**, **952**, **954**, **956** (as illustrated elongated member segments **957**, **960**, **962**, **964**). Retention members are affixed to the rear sides of display panels **990**, **991**, **992**, **993** (these are illustrated in detail later herein). These retention members are elastically releasable and serve to releasably couple the display panels **990**, **991**, **992**, **993** to the elongated member segments **950**, **952**, **954**, **956**. Specifically, in this illustrative embodiment, the retention members serve to retain the elongated member segments laterally (with respect to the elongated member segments) yet allow free longitudinal translation, whereas the sleeves **972** serve to limit this longitudinal translation and therefore serve to register the retention members, and therefore the affixed display panels **990**, **991**, **992**, **993**, at longitudinal positions along the elongated member segments **950**, **952**, **954**, **956**. Other attachment hardware known in the art may be used instead of or in unison with that which is illustrated herein, such as permanent magnets, clips, alternate clamps, and many other options.

Tensioning assemblies similar in composition and/or function to the tensioning assembly **570** in FIG. **5**B may serve for the embodiment of the segmented display array **900** correspondingly to retain and induce tension in elongated member segments **950**, **952**, **954**, **956**, **957**, **960**, **962**, **964**.

To further illustrate the elongated member segment coupling and tensioning exemplified in the present segmented display array embodiment **900**, attention is now directed to FIGS. **9**B and **9**C, which are close-up views of the respective upper and lower ends of the elongated member segment **950** shown in FIG. **9**A. Focusing on FIG. **9**B, the elongated member segment **950** is seen to wrap around the standoff arm **916** and to be seated in slot **918**, which encourages stable positioning of the elongated member segment **950** along standoff arm **916** and establishes the connection point **917**. The end of elongated member segment **950** is threaded through slot **958**, which may also be a circular hole or another form of aperture, and is secured in place via terminal **980**, which may be a crimped sleeve, clip, mechanical clamp, gripper (such as gripper **532** in FIG. **5**A), crushed piece of metal, adhered material, or the like, which prevents the end of the elongated member segment **950** from passing back through slot **958**. Note that terminal **980** may be applied to the end of elongated member segment **950** once elongated member segment **950** has been threaded through slot **958**, or terminal **980** may be pre-installed on elongated member segment **950**. In this second scenario, **958** is sized such that terminal **980** can be passed through in one or more specific relative orientations, while not passing through in others, thereby providing for stable coupling.

An embodiment of a tensioning assembly is illustrated for the lower end of elongated member segment **950** in FIG. **9**C. The elongated member segment **950** wraps around standoff arm **904**, is seated in slot **906** (establishing the connection point **915**), and inserts through slot **946**. A spring **928**, flange washer **930**, and gripper **932** thread on to the elongated member segment **950** (analogous to components **528**, **530**, **532** shown to thread on to elongated member segment **520** in FIG. **5**A). During installation, with these components in place, and with some tension established in the elongated member segment **950** via pulling on its end while compressing the spring **928**, clamping screw **932**A is used to secure the gripper **932** to the elongated member segment **950**, thereby providing sustained tension to elongated member segment **950**. Additional descriptive information on the analogous tensioning assembly **570** of FIG. **5**B is provided above.

FIG. **9**D shows how, in this illustrative embodiment, a portion **986** of elongated member segment **950** is as far (if not further) from the wall **901** (as indicated by dimension **983**), as an edge **985** of the standoff arm **904** (as indicated by dimension **984**).

While the present embodiment illustrates an approach for elongated member segment coupling and tensioning, it is emphasized that there exist many other approaches that achieve the same or similar results and fall within the scope of the present disclosure. For example, the compression spring **928** in FIG. **9**C could be replaced by a flexure or set of flexures to correspondingly provide the tensioning force to the elongated member segment **950**. Furthermore, returning to the coupling of the upper end of the elongated member segment **950** to the standoff arm **916**, a u-shaped rod **922** and associated receiving holes **923** could be used to capture the elongated member segment terminal **907** as illustrated in the open position in FIG. **9**E, and in the closed (i.e., coupled) position in FIG. **9**F (compare with FIG. **9**B). A capture band **924** and associated slots **925** could also be used for this coupling, as shown in FIG. **9**G.

FIG. **9**H illustrates an embodiment of a segmented display array **909** with display panels that are sculptural in form and arranged in a 4×4 array. In particular, the sculptural display panels are of two types: display panel type A **998** and display panel type B **999**. It can be seen that the wall-mounting hardware is low-visibility, as the standoff members **902**, **906** and elongated member segments **950**, **952**, **954**, **956**, **958**, **960**, **962**, **964** are the only visible elements, and this visibility is low.

