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(54) CEILING AND CEILING SUSPENSION SYSTEM

(57) A ceiling suspension system comprises a flexible panel, a first support structure and a plurality of elongate support members, wherein each elongate support member comprises a first end and a second end. The first end of each elongate support member is coupled to the first support structure and the second end of each elongate support member is coupled to the flexible panel. The coupling between the elongate support members and the flexible panel is arranged to force the flexible panel into a desired shape.

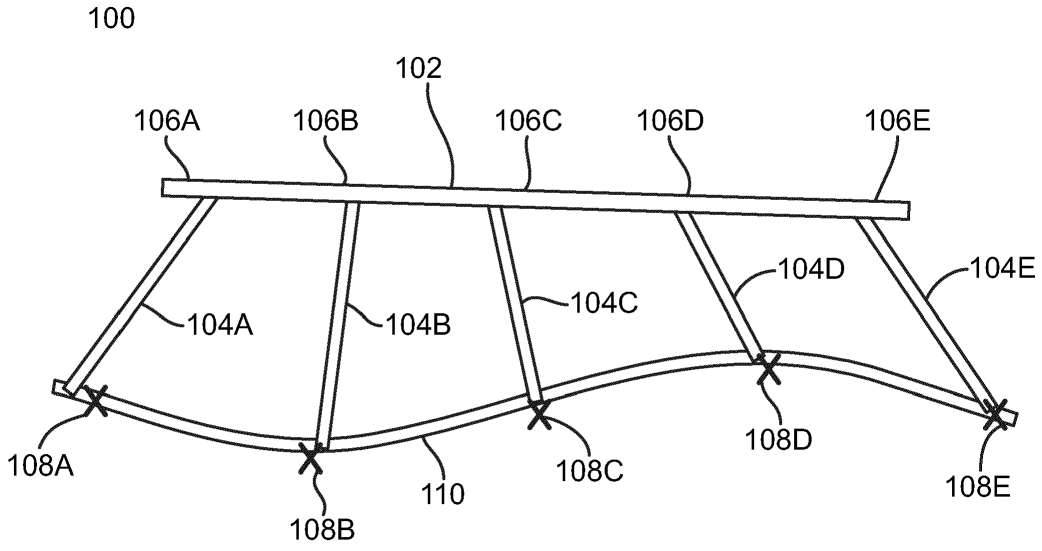

Fig. 1

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Description

FIELD

[0001] The present invention relates particularly, but not exclusively, to ceilings and ceiling suspension systems.

BACKGROUND

[0002] Suspended ceilings are assembled such that they are spaced apart from ceiling joists. Suspended ceilings generally comprise an array of ceiling tiles which are arranged to form the ceiling using a ceiling suspension system.

[0003] US5687526 discloses one such ceiling suspension system wherein a plurality of interlocking tiles or panels are arranged in a regular array or matrix of rows and columns. Each tile is provided with an elongate suspension member attached at one end to a ceiling joist by a fastener and attached at another end to the tile.

[0004] US 2006/0174562 A1 discloses another ceiling suspension system wherein panels are suspended from a supporting surface by support members including anchors connected to the supporting surface.

[0005] Such ceiling suspension systems are highly rigid in their structure, thereby decreasing their flexibility, and often require panels of differing geometries in order to satisfy design requirements, thereby costing more to both manufacture and install.

[0006] Aspects and embodiments were devised with the foregoing in mind.

SUMMARY

[0007] Viewed from a first aspect, there is provided a ceiling suspension system comprising a flexible panel, a first support structure and a plurality of elongate support members, wherein each elongate support member comprises a first end and a second end, wherein the first end of each elongate support member is coupled to the first support structure and the second end of each elongate support member is coupled to the flexible panel, and wherein the coupling between the elongate support members and the flexible panel is arranged to force the flexible panel into a desired shape. Viewed from a second aspect, there is provided a method for installing a ceiling in a building using a system as claimed in any preceding claim, the method comprising: fixing the support structure to a ceiling member of the building; coupling the first ends of the elongate support members to the support structure; coupling the second ends of the elongate support members to the panel; and adjusting the elongate support members to force the flexible panel into a desired shape.

[0008] The support structure may be coupled at the second end to a side member on the flexible panel which may be flexible or rigid.

[0009] Ceiling suspension systems in accordance with the first, second and third aspects enable a ceiling to be constructed using a series of flexible panels which can be adjusted using two or more rods coupled to the flexible panel and a supporting substrate. The flexibility of the panels reduces the dependence on using tiles of multiple geometries to form a ceiling which reduces the waste used in the construction of ceilings. Ceiling suspension systems in accordance with the first, second and third aspects also enable flexibility and creativity in the construction of ceilings as the rods can be used to adjust the shape of the ceiling and additionally offers the possibility of constructing non-flat suspended ceilings.

[0010] Suitably, the elongate support members may be independently adjustable, possibly in length or in any other dimension, to vary the spacing between the panel and the support structure.

[0011] Suitably, the position at which at least one the elongate support members is connected to the panel and/or the support structure is adjustable to vary the spacing between the panel and the support structure.

[0012] The elongate support members may be independently adjustable to vary the spacing between the panel and the support structure. The elongate support members may be adjustable in length to vary the spacing between the panel and the support structure. The position at which at least one the elongate support members is connected to the panel and/or the support structure may be adjustable to vary the spacing between the panel and the support structure.

[0013] The first support structure may comprise an elongate support beam which, in use, extends generally parallel to the plane of the panel. The support beam may extend substantially in line with an axis of the panel.

[0014] The first support structure may comprise an elongate support beam which, in use, extends generally perpendicularly to the plane of the panel. The support beam may extend substantially perpendicularly to an axis of the panel.

[0015] The first ends of elongate support members may be slidably mounted to the support beam such that the position at which they connect to the beam can be adjusted.

[0016] The second ends of the elongate support members may be attached to respective elongate mounting beams which extend across the panel.

[0017] Suitably, the arrangement of the rods may comprise selecting the length of the rods which may be telescopically adjustable or formed of discrete sections. Adjusting the length of the rods enables the separation between the support structure and the flexible panel to be varied without the requirement for decoupling of the rod from the support structure.

[0018] Further suitably, the arrangement of the rods may comprise adjusting the positions at which the first or second ends of the rods are coupled to the support structure or flexible panel. The positions of the first or second ends may be adjusted using rails disposed along either the width or the length of either of the support struc-

ture or flexible panel. Rails provide increased flexibility to the shape of the flexible panel and to adjust the shape of the panel before it is hung to form a ceiling.

[0019] The mounting beams may extend in parallel to each other.

[0020] The end of each mounting beam may comprise a clip which engages around the edge of the panel to secure the beam in-situ.

[0021] The end of the mounting beam may extend perpendicularly to the axis of the panel.

[0022] Pairs of elongate support members may be coupled to the same or adjacent points on the first support structure and diverge outwardly of the support member to respective spaced apart positions on the panel.

[0023] Pairs of elongate support members may be coupled to the same or adjacent points on the support structure and diverge outwardly of the support member to respective spaced apart positions on the panel.

[0024] The panel may comprises a gypsum based panel. Alternatively, the panel may comprise a mineral wool based panel. In one embodiment, the mineral wool may be predominantly a glass wool. In a second embodiment, the mineral wool may be predominantly a stone wool.

[0025] In a further embodiment, the panel may predominantly comprise a metal. Preferably, the metal panel will comprise a metal sheet. More preferably, but not essentially, the metal panel may comprise a plurality of sheet metal tiles which together form the metal panel.

[0026] The panel may comprise a lighting panel. Preferably the lighting panel will comprise a luminous fabric supported by a rigid panel. More preferably, the luminous fabric will include optical fibres.

[0027] The opposite side edges of the panel extend into channel-section side members which are curved along their longitudinal axis.

[0028] The first support structure, which may be a curved member, may be coupled to a second support structure.

[0029] The elongate support members may be coupled at the second end to at least one curved member.