Additional Embodiment Including Plurality of Standoff Arms

Shown in FIG. **9**I is an embodiment of a segmented display array **9098** where a first standoff member **9011** has first, second, third, and fourth standoff arms **9012**, **9013**, **9014**, **9015**, respectively. Additionally, a second standoff member **9021** has first, second, third, and fourth standoff arms **9016**, **9017**, **9018**, **9019**. The first standoff member **9011** has a wall attachment base **9040** with a thickness **9082**. The first standoff arm **9012** associated with standoff member **9011** has a length **9081**. The standoff arms **9012**, **9013**, **9014**, **9015** associated with the standoff member **9011** each have one end coupled to the wall attachment base **9040**. Similarly, the standoff arms **9016**, **9017**, **9018**, **9019** associated with the standoff member **9021** each have one end coupled to the wall attachment base **9050**. The wall attachment bases **9040**, **9050** have respective vertical dimensions **9055**, **9056** as shown. The standoff arms **9012**, **9013**, **9014**, **9015** associated with the first standoff member **9011** position connection points away from the wall as indicated in FIG. **9**I by the upper-most visible portions of respective first, second, third, fourth elongated member segment **9061**, **9062**, **9063**, **9064**, (see example connection point **9083**) and as illustrated in detail an analogous system in FIG. **9**B by connection point **917**. The standoff arms **9016**, **9017**, **9018**, **9019** associated with the second standoff member **9021** position connection points away from the wall as indicated in FIG. **9**I by the lowest most visible portions of the elongated member segment **9061**, **9062**, **9063**, **9064** (see example connection point **9084**), and as illustrated in detail in an analogous system in FIG. **9**C by connection point **915**.

The first elongated member segment **9061** is coupled between the connection points **9083**, **9084** of the first standoff arms **9012**, **9016** of the first and second standoff members **9011**, **9021**. The second elongated member segment **9062** is coupled between the connection points of the second standoff arms **9013**, **9017** of the first and second standoff members **9011**, **9021**. The third elongated member segment **9063** is coupled between the connection points of the third standoff arms **9014**, **9018** of the first and second standoff members **9011**, **9021**. The fourth elongated member segment **9064** is coupled between the connection points of the fourth standoff arms **9015**, **9019** of the first and second standoff members **9011**, **9021**.

Two display panels **9071**, **9073** are coupled to the first and second elongated member segments **9061**, **9062**. Two additional display panels **9072**, **9074** are coupled to the third and fourth elongated member segments **9063**, **9064**.

Embodiment Including Large Capture Bands

FIG. **10** is an embodiment of a standoff member **1000** that is capable of coupling to large capture bands **1022**, **1024**. The standoff member **1000** comprises a wall attachment base **1002** and standoff arms **1004**, **1006** that form joints **1010**, **1012**, respectively, with the wall attachment base **1002**. The wall attachment base **1002** includes a plurality of slotted apertures **1008** formed therethrough to allow the passage of anchors, which can be used to mount the wall attachment base **1002** to a wall.

The standoff arms **1004**, **1006** each have slots **1014**, **1018**, respectively, formed therein, to which elongated member segments may be coupled as discussed herein. In order to accommodate larger capture bands **1022**, **1024**, ligaments **1016**, **1020** adjacent to the slots **1014**, **1018**, respectively, are sized accordingly. For example, the ligament **1016** may have a width **1016**A (from an outer-most internal edge of the slot **1014** to an outer edge **1015** of the standoff arm **1004**) that is from 0.25 to 0.75 inches. A width **1020**A on the opposing side ligament **1020** may be similarly sized. The larger capture bands **1022**, **1024** can take on the form of hallow cylinders or, as illustrated in FIG. **10**, may be laterally elongated in one direction, akin to partially crushed hallow cylinders. This latter approach allows them to seat closely to respective ligaments **1016**, **1020** (as illustrated in FIG. **4**B, in relation to capture bands **424**, **434**).

The use of large capture bands provides a greater load capacity for the standoff arms **1004**, **1006** given the greater widths **1016**A, **1020**A. Also, the ligaments **1016**, **1020** have a lower chance of being bent when the standoff member **1000** is in transit or is inadvertently dropped.