[0030] The at least one curved member may form part of a system of curved members.

[0031] The at least one curved member may be coupled to a plurality of transverse beams extending laterally of the curved member.

[0032] Viewed from a third aspect, there is provided a ceiling suspension system comprising a flexible panel assembly having a flexible panel and at least one elongate formation coupled to the panel and having a curved longitudinal profile of a desired shape, said formation being arranged to force the flexible panel into said desired shape, the system further comprising a plurality of elongate support members each comprising a first end and a second end, wherein the first end of each elongate support member is coupled to a support structure and the second end of each elongate support member is coupled to the flexible panel assembly.

[0033] Preferably, the elongate formation may extend along one side of the flexible panel.

[0034] Preferably, the flexible panel assemble may comprise a pair of elongate formations extending along respective opposite sides of the flexible panel.

[0035] In another embodiment of the invention, the flexible panel assembly comprises a plurality of elongate mounting beams which extend between said elongate formations, the second ends of the elongate support members being attached to respective elongate mounting beams.

[0036] Viewed from a fourth aspect, there is provided a method for installing a ceiling in a building using a system, the method comprising, in any order:

fixing the support structure to a ceiling member of the building;

coupling the first ends of the elongate support members to the support structure;

coupling the second ends of the elongate support members to the panel; and coupling at least one elongate formation to said flexible panel to force said flexible panel into a desired shape.

[0037] Preferably, the first method step may comprise coupling the elongate formation to said flexible panel to force said flexible panel into a desired shape. In this way, the flexible panel may be shaped in a convenient location, such as at ground level, before it is positioned in its installed location.

[0038] It may also be preferable for this method to comprise an additional step wherein coupling the second ends of the elongate support members to the panel comprises coupling the second ends of the elongate support members to an elongate formation. side member of the flexible panel.

DESCRIPTION

[0039] We now describe first, second and third, fourth, fifth and sixth embodiments with reference to the following figures by way of example only:

Figure 1 schematically illustrates a first embodiment of ceiling suspension system in accordance with the present invention;

Figure 2A is a schematic perspective view of a second embodiment of ceiling suspension system in accordance with the present invention;

Figure 2B is a schematic sectional view through along one end of the line II - II of Figure 2A;

Figure 3A schematically illustrates a third embodiment of ceiling suspension system in accordance with the present invention;

Figure 3B is a schematic sectional view through

along the line III-III of Figure 3A; and

Figure 4 schematically illustrates a ceiling suspension system in accordance with the fourth embodiment.

Figure 5A schematically illustrates an aspect view of a ceiling suspension system in accordance with the fifth embodiment;

Figure 5B schematically illustrates a side view of a ceiling suspension system in accordance with the fifth embodiment;

Figure 6A schematically illustrates an aspect view of a ceiling suspension system in accordance with the sixth embodiment;

Figure 6B schematically illustrates a side view of a ceiling suspension system in accordance with the sixth embodiment;

Figure 7A schematically illustrates an aspect view of a ceiling suspension system in accordance with the seventh embodiment;

Figure 7B schematically illustrates a side view of a ceiling suspension system in accordance with the seventh embodiment;

Figure 7C schematically illustrates a side view of a ceiling suspension system in accordance with the seventh embodiment; and

Figure 7D schematically illustrates a side view of a ceiling suspension system in accordance with the seventh embodiment.

[0040] Figure 1 schematically illustrates a ceiling suspension system 100 in accordance with a first embodiment of the present invention. An elongate beam 102 for fitting to one or more ceiling joists is coupled to depending rods 104A, 104B, 104C, 104D and 104E, each comprising first and second ends respectively enumerated as 106A, 106B, 106C, 106D, 106E, 108A, 108B, 108C, 108D and 108E as will be clear from Figure 1.

[0041] The first ends 106A to E are each pivotally attached to the beam 102 and the second ends 108A to E are each pivotally attached to a flexible panel 110, for example formed of a gypsum based plasterboard which may comprise an inner layer of gypsum between two outer layers of lining paper, for example, or glass fibre, for example. The gypsum layer may additionally comprise binding materials such as silicon. On construction of a suspension ceiling using system 100 this creates a ceiling whereby the flexible panel 110 is suspended from the beam 102. A plurality of such panels may be mounted side-by-side.

[0042] Each of the rods 104A to E may be different in length as illustrated in Figure 1. The length of the rods controls the vertical separation between the beam 102 and the panel 110. Hence the position and curvature of the flexible panel 110 can be varied according to the specification of the ceiling that is being constructed by varying the lengths of the rods and the positions at which the rods attach to the beam 102 and flexible panel 110.

[0043] Optionally or additionally, the rods 104A to E may each be adjustable in length. To this end, the rods 104A to E may be telescopically adjustable or they may be constructed from a plurality of discrete sections that are fitted together in cooperation to form the rods 104A to E.

[0044] Using rods that are adjustable in length means that when the ceiling is being constructed, if an error is made in measurement of the ceiling or the arrangement of the panels, the length of the rods may be adjusted to compensate for the results of the measurement error. This avoids the need to re-order components such as new panels or new rods and avoids the wastage involved if any of the rods or the panel need to be disposed of.

[0045] Figure 2A schematically illustrate a ceiling suspension system 200 in accordance with a second embodiment. The ceiling suspension system 200 comprises an upper rail 202 for fitting to one or more ceiling joists 226, the rail 202 being coupled to rods 204A, 204B, 204C, 204D, 204E, 204A', 204B', 204C', 204D', 204E' which each comprise first and second ends. The first ends of the rods 206A to E are connected in pairs with the rods 206A' to E' to respective points along the axis of the upper rail 202. Each pair of rods are pivotally attached to the upper rail 202 and are slidable or otherwise displaceable along the axis of the rail 202.

[0046] The second ends of each pair of rods e.g. 204A, 204A' are each attached to a respective lower rail e.g. 208A which extends across the upper surface of the flexible panel 210 in a direction substantially perpendicular to the upper rail 202. Each pair of rods are pivotally attached to their respective lower rail and are slidable or otherwise displaceable along the axis of the rail. The lower rails e.g. 208A, 208B extend parallel to each other and prevent curvature of the panel 210 about an axis which extends transverse thereto. However, curvature of the panel 210 is permitted about an axis which extends longitudinally of the lower rails. In this manner, the position and curvature of the flexible panel 210 can also be varied by varying the axial positions at which the rods attach to the upper rail 202, the length of the rods and the axial positions at which the rods attach to the lower rails e.g. 208A. The rails are preferably arranged to prevent the rods from sliding once the final position and curvature of the panel has been set.

[0047] Each lower rail e.g. 208A may fitted to the panel 210 by clips e.g. 206A which extend from the ends of the rails around the side edge of the panel 210 and under the lower surface thereof.

[0048] The direction of the arrow 224 on Figure 2A il-

lustrate the translation of the movement of the rods in the rail 208A 214. Arrow 224 shows movement from left to right of rod 204B and 204B' which causes a change in the distribution of forces from left to right generated by the change in position of the rod 204A.

[0049] Figure 2B illustrates the attachment between rod 204A and rail 208A.

[0050] In the first and second embodiments the beam or rail 102, 202 is illustrated as being in a plane generally parallel to the flexible panel 110, 210. This is for illustration and does not have to be the case. Embodiments where the beam or rail is not in a plane generally parallel to the flexible panel can also be implemented without departing from the spirit of what is being disclosed.

[0051] Figures 3A and 3B schematically illustrates a ceiling suspension system 300 in accordance with a third embodiment. Ceiling suspension system 300 comprises a beam 302 disposed perpendicularly to a flexible panel 310. The beam 302 is fixed at its upper end to a joist. Rods 304A, 304B, 304C, 304D and 304E are pivotally attached at a first and second ends thereof to beam 302 and the flexible panel 310 respectively. The second end of each rod e.g. 304A is attached to a respective rail e. g. 308A which extends across the upper surface of the flexible panel 310 in a direction substantially perpendicular to the upper beam 302. Each rods is pivotally attached to its respective rail and is slidable or otherwise displaceable along the axis of the rail. The rails e.g. 308A are preferably symmetrically arranged on opposite sides of the beam 302. The attachment between the second end of rod 304A and the respective rail 308A is illustrated using Figure 3B.