Embodiment Including Elastically Releaseable Retention Members

Examples of retention members include clamps, finger-releasable clamps, tool-free-releasable retention members, alligator clips with elastically-opposing halves, magnets, clips, and more. Here an embodiment of a retention member akin to those shown elsewhere in the present disclosure (**744**, **745**, **791**, **792**, **793**, **794**) is presented to provide greater illustrative insight. Specifically, FIGS. **11**A-**11**C show front, side, and perspective views, respectively, of an elastically releasable retention member **1100**. The retention member **1100** comprises a body **1104**, which may be made of a polymer such as polyethylene, polypropylene, polyvinyl chloride, or other suitable polymer that provides the necessary durability and elasticity, as will be illustrated. Type I polyvinyl chloride has been found to be particularly well-suited for this application. The body **1104** has a slot **1106** formed therein with an opening that is more narrow than its nominal width. Slot **1106** is thus sized to allow passage of a given elongated member segment by elastically flexing to receive the elongated member segment, and then elastically flexing to release it. A force is required for this. The body **1104** has rounded edges **1104**A, **1104**B, which aid in the elongated member segment mate-up process. In some embodiments, the retention member **1100** includes an adhesive layer **1108**, which can be used to adhere the retention member **1100** to a rear surface of a display panel, for example. As an example of a suitable adhesive layer **1108**, VHB foamed acrylic tape by **3**M may be used, as could other adhesive products known to those skilled in the art.

FIG. **12**A is a perspective view of a rear portion of segmented display array **1200**. The segmented display array **1200** includes a display panel **1202** and elongated member segments **1204**, **1206**. Elastically releasable retention members **1208**, **1210**, **1212**, **1214** are affixed to the rear surface of the display panel **1202**, and are the same as or similar to the retention member **1100**. The retention members **1208**, **1210** are elastically releasable akin to retention member **1100**, and retain elongated member segment **1204** laterally (with respect to the elongated member segment **1204** direction), and the retention members **1212**, **1214** are also elastically releasable akin to retention member **1100** and retain elongated member segment **1206** laterally, thus securing the display panel **1202** to the segmented display array **1200**. That is, display panel **1202** is releasably coupled to elongated member segments **1204**, **1206** and therefore is releasably coupled to the segmented display array **1200**. The retention members **1208**, **1210**, **1212**, **1214** are sized to allow free longitudinal translation (i.e. sliding) of the elongated member segments **1204**, **1206**. The elongated member segments **1204**, **1206** therefore have sleeves **1204**A, **1204**B, **1206**A, **1206**B affixed thereto that are sized larger than the diameter of the elongated member segments **1204**, **1206** to limit this longitudinal translation (sliding). That is, the sleeves **1204**A, **1204**B, **1206**A, **1206**B register the respective retention members **1208**, **1210**, **1212**, **1214** (and therefore the display panel **1202**) in their shown longitudinal position along the elongated member segments **1204**, **1206**. To put it yet another way, the sleeves **1204**A, **1204**B, **1206**A, **1206**B prevent the display panel **1202** from sliding along the elongated member segments **1204**, **1206** due to the force of gravity. These sleeves may be the same as, or similar to, their identically named counterparts of FIGS. **4**A, **6**A, **7**A, and **9**A. It is appreciated in the present exemplary embodiment shown in FIG. **12**A that, to support the weight of the display panel **1202**, all four sleeves **1204**A, **1204**B, **1206**A, **1206**B need not be present. For example, sleeves **1204**B, **1206**B could be eliminated, and the display panel **1202** could still be successfully supported (remaining sleeves **1204**A, **1206**A would bear the weight of the display panel **1202**, analogous to how display panel **7031** is supported in FIG. **7**A). In this same respect, all retention members **1208**, **1210**, **1212**, **1214** need not be present for successful support of display panel **1202**. For example, a display panel can have just two affixed retention members that releasably couple the display panel to a pair of elongated member segments.

FIG. **12**B is a perspective close-up view of the elongated member segment **1204** coupled to the elastically releasable retention member **1208**. A slot **1208**B within a body **1208**A of the retention member **1208** retains the elongated member segment **1204**. In particular, the body **1208** is made of an elastic material and the opening of slot **1208**B is smaller than the diameter of elongated member segment **1204**. Thus slot **1208**B elastically widens to receive elongated member segment **1204** when the two are pressed together. The slot **1208**B is sized to allow longitudinal translation of the

elongated member segment **1204** therewithin (i.e. sliding), while retaining it otherwise. An adhesive layer **1208**C on a rear surface of the body **1208**A adheres the retention member **1208** to the display panel **1202**. Sleeve **1204**A registers the retention member body **1208**A, limiting its sliding along the longitudinal direction of elongated member segment **1204**. The retention member **1208** is elastically releasable in the sense that, provided sufficient separation force is applied between the elongated member segment **1204** and the retention member **1208**, the elongated member segment **1204** will elastically widen the opening of slot **1208**B and the elongated member segment **1204** will be released. FIGS. **7**D and **7**E show side views of retention members **744**, **745** which retain elongated member segment **724**. These retention members **744**, **745** are noted to not have corresponding sleeves against which they abut (this occurring elsewhere for the respective display panels), and simply serve the purpose of retaining the elongated member segment **724** (in the lateral sense).

To illustrate the process of coupling a display panel (such as display panel **1202**) to an elongated member segment (such as elongated member segment **1204**), FIG. **12**C shows a step by step sequence. It is noted that in this illustrative embodiment the retention members are affixed to a rear face of the associated display panel, thus blind mate-up, done by feel, must be accomplished. This is done as follows.

Step **0**: shows the first-person view of how a display panel **1290** is releasably coupled to an elongated member segment **1291**. The remaining steps are shown as though looking through the back of a wall **1292**.

Step **1**: with the display panel **1290** held using both hands (at vertical left and right edges **1290**A, **1290**B), the elongated member segment **1291** is approached and received with middle and pointer fingers and pressed into the back of the display panel **1290** to the outside of the retention member **1293**, as shown in the Step **1** image of FIG. **12**C.

Step **2**: the elongated member segment **1291** is pressed inward from the display panel **1290** edge until it contacts the retention member **1293** as shown.

Step **3**: the elongated member segment **1291** is pressed up and over the rounded edge of the retention member **1293** until it aligns with a slot **1295**.

Step **4**: The elongated member segment **1291** is firmly pressed into the slot **1295**; an audible click is heard and a toggle-like snap-through is felt.

Step **5**: the elongated member segment **1291** is now laterally retained by the retention member **1293** but is allowed free longitudinal translation. The above steps are repeated for all retention members associated with the display panel **1290**.

Step **6**: The weight of the display panel **1290** is released and the sleeves (such as sleeve **1294**) affixed to the elongated member segments serve to limit longitudinal translation of the elongated member segments with respect to the retention members, and register the retention members (and hence the affixed display panel **1290**) at the desired longitudinal position along the elongated member segments.

As a final note, display panel removal is accomplished by slipping ones fingers between the elongated member segment **1291** and display panel **1290**, and using a gentle prying force to elastically open the slot **1295** in the retention member **1293**, therefore releasing the elongated member segment **1291**.

Embodiment Including Magnetically Releasable Retention Members

Some embodiments of segmented display arrays include permanent magnets for coupling display panels and elongated member segments. An illustrative embodiment of magnetically releasable retention members is pictorially shown in FIGS. **12**D-**12**K. Here, a dual magnet coupling assembly is illustrated. Referring to FIG. **12**D, an exploded front perspective view of an embodiment of a dual magnet coupling assembly is shown (where the elongated member segment is not including for clarity). Here the magnet carrier **91122** receives magnet **91123** with retaining pin **91126** (FIG. **2**E) which has rounded region **91127** and associated base **91129**. The magnet **91123** can be glued, for example, to the base **91129** of the magnet carrier **91122**. The magnet carrier **91122** can be made from several materials bonded together or can be a unitary machined or molded material, with plastic being a suitable choice in many applications. The base **91129** has a hole **91128** therethrough to allow passage of an elongated member segment, as shown by dotted lines in magnet carrier **91122** side view in FIG. **12**F.