[0052] Each rod e.g. 304A comprises first and second discrete elongate sections 312A and 312B. The discrete elongate sections 312A, 312B comprise externally screw-threaded adjacent ends, which are oppositely screw-threaded and which are interconnected by a turnbuckle 314. In use, the turnbuckle 314 can be rotated in one sense or the other to either shorten or lengthen the rod 304A.

[0053] The curved side opposite edges of the panel 310 may be fitted with respective elongate curved side members 320 having longitudinally-extending channels into which the side edges of the panel extend. The side members 320 may be curved to shape prior to fitting the panel 310 in-situ so that they act as a former for the desired curved shape. The rails e.g. 308A can be attached to the panel 310 by fixing their opposite ends to respective side members 320.

[0054] A ceiling suspension system 400 in accordance with the fourth embodiment will now be described with reference to Figure 4. Ceiling suspension system 400 comprises a beam 402 disposed above a flexible panel 410 comprising rails 408A and 408B configured identically to the rails of the third embodiment. The beam 402 is fixed at its upper end to a joist. Rods 404A, 404B, 404C and 404D are pivotally attached at a first end to beam 402 and at a second end to a respective side member/elongate formation 420 on the flexible panel 410.

[0055] The side members are shaped to correspond with the desired shape of the flexible panel 410. The shaping can take place before the flexible panel 410 is fitted. The side members/elongate formations 420 may be flexible or rigid. The flexible panel 410 may then be suspended using the ceiling suspension system of any of the first to third embodiments described above or using a standard cable system.

[0056] In the embodiment of the invention as depicted in figure 4, the curved shape of the flexible panel 410 may be obtained by the coupling between the flexible panel 410 and the side members/elongate formations 420. As depicted in figure 4, the shaping of the flexible panel 410 may be achieved under the influence of the side members 420 alone.

[0057] In this embodiment of the invention, the side members/elongate formations 420 may be rigid and, as such, force the flexible panel 410 into a profile or shape which is defined by the side members/elongate formations 420. As such, the flexible panel 410 may be forced or persuaded into a shape or profile which is substantially similar to the shape or profile of the side members/elongate formations 420.

[0058] In such an embodiment, the rods 404A, 4040B, 404C and 404D may have no influence on the shape or profile of the flexible panel 410, and may only support the weight of the flexible panel 410 after fitting. The rods 404 may play no role in forcing the panel into a desired shape. Additionally, the beam 402 may provide no contribution to the shaping of the flexible panel 410.

[0059] A ceiling suspension system 500 in accordance with the fifth embodiment will now be described with reference to Figures 5a and 5b.

[0060] Ceiling suspension system 500 comprises a beam 502 disposed above a flexible panel 508. Transverse members 506A, 506B and 506C are disposed across the flexible panel 508. Rods 504A and 504B are attached to beam 502 at a first end and to curved member 510 at a second end. Curved member 510 is affixed to transverse members 506A, 506B and 506C using adhesive or screws.

[0061] The flexible panel 508 may be curved to conform to the geometry of the curved member 510 and may be attached to the curved member 510 before the curved member is attached to the second end of rods 504A and 504B.

[0062] Once again, in the embodiment of the invention as depicted in Figures 5a and 5b, the curved shape of the flexible panel 508 may be obtained via the coupling between the flexible panel 508 and the curved member 510 alone. In this embodiment of the invention, it is the affixation of the flexible panel 508 to the curved member 510 via the transverse members, 506A, 506B, 506C which may be used to shape said flexible panel 508. In this embodiment of the invention, rods 504A and 504B may not p0lay any role in the forcing of the flexible panel 508 into a desired shape, and instead may primarily

transfer the weight of the flexible panel 508, transverse members 506 and curved member 510 to the beam 502. Additionally, the beam 502 may provide no contribution to the shaping of the flexible panel 508 in this embodiment of the invention.

[0063] A ceiling suspension system 600 in accordance with a sixth embodiment will now be described with reference to Figures 6a and 6b.

[0064] Ceiling suspension system 600 comprises a beam 602 disposed above a flexible panel 608. Transverse members 606A, 606B and 606C are disposed across the flexible panel 608.

[0065] Ceiling suspension system 600 further comprises a plurality of curved members 610A, 610B and 610C. Curved members 610A, 610B and 610C are coupled to one another using, for example, a mechanical fastening, to form a system 612 of curved members 610 as illustrated in Figures 6a and 6b.

[0066] It should be emphasised that the specific geometric form of the system 612 illustrated in Figures 6a and 6b is not the only way in which curved members 610A, 610B and 610C can be coupled and that other geometric forms are possible.

[0067] Rods 604A, 604B, 604C and 604D are attached at a first end to beam 602 and at a second end to system 612. Respective curved members 610A, 610B and 610C are affixed to respective transverse members 606A, 606B and 606C using, for example, a mechanical fastening or an adhesive.

[0068] In using a system 612 of curved members 610A, 610B and 610C more complex ceiling geometries can be formed as is illustrated by the S-shape of flexible panel 608.

[0069] A ceiling suspension system 700 will now be described with reference to Figures 7a and 7b.

[0070] Ceiling suspension system 700 comprises a beam 702 disposed above a flexible panel 708 and a curved member 710 intermediate the beam 702 and flexible panel 708. Curved member 710 is suspended from the beam using any necessary means 720. Ceiling suspension system 700 further comprises a plurality of rods 704A, 704B and 704C attached at a first end to curved member 710 and at a second end to flexible panel 708.

[0071] The attachment between the rods 704A and 704C and the curved member 710 at their respective first ends enables the rods 704A and 704C to independently pivot about the point of attachment at the first end. The attachment between the rods 704A and 704C and the flexible panel 708 at their respective second ends enables the rods 704A and 704C to independently pivot about the point of attachment at the respective second end.

[0072] The attachment between the rod 704B and the curved member 710 at the respective first end of rod 704B enables rod 704B to pivot independently about the point of attachment at its first end.

[0073] The attachment between the rod 704B and the flexible panel 708 at the respective second end of rod 704B enables rod 704B to pivot independently about the point of attachment at its second end.

[0074] The length of rod 704B is adjustable using, for example, a turnbuckle (not shown) as described in Figures 3A, 3B and the associated description above. As the length of rod 704B is extended using the turnbuckle, a force is applied by rod 704B on flexible panel 708 as the second end of the rod 704B pushes downwards on flexible panel 708. The flexibility of the flexible panel 708 enables it to deform responsive to the force applied by the rod 704B as is illustrated in Figure 7d. This causes rods 704A and 704c to pivot respectively at their first and second ends.

[0075] As the length of the rod 704B is shortened, the force is relieved and the flexible panel returns to its original shape which is shown in Figure 7b, if the length of the rod 704B is shortened further, the attachment between rod 704B and flexible panel 708 causes the rod to pull on the flexible panel 708 and causes rods 704A and 704C to pivot in the opposite direction to the direction they pivoted in Figure 7c.

[0076] A system in accordance with the seventh embodiment is not limited to the specific arrangement described here. Rods 704A and 704C may also be adjustable in length to enable more complex ceiling geometries to be realised.

[0077] A ceiling suspension system in accordance with the present invention is simple and inexpensive in construction yet provides a convenient and versatile way of forming a ceiling.

Claims

1. A ceiling suspension system comprising a flexible panel, a first support structure and a plurality of elongate support members, wherein each elongate support member comprises a first end and a second end, wherein the first end of each elongate support member is coupled to the first support structure and the second end of each elongate support member is coupled to the flexible panel, and wherein the coupling between the elongate support members and the flexible panel is arranged to force the flexible panel into a desired shape.

2. The system of Claim 1 wherein the elongate support member is coupled to a side member on the flexible panel.

3. The system of Claim 2 wherein the side member is rigid.

4. The system of Claim 2 wherein the side member is flexible.

5. The system of any previous claim, wherein the elongate support members are independently adjustable

to vary the spacing between the panel and the support structure.

6. The system of any preceding claim, wherein the first support structure comprises an elongate support beam which, in use, extends generally parallel to the plane of the panel.

7. The system of any of claims 1 to 5, wherein the first support structure comprises an elongate support beam which, in use, extends generally perpendicularly to the plane of the panel.

8. The system of claim 6 or 7, wherein the first ends of elongate support members are slidably mounted to the support beam such that the position at which they connect to the beam can be adjusted.

9. The system of any preceding claim, wherein the second ends of the elongate support members are attached to respective elongate mounting beams which extend across the panel.

10. The system of claim 9, in which the end of each mounting beam comprises a clip which engages around the edge of the panel to secure the beam in-situ.

11. The system as claimed in any preceding claim, wherein opposite side edges of the panel extend into channel-section side members which are curved along their longitudinal axis.

12. The system of any previous claim wherein the first support structure is a curved member.

13. The system as claimed in any preceding claim, wherein the panel comprises a gypsum based panel.

14. The system as claimed in any preceding claim, wherein the panel comprises a mineral wool based panel.

15. The system as claimed in any preceding claim, wherein the panel comprises a metal.

16. The system as claimed in any preceding claim, wherein the panel comprises a lighting panel.

17. A method for installing a ceiling in a building using a system as claimed in any preceding claim, the method comprising:

fixing the support structure to a ceiling member of the building;
coupling the first ends of the elongate support members to the support structure;
coupling the second ends of the elongate support members to the panel; and
adjusting the elongate support members to force the flexible panel into a desired shape.

18. The method of Claim 17 wherein coupling the second ends of the elongate support members to the panel comprises coupling the second ends of the elongate support members to a side member of the flexible panel.

19. A ceiling for a building comprising a ceiling member and a system as claimed in any of claims 1 to 16, the elongate support structure of the system being fitted to the ceiling member.

20. A ceiling suspension system comprising a flexible panel assembly having a flexible panel and at least one elongate formation coupled to the panel and having a curved longitudinal profile of a desired shape, said formation being arranged to force the flexible panel into said desired shape, the system further comprising a plurality of elongate support members each comprising a first end and a second end, wherein the first end of each elongate support member is coupled to a support structure and the second end of each elongate support member is coupled to the flexible panel assembly.

21. The system of claim 20, wherein the elongate formation extends along one side of the flexible panel.

22. The system of claim 21, comprising a pair of elongate formations extending along respective opposite sides of the flexible panel.

23. The system of claim 22, wherein the panel assembly comprises a plurality of elongate mounting beams which extend between said elongate formations, the second ends of the elongate support members being attached to respective elongate mounting beams.

24. The system of any one of claims 20 to 22, wherein at least one elongate support member is coupled to said elongate formation.

25. The system of any one of claims 20 to 24, wherein the elongate support members are independently adjustable to vary the spacing between said flexible panel and said support structure.

26. The system of any one of claims 20 to 25, wherein said support structure comprises an elongate support beam which, in use, extends generally parallel to the plane of the panel.

27. The system of any of claims 20 to 25, wherein said support structure comprises an elongate support beam which, in use, extends generally perpendicu-

larly to the plane of the panel.

28. The system of claim 26 or 27, wherein the first ends of said elongate support members are slidably mounted to the support beam such that the position at which they connect to the beam can be adjusted.

29. The system of claim 28, in which the end of each mounting beam comprises a clip which engages around the edge of said flexible panel to secure said beam in-situ.

30. The system of any one of claims 20 to 29 wherein said support structure is a curved member.

31. The system as claimed in any one of claims 20 to 30, wherein said flexible panel comprises a gypsum based panel.

32. The system as claimed in any one of claims 20 to 31, wherein said flexible panel comprises a mineral wool based panel.

33. The system as claimed in any one of claims 20 to 32, wherein said flexible panel comprises a metal.

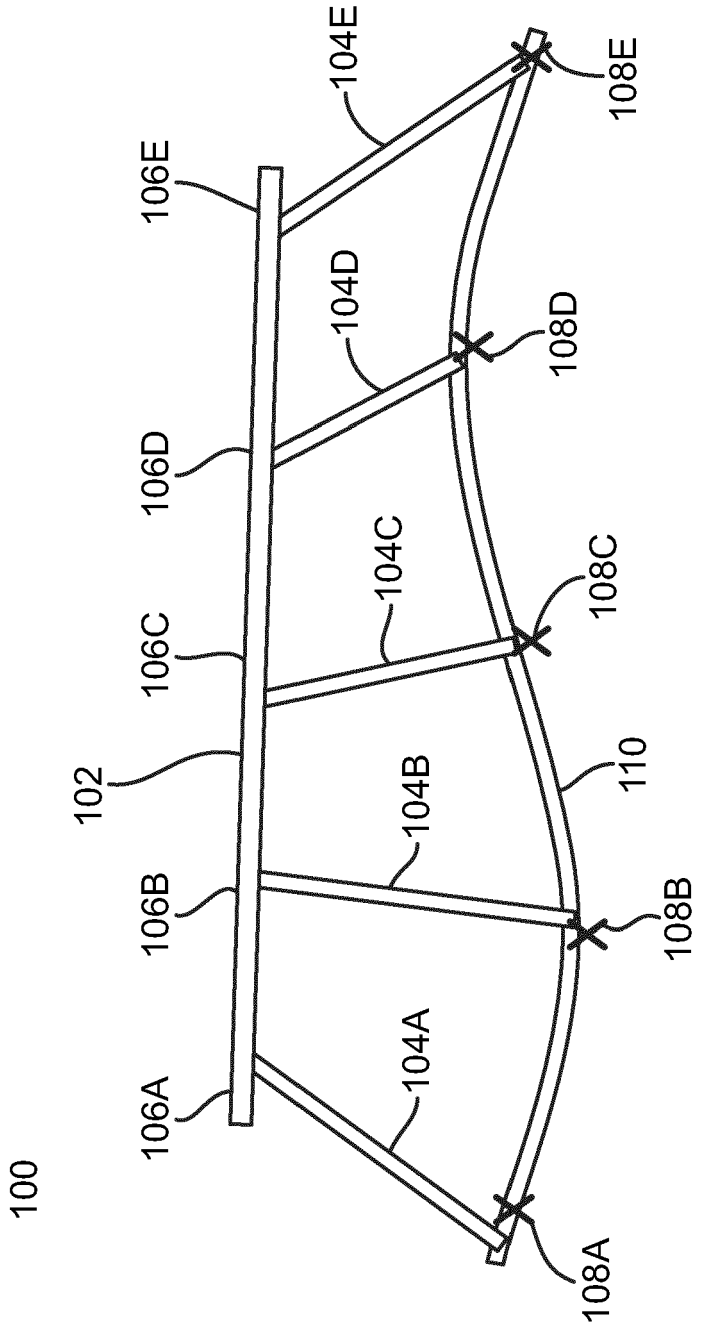
34. The system as claimed in any one of claims 20 to 33, wherein said flexible panel comprises a lighting panel.

35. A method for installing a ceiling in a building using a system as claimed in any one of claims 20 to 34, the method comprising, in any order:

fixing the support structure to a ceiling member of the building;
coupling the first ends of the elongate support members to the support structure;
coupling the second ends of the elongate support members to the panel; and
coupling at least one elongate formation to said flexible panel to force said flexible panel into a desired shape.

36. The method of Claim 35 wherein coupling the second ends of the elongate support members to the panel comprises coupling the second ends of the elongate support members to an elongate formation.

37. A ceiling for a building comprising a ceiling member and a system as claimed in any of claims 20 to 35, the elongate support structure of the system being fitted to said ceiling member.