Sleeves **91124** and **91125**, visible in FIG. **12**D and in the full assembly drawing in FIG. **12**G, limit the sliding of the magnet carrier assembly **91190** (which comprises of the magnet carrier **91122** and associated magnet **91123**) on an associated elongated member segment **91130**. Consistent with the teaching of the present disclosure, examples of sleeves **91124**, **91125** numerous and include crimped metal, solidified epoxy, and wrapped foil or wrapped plastic material, to name a few. The lower sleeve **91125** performs the role of preventing the magnet carrier assembly **91190** from sliding down elongated member segment **91130** due to gravity (and especially when mated with a coupling magnet and loaded with display panel weight). Both sleeves **91124**, **91125** ensure the magnet carrier assembly **91190** maintains a short range of free sliding motion along elongated member segment **91130** such that the magnet carrier assembly **91190** is free to rotate on the elongated member segment **91130** (and therefore can rotated into a mated position and engage when a coupling magnet is presented) but will not vertically escape mating by rotating around to a repulsion state and moving away vertically. The retaining pin **91126** is noted to protrude past the magnet **91123** and is designed to insert into a second magnet similar or the same as magnet **91123**, such as a second magnet **91145** partially embedded in (and bonded to) a display panel **91144** as shown in FIG. **12**H. Magnets **91123** and **91145** are situated in their respective assemblies with regard to pole direction such that they attract one another in their intended mated state, which is shown in FIG. **12**I. The rounded region **91127** of the retaining pin **91126** facilitates ready mate-up of corresponding magnet sets, such as that shown in FIG. **12**I and a close up of this in FIG. **12**J. The presence of retaining pin **91126** facilitates load transfer across the coupled set of exemplary magnets **91123**, **91145**, resisting the tendency of panel weight to shear (slide) the coupled magnet pair **91123**, **91145** past each other. Thus the retaining pin acts as a shear pin, increasing the load carrying capacity of the magnetically releasable retention member (i.e., allowing for heavier display panels). Four magnetically releasable retention member assemblies can be used to hold each panel, as shown in FIG. **12**I, and optionally more or less can be used, such as two such assemblies in some cases and size such assemblies in others.

The through hole **91128** in the base **91129** of magnet carrier **91122** is noted to be off-center with respect to the base **91129**, as seen in FIGS. **12**D and **12**E, by the dimension **97129**. The ratio of this dimension **97129** to the magnet carrier base **91129** radius can vary from 0% to 50%, and for some through hole **91128** diameters more, with a range from 10% to 40% found to perform well, and a range of 30% to

35% to be of particular desirability. This offset dimension **97129** aids in preventing the occurrence of mating magnet pairs establishing an equilibrium condition of repulsion, where a magnet carrier flips around 180° and the magnet pair intended to mate do not. The off-center routing of the magnet carrier on the elongated member segments is shown in a rear view of full panel mate-up shown in FIG. **12**K.

Many different magnets known in the art can be used for the magnetically releasable retention members, including neodymium magnets, and a great many alternate configurations of the illustrative embodiment presented here are within the spirit and scope of the present disclosure, such as departing from circular magnets, not requiring magnets on both mating elements (for example, a magnet could be just on one side of a given coupling, and a ferromagnetic material on the other), alternate retaining pin embodiments, and the like.

Demonstrative Hardware Visibility

Without being bound by theory, a viewer is considered who is positioned directly in front of display panel **7033** shown in FIG. **7**A. In this starting position, the viewer's line of sight is 90° to the display panel **7033** surface and his view of this display panel **7033** would appear similar to that of FIG. **7**B, wherein the display panel **7033** fully obstructs the view of the underlying support hardware (including the associated standoff member **712**, as shown in FIG. **7**A). When the viewer repositions himself such that his line of sight is 0° (i.e. parallel) to the display panel **7033** surface, his view of the underlying support hardware is unobstructed, and may appear as depicted in FIG. **7**E. In between these two line of sight extremes, there exists a transition angle at which the hardware goes from being obscured by the display panel **7033** to being just visible. To minimize hardware visibility, it is desirable for this transition angle to be as small as possible. The standoff member embodiment **712** makes allowance for this in that its wall attachment base **7002** is towards the center of display panel **7033** (as seen in FIG. **7**A), it is made of a thin material (as illustrated in FIG. **7**E), and the associated standoff arms **7090**, **7091** extend distally from the wall attachment base **7002** at compound angles. FIG. **13** illustrates an embodiment of a segmented display array **1300** where a display panel **1302** successfully conceals underlying hardware even at a relatively low line of sight angle.

Assembling a Segmented Display Array

FIG. **14** is a flow diagram illustrating a method **1500** for assembling a segmented display array in accordance with one or more embodiments of the present disclosure. The method **1500** begins at block **1502**, where a first standoff member is mounted to a wall (e.g., the standoff member **702** of FIG. **7**A). At block **1504**, a second standoff member is mounted to the wall, such as the standoff member **708**, which is below and separate from the first standoff member **702**.