100
102
104A
104B
104C
104D
104E
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106B
106C
106D
106E
108A
108B
108C
108D
108E
110

Fig. 1

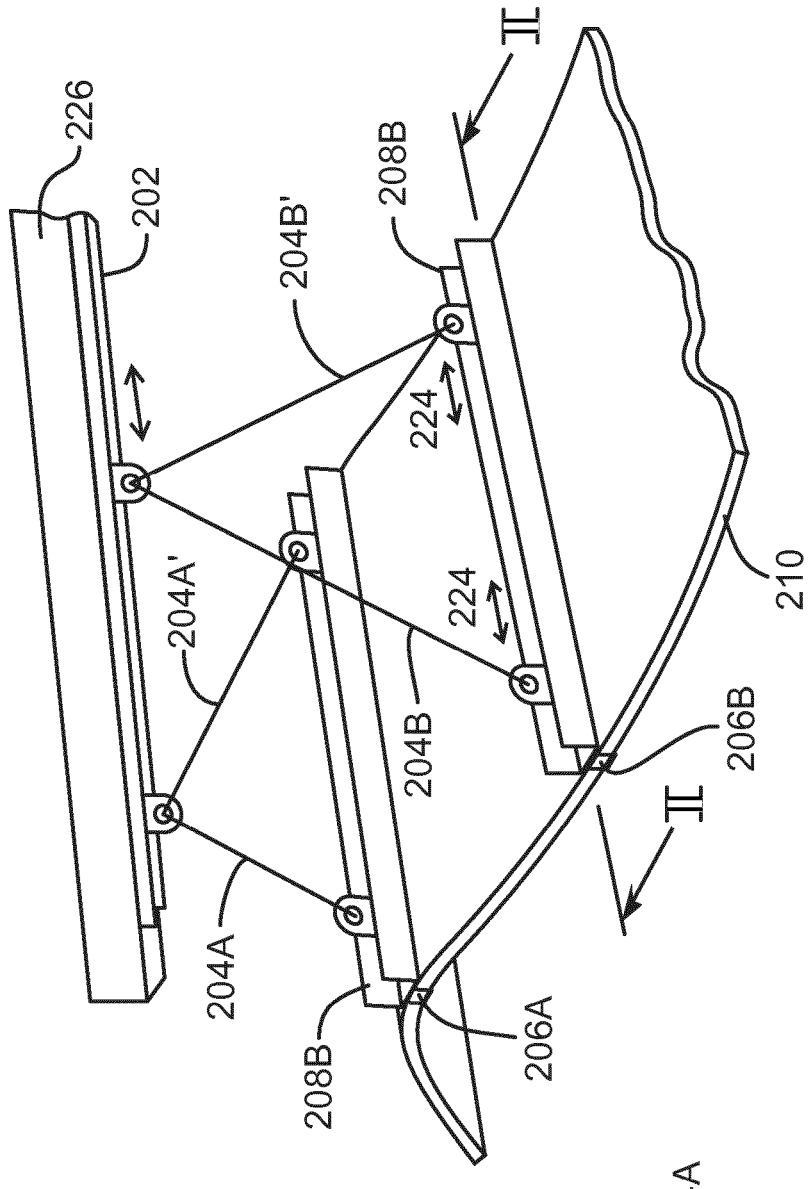
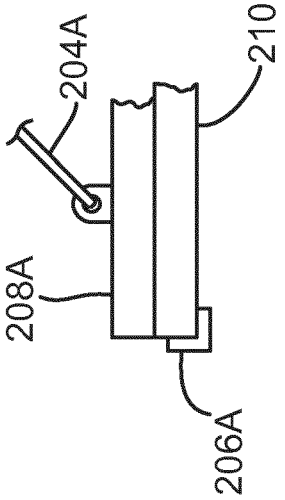

226
202
204B'
208B
II
224
224
210
204A'
204B
206B
II
204A
208B
206A

Fig. 2A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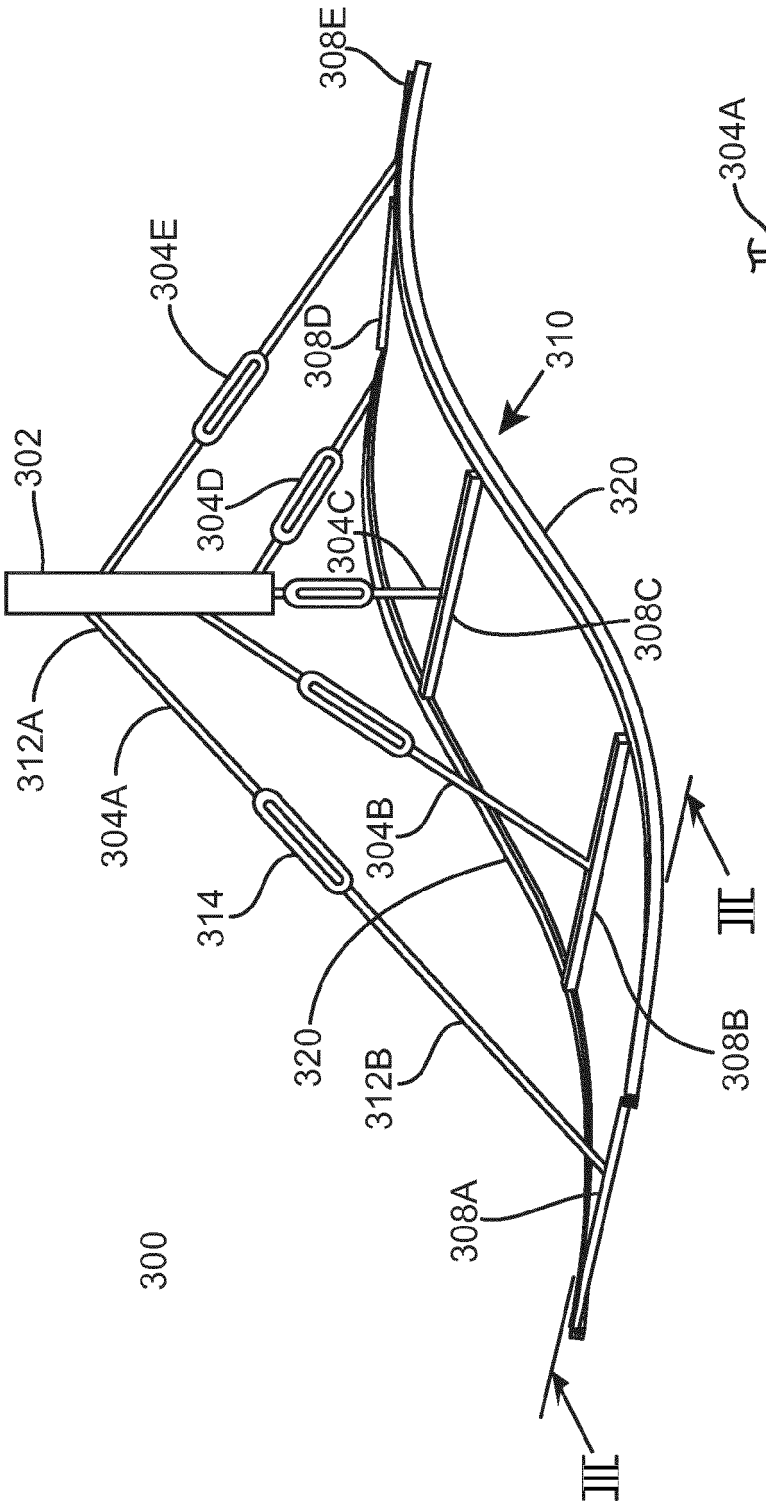
210
208A
206A

Fig. 2B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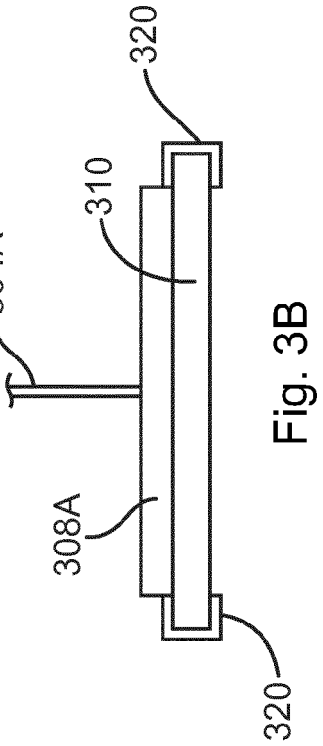
302
304A
304B
304C
304D
304E
308A
308B
308C
308D
308E
310
312A
312B
314
320
III
III

Fig. 3A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308A
310
320
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Fig. 3B

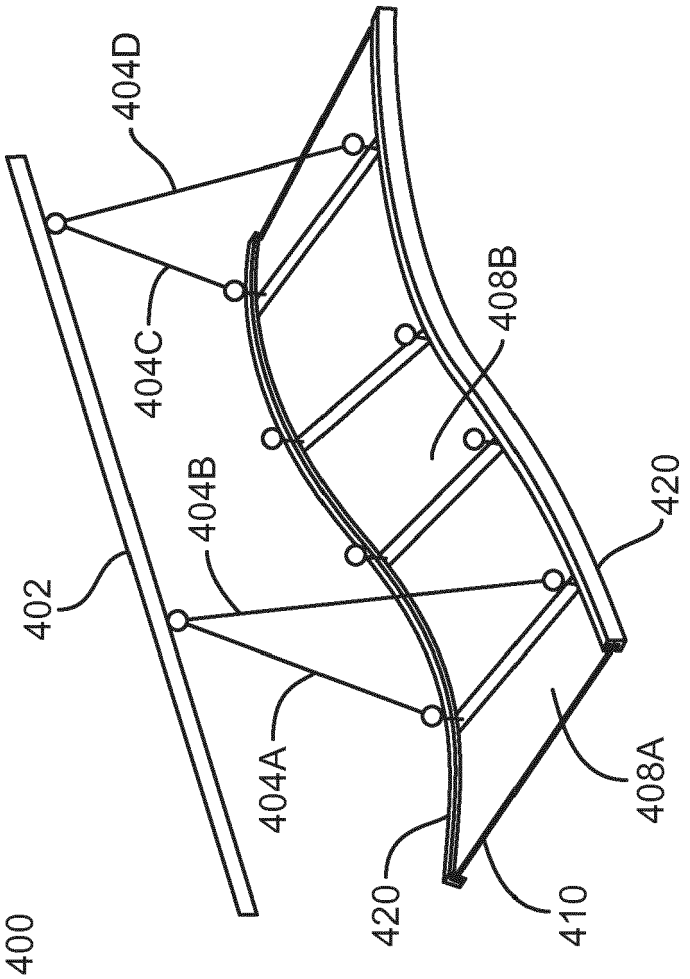

Fig. 4

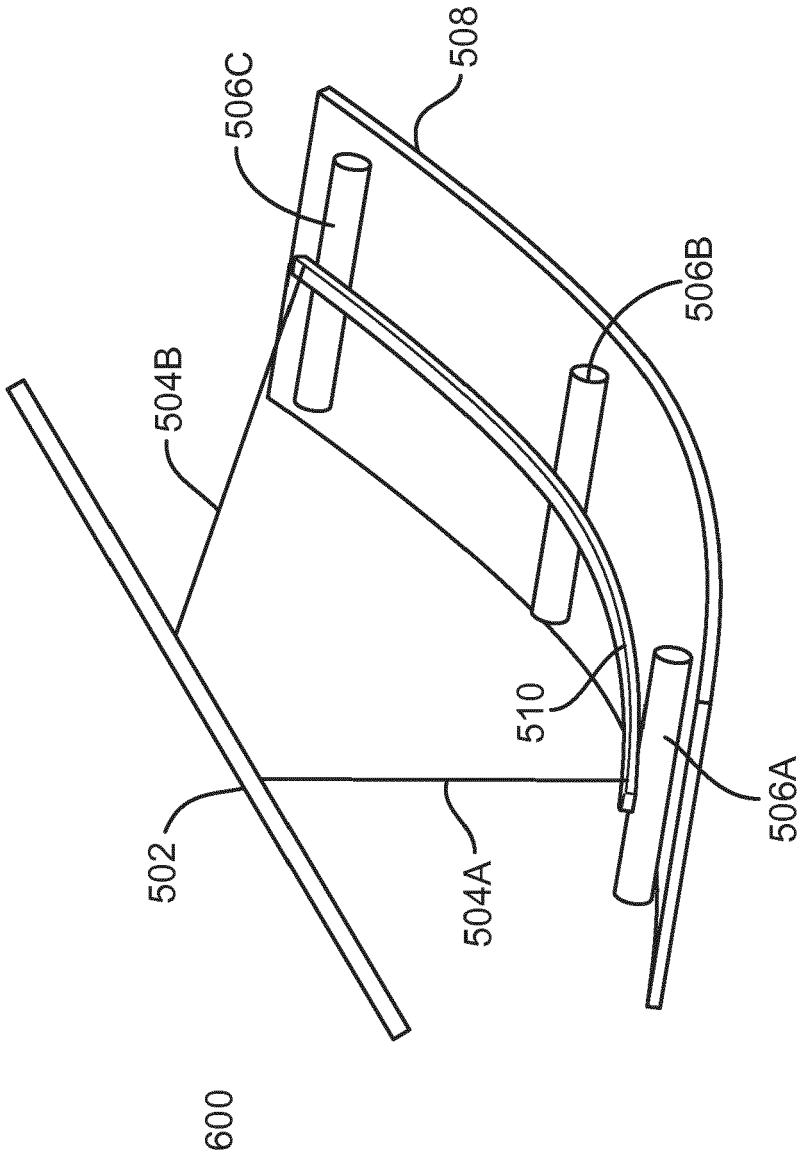

Fig. 5A

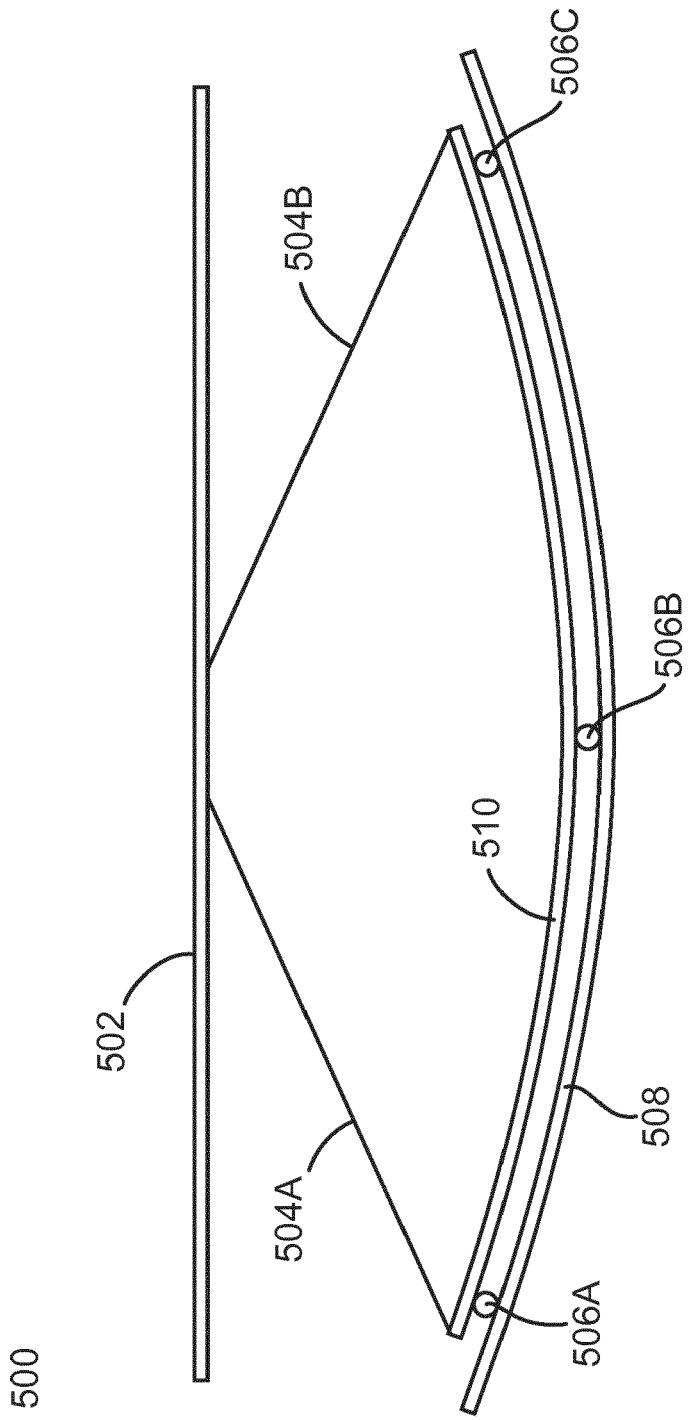

Fig. 5B

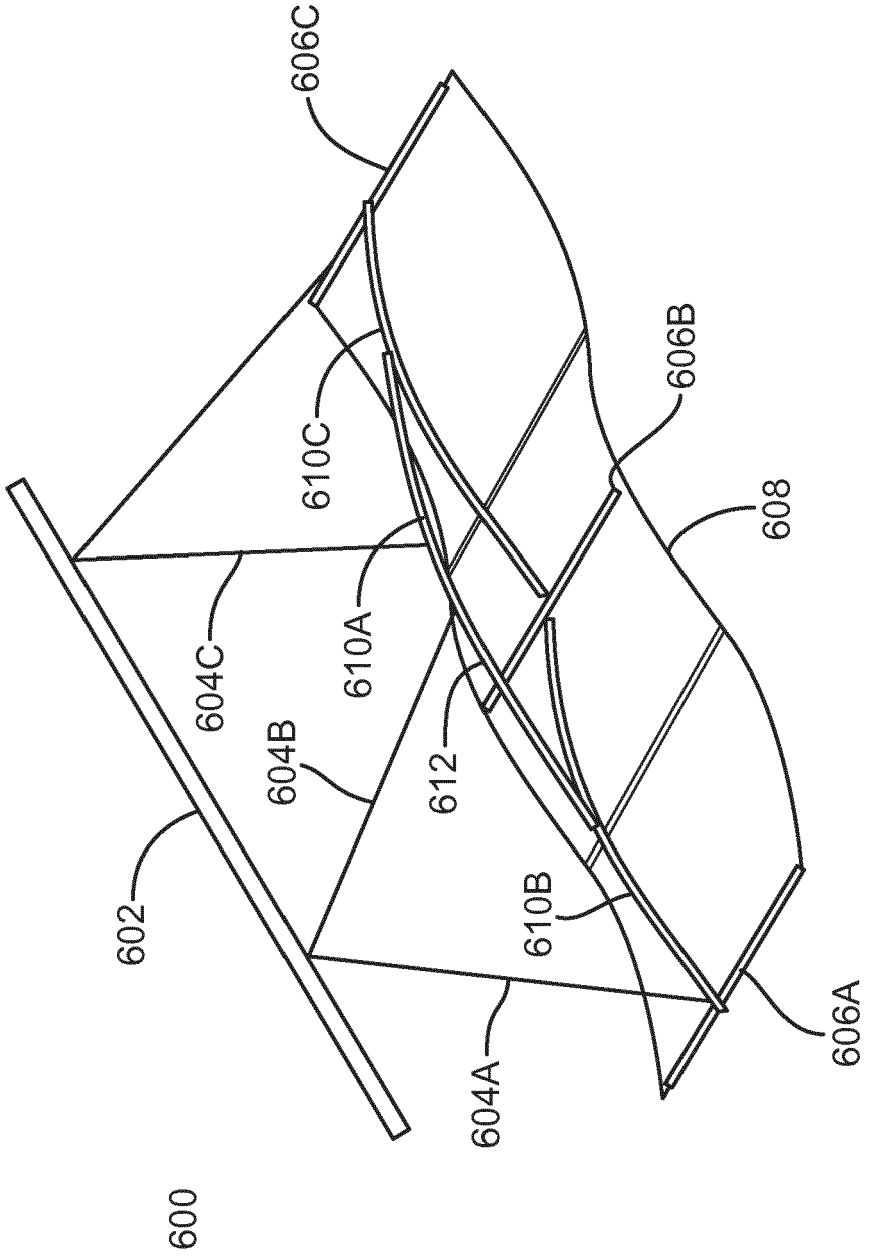

Fig. 6A

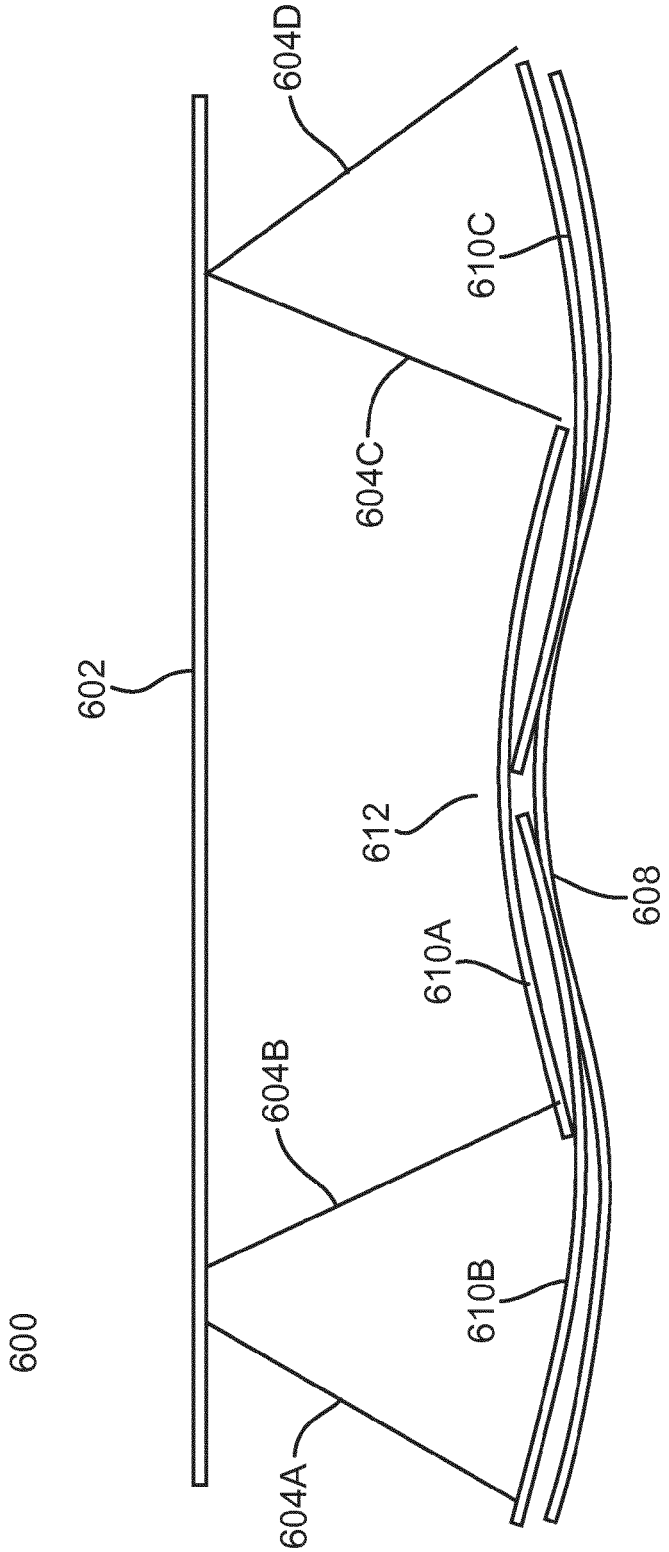

Fig. 6B

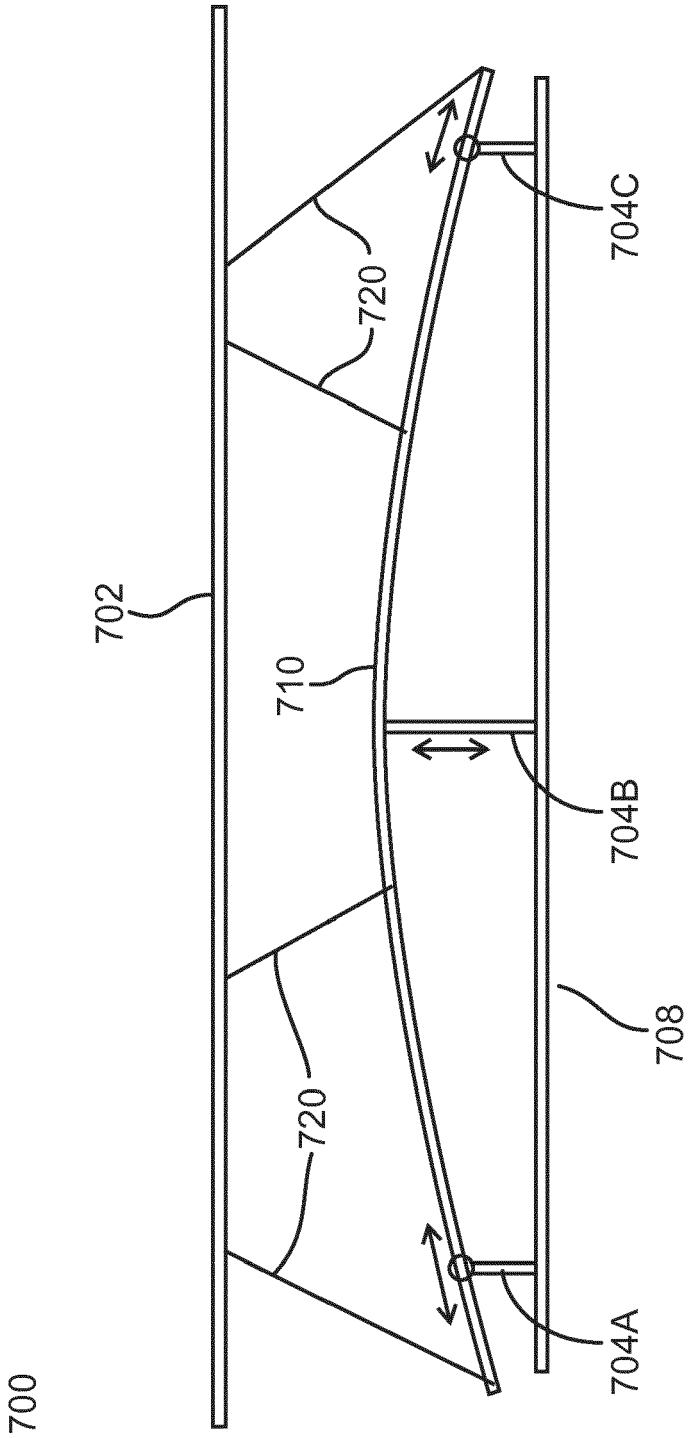

Fig. 7A

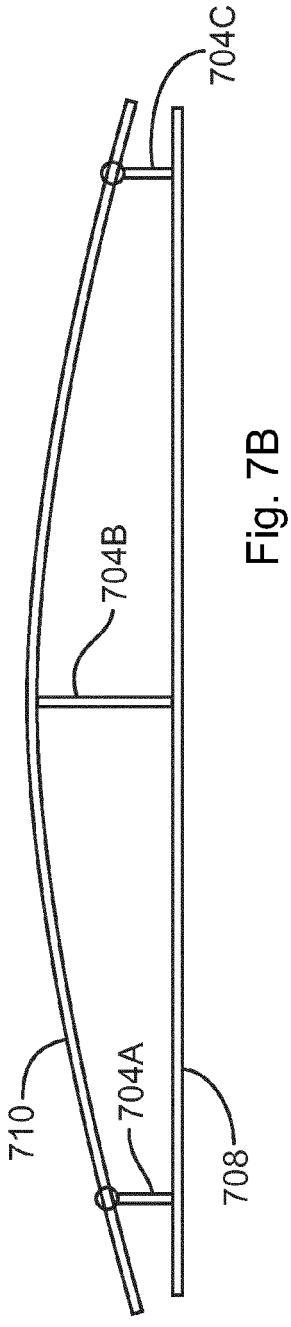