At block **1506**, a first elongated member segment (e.g., elongated member segment **714**) is coupled between the first standoff arms of the first standoff member (e.g., standoff member **702**) and the second standoff member (e.g., standoff member **708**). In some embodiments, the coupling comprises coupling a first end of the first elongated member segment to a first slot formed in the first standoff arm of the first standoff member (e.g., standoff member **702**), and coupling a second end of the first elongated member segment to a first slot formed in the first arm of the second standoff (e.g., standoff member **708**).

In some embodiments, the first elongated member segment comprises a terminal disposed at the first end, and coupling the first end of the first elongated member segment to the first slot comprises inserting the first end of the first elongated member segment through a first capture band, and inserting a portion of the first capture band into the first slot such that the first elongated member segment is retained along a first edge of the first standoff arm of the first standoff member.

In some embodiments, coupling the second end of the first elongated member segment comprises: inserting the second end of the first elongated member segment through a second capture band; inserting a portion of the second capture band into the first slot in the first standoff arm in the second standoff member such that the first elongated member segment is retained along a first edge of the first standoff arm of the second standoff member; and coupling a tensioning assembly to the first elongated member segment, wherein the tensioning assembly comprises a spring that induces tension in the first elongated member segment between the first standoff arms of the first and second standoff members.

Similarly, at block **1508**, a second elongated member segment (e.g., the elongated member segment **716**) is coupled between the second standoff arms of the first and second standoff members, respectively.

At block **1510**, at least one display panel (e.g., display panel **1202**) is coupled to the first and second elongated member segments (e.g., via retention members **1208**, **1210**, **1212**, **1214**) as described in detail above.

It is to be understood by one of ordinary skill in the art that one or more of the blocks of the method **1500** may be combined, performed simultaneously, or performed in a different order than shown. This method **1500** may be repeated as many times as necessary to fully install a given segmented display array.

Kit Embodiment

In some embodiments, a kit for assembling a segmented display array comprises, for example, a plurality of display panels, a plurality of elongated member segments, a plurality of standoff members (which may correspond to any of the standoff members described herein), and components for coupling the elongated member segments to the standoff members, such as capture bands and any of the tensioning assemblies described herein. In some embodiments, for example, one or more of the standoff members may comprise a planar wall attachment base having a plurality of apertures formed therethrough to allow passage of anchors to mount the standoff member to the wall; and two standoff arms extending from each planar wall attachment base, the standoff arms each having a slot formed therein for coupling to one of the plurality of elongated member segments, wherein at least a portion of the standoff arm is planar. The kit may further comprise anchors, washers, retention members, adhesives (e.g., adhesive layers, liquid adhesives), magnets, mechanical clips (e.g., alligator clips), or other suitable components for assembling the segmented display array.

Display Panel Sculptural Embodiments

As has been noted, embodiments of segmented display arrays can include a wide variety of display panels, including those of sculptural (i.e., three-dimensional) form, as illustrated in FIG. **9**H. This is illustrated further by a first embodiment of a sculptural display panel **1598** (which is similar to the display panel type A **998** shown in FIG. **9**H) presented in various views in FIG. **15**A through FIG. **15**F. Additionally, a second embodiment of a sculptural display panel **1599** (which is similar to the display panel type B **999** shown in FIG. **9**H) is presented in various views in FIG. **15**G through FIG. **15**L. A front view of an arrangement **1550** of

a plurality of the first and second embodiments of the sculptural display panels **1598**, **1599** is presented in FIG. **15**M.

Display Panel Hexagonal Embodiments

As has been noted, embodiment of segmented display arrays can include a wide variety of display panels. As illustrative examples, various patterned hexagonal display panel embodiments are presented in FIG. **16**A through FIG. **16**O. In particular, FIG. **16**A shows a front view of a patterned hexagonal display panel **1600** showing patterned zones **1601** which can be colored or shaded in repetitive configurations to achieve a patterned appearance, as will be shown. FIG. **16**B is a front view of a first embodiment of a patterned hexagonal display panel **1620**, which is also shown in front perspective view in FIG. **16**C, where it is evident that this illustrative embodiment is a thin panel. Subsequent FIGS. **16**D-**16**I show other views (rear perspective, rear, right, left, top, bottom, respectively) for this first embodiment of the patterned hexagonal display panel **1620**. By arranging a plurality of the patterned hexagonal display panel **1620**, a patterned assemblage of display panels **1630** is achieved, as shown in FIG. **16**J. This can be achieved via wall attachment hardware in accordance with embodiments of the present disclosure. Thus, FIG. **16**K presents a segmented display array **1640** composed of a plurality of patterned hexagonal display panel **1620**, where the panels **1620** are shown in dashed line to make the wall attachment hardware visible for present illustrative purposes. FIG. **16**L presents a front view of a second embodiment of a patterned hexagonal display panel **1650**, which is also thin and understood to appear the same as the first embodiment display panel **1620** in the alternate views shown in FIGS. **16**D-**16**I. The second embodiment of the patterned hexagonal display panel **1650** is shown in a patterned assemblage of display panels **1660** in FIG. **16**M. For further illustration, FIG. **16**N presents a front view of a third embodiment of a patterned hexagonal display panel **1670**, which is also thin and understood to appear the same as the first embodiment display panel **1620** in the alternate views shown in FIGS. **16**D-**16**I. The third embodiment of a patterned hexagonal display panel **1670** is shown in a patterned assemblage of display panels **1680** in FIG. **16**O.

Closing

It is to be understood that the above description is intended to be illustrative, and not restrictive. Many other embodiments will be apparent to those of skill in the art upon reading and understanding the above description. The scope of the disclosure should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled.

What is claimed is:

1. A segmented display array comprising:

a first standoff member mounted to a wall;

a second standoff member mounted to the wall below and separate from the first standoff member;

each of the first and second standoff members having a wall attachment base and a first and second standoff arm, each standoff arm having:

(a) a length greater than the maximum thickness of the corresponding wall attachment base,

(b) one end of the arm coupling to the corresponding wall attachment base, and

(c) the other end of the arm having a connection point positioned away from the wall at a height differing from the height of the closest point of the corresponding wall attachment base by no more than twice the largest vertical dimension of the wall attachment base;

a first elongated member segment coupled to and spanning between the connection points of the first standoff arms of the first and second standoff members;

a second elongated member segment coupled to and spanning between the connection points of the second standoff arms of the first and second standoff members; and

at least two display panels each coupled to the first and second elongated member segments.

2. The segmented display array of claim **1** in which each standoff arm has an upper portion and a lower portion, with the upper portion being positioned directly above the corresponding lower portion.

3. The segmented display array of claim **1** in which each of the standoff arms extends at an obtuse angle from the wall behind the wall attachment base to which the standoff arm is attached.

4. The segmented display array of claim **1** additionally comprising releasable retention members affixed to the display panels whereby the display panels can be released from their coupling to the elongated member segments.

5. The segmented display array of claim **4** in which the retention members are elastically releasable from the elongated member segments.

6. The segmented display array of claim **5** in which the retention members, unless released, retain the elongated member segments while allowing limited sliding along the elongated member segments, and additionally comprising sleeves affixed to the elongated member segments to limit the sliding of the retention members.

7. The segmented display array of claim **4** in which permanent magnets releasably couple the display panels and elongated member segments.

8. The segmented display array of claim **1** in which at least a portion of each of the first and second standoff arms is planar.

9. The segmented display array of claim **1** in which each of the connection points associated with the first standoff arms is adjacent to a slot in its associated standoff arm, and whereby the first elongated member segment is coupled to the first standoff arms using the associated slots.

10. The segmented display array of claim **9** further comprising:

a capture band through which the first elongated member segment passes and which couples to one of said slots to couple the first elongated member segment to this slot via the capture band.

11. The segmented display array of claim **1** in which at least one said wall attachment base includes slots for attachment of the base to the wall.

12. The segmented display of claim **11** in which the slots are configured with their long dimension horizontal.

13. The segmented display array of claim **2** further comprising:

a tensioning assembly that secures the first elongated member segment to one of the first standoff arms and induces tension in the first elongated member segment.

14. The segmented display array of claim **1** in which each standoff arm is wider where it couples to its respective wall attachment base and tapers to become narrower at its other end.

15. The segmented display array of claim **1** in which each wall attachment base and its two associated arms are made of a single, unitary piece of material for the three parts.

16. The segmented display array of claim 15 in which the unitary piece of material is transparent.

17. The segmented display array of claim 1 in which at least one standoff member comprises a multilayered sheet material, in which one layer of the multilayered sheet material comprises a flexible polymer, and a second layer comprises a metal.