Fig. 7B

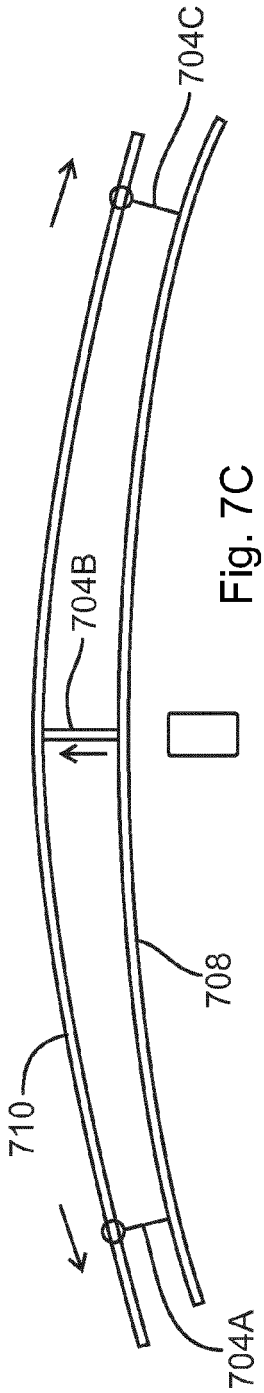

Fig. 7C

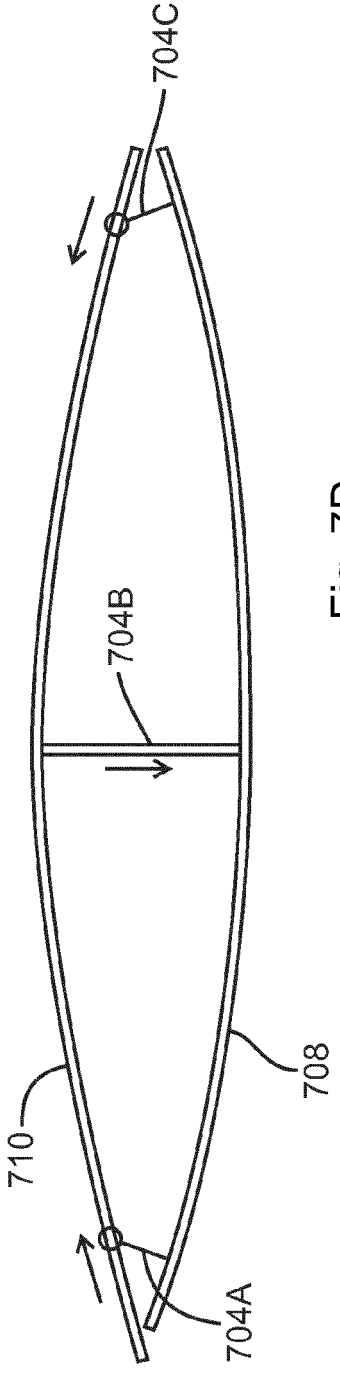

Fig. 7D

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Place of search	Date of completion of the search	Examiner
The Hague	14 November 2016	Bauer, Josef

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