18. A segmented display array comprising:

a first standoff member mounted to a wall;

a second standoff member mounted to the wall below and separate from the first standoff member;

each of the first and second standoff members having a wall attachment base and horizontally separated first and second standoff arms, each standoff arm having:

(a) a length greater than the maximum thickness of the corresponding wall attachment base,

(b) one end of the arm coupling to the corresponding wall attachment base, and

(c) the other end of the arm having horizontally separated first and second connection points each positioned away from the wall;

a first elongated member segment coupled between the first connection points of the first standoff arms of the first and second standoff members;

a second elongated member segment coupled between the second connection points of the first standoff arms of the first and second standoff members;

at least two display panels each coupled to the first and second elongated member segments;

a third elongated member segment coupled between the first connection points of the second standoff arms of the first and second standoff members;

a fourth elongated member segment coupled between the second connection points of the second standoff arms of the first and second standoff members; and

at least two additional display panels each coupled to the third and fourth elongated member segments and being horizontally separated from the other two display panels.

19. The segmented display array of claim 18 in which at least a portion of one of said elongated member segments is at least as far away from the wall as any portion of at least one of its associated arms.

20. The segmented display array of claim 18 in which at least one standoff member comprises a multilayered sheet material, in which one layer of the multilayered sheet material comprises a flexible polymer, and a second layer comprises a metal.

21. The segmented display array of claim 18 in which each wall attachment base and its two associated arms are made of a single, unitary piece of material.

22. The segmented display array of claim 1 where each of said first and second standoff members have third and fourth standoff arms, each third and fourth standoff arm having:

(a) a length greater than the maximum thickness of the corresponding wall attachment base,

(b) one end of the arm coupling to the corresponding wall attachment base, and

(c) the other end of the arm having a connection point positioned away from the wall at a height differing from the height of the closest point of the corresponding wall attachment base by no more than twice the largest vertical dimension of the wall attachment base;

a third elongated member segment coupled between the connection points of the third standoff arms of the first and second standoff members;

a fourth elongated member segment coupled between the connection points of the fourth standoff arms of the first and second standoff members; and

at least two additional display panels each coupled to the third and fourth elongated member segments.

23. A segmented display array comprising:

A first and second standoff member each having a planar base and two planar arms extending angularly therefrom;

each of said two planar arms incorporating a connection point near its end, positioned so that the connection points for the two arms of the standoff member are further apart from one another than the longest dimension of its associated said planar base;

a first elongated member segment coupled to and spanning between the connection points of one arm of each of said first and second standoff members;

a second elongated member segment coupled to and spanning between the connection points of the other arm of each of said first and second standoff members; and

at least two display panels each coupled to the first and second elongated member segments.

24. The segmented display array of claim 23 which additionally comprises a third and fourth standoff member each having a planar base and two planar arms extending angularly therefrom;

each of said two planar arms of said third and fourth standoff member incorporating a connection point near its end, positioned so that the connection points for the two arms of the standoff member are further apart from one another than the longest dimension of its associated said planar base;

a third elongated member segment coupled between the connection points of one arm of each of said third and fourth standoff members;

a fourth elongated member segment coupled between the connection points of the other arm of each of said third and fourth standoff members; and

at least two more display panels each coupled to the third and fourth elongated member segments.

25. The segmented display array of claim 23 additionally comprising releasable retention members affixed to the display panels whereby the display panels can be released from their coupling to the elongated member segments.

26. The segmented display array of claim 25 in which the retention members are elastically releasable from the elongated member segments and, unless released, retain the elongated member segments while allowing limited sliding along the elongated member segments, and additionally comprising sleeves affixed to the elongated member segments to limit the sliding of the retention members.

27. A segmented display array comprising:

a first standoff member mounted to a wall, the first standoff member comprising a wall attachment base and first and second generally planar standoff arms extending from the wall attachment base in directions non-parallel with the wall;

a second standoff member mounted to the wall;

a first elongated member segment coupled to and spanning between each of the first and second standoff members;

a second elongated member segment coupled to and spanning between each of the first and second standoff members; and

at least two display panels each coupled to the first and second elongated member segments,

wherein:

the first elongated member segment is coupled to and substantially parallel with the first generally planar standoff arm,

the second elongated member segment is coupled to and substantially parallel with the second generally planar standoff arm.

28. The segmented display array of claim **27**, wherein the first elongated member segment is coupled at or near a distal edge of the first generally planar standoff arm, and the second elongated member segment is coupled at or near a distal edge of the second generally planar standoff arm.

29. The segmented display array of claim **28**, wherein each generally planar standoff arm comprises a multilayered sheet material, in which one layer comprises a flexible polymer, and a second layer comprises a metal.

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