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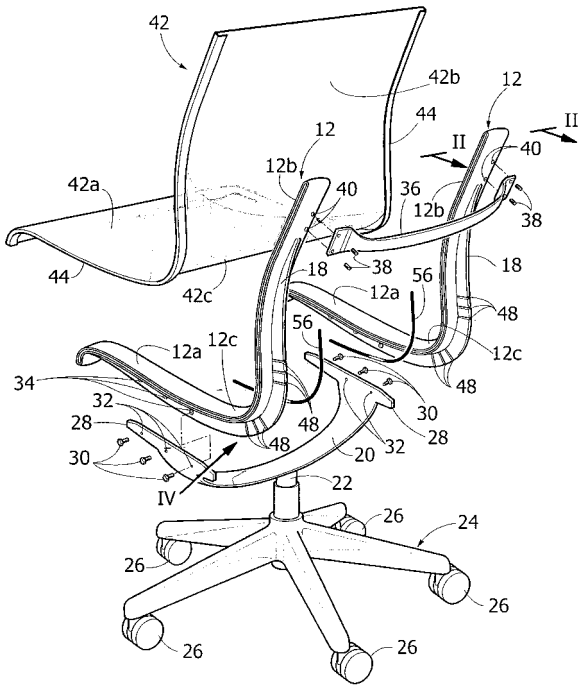
Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) **Chair**

(57) A chair comprising two ribbed supporting sectional elements (12) set at a distance from one another in a transverse direction and connected to a base (22, 24) by means of a transverse supporting element (20), wherein each of said ribbed supporting sectional elements (12) is basically L-shaped, with a seat portion (12a), a backrest portion (12b), and a rounded radiusing portion (12c) between the seat portion (12a) and the backrest portion (12b), wherein extending between said supporting sectional elements (12) is a material basically in the form of a sheet (42, 62), which forms a seat (42a, 62a) and a backrest (42b, 62b), and wherein each of said ribbed supporting sectional elements (12) is provided with a plurality of through notches (48) set at a distance from one another in a longitudinal direction, which form respective points of localized bending, which enable bending of the supporting sectional element (12) in a vertical plane, said notches (48) distanced from one another by respective stretches (50) substantially rigid to bending in said vertical plane.

FIG. 2



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Description

Field of the invention

[0001] The present invention relates to a chair comprising two ribbed supporting sectional elements set at a distance from one another in a transverse direction and connected to a base by means of a transverse supporting element, in which each of said ribbed supporting sectional elements is basically L-shaped with a seat portion, a backrest portion, and a rounded radiusing portion between the seat portion and the backrest portion and in which a substantially sheet-like material forming a seat and a backrest extends between said ribbed supporting sectional elements.

Description of the related art

[0002] A chair of the type referred to above is known from the document No. DE1260721 filed in the name of Hermann Miller Inc. The chair described in this document was made by the famous designer Charles Eames in 1958 and became a point of reference of industrial design.

[0003] The chair designed by Charles Eames envisaged the use of two basically I-section rigid aluminium supporting sectional elements fixed together by means of at least two transverse supporting elements, one of which serves for connection to a column base. A sheet formed by a fabric or a mesh, is wound on the two lateral aluminium sectional elements and is anchored laterally in two external side grooves of the supporting sectional elements.

Summary of the invention

[0004] The purpose of the present invention is to provide a chair that will enable higher characteristics of comfort to be obtained, maintaining the same stylistic setting of the chair designed by Eames in 1958.

[0005] According to the present invention, the above purpose is achieved thanks to the fact that each of the ribbed supporting sectional elements is provided with a plurality of through notches, which are set at a distance from one another in a longitudinal direction and form respective points of localized bending of the supporting sectional element in a vertical plane, said notches being set at a distance from one another by respective stretches that are substantially rigid to bending in said vertical plane.

[0006] By making the supporting sectional elements of plastic material (typically nylon) and forming the aforesaid notches in a central stiffening ribbing of the sectional elements, there is the possibility of introducing a controlled bending in definite portions of the sectional element. Bending of the sectional element can be assisted by a small steel bar inserted in a groove of the sectional element in an area corresponding to the radiusing area between the seat portion and the backrest portion of each sectional element.

[0007] The notches have opposite surfaces that enter into contact with one another in the position of maximum inclination so as to limit the maximum amount of localized bending in each point of the sectional element.

Description of the drawings

[0008] The present invention will now be described in detail with reference to the attached drawings, which are provided purely by way of non-limiting example and in which:

- Figure 1 is a perspective view of a first embodiment of a chair according to the present invention;
- Figure 2 is an exploded perspective view of the chair of Figure 1;
- Figure 2A is a cross section according to the line II-II of Figure 2;
- Figure 3 is a cross section according to the line III-III of Figure 1;
- Figure 3A is an enlarged detail of a part of Figure 3;
- Figure 4 is a detail at a larger scale of the part indicated by the arrow IV in Figure 2;
- Figure 5 is a view of the detail of Figure 4 illustrating the notches in the position of maximum bending;
- Figure 6 is a schematic side view illustrating the radiusing portion of a supporting sectional element in the resting position and in the position of maximum inclination backwards;
- Figure 7 is a detail illustrating notches of different shape;
- Figures 8 and 9 are sections according to the lines VIII-VIII and IX-IX of Figure 4 illustrating an alternative shape of the ribbing of the supporting sectional elements;
- Figure 10 is a perspective view illustrating a second embodiment of the chair according to the present invention;
- Figure 11 is a perspective view of the supporting structure of the chair of Figure 10;
- Figures 12 and 13 are sections according to the lines XII-XII and XIII-XIII, respectively, of Figure 10;
- Figure 12A is an enlarged detail of a part of Figure 12;
- Figure 14 is a perspective view of a third embodiment of the chair according to the present invention;
- Figure 15 is an exploded perspective view of the chair of Figure 14;
- Figure 16 is a cross section according to the line XVI-XVI of Figure 14;
- Figures 17 and 18 are sections according to the lines XVII-XVII and XVIII-XVIII of Figure 15 illustrating an alternative embodiment of the ribbed sectional elements;
- Figure 19 is a perspective view of a fourth embodiment of the chair according to the present invention; and

- Figure 20 is a perspective view of a further variant of the seat-backrest assembly of the chair according to the present invention.

Detailed description of the preferred embodiments

[0009] With reference to Figures 1 and 2, designated by 10 is a chair according to a first embodiment of the present invention. The chair 10 comprises two ribbed supporting sectional elements 12 that form the side edges of the chair 10. The two supporting sectional elements 12 are arranged parallel to one another and are set at a distance from one another in a transverse direction. The two supporting sectional elements 12 are preferably identical to one another and each of them is basically L-shaped, with a seat portion 12a, a backrest portion 12b and an arched radiusing portion 12c, which extends between the seat portion 12a and the backrest portion 12b.

[0010] Each supporting sectional element 12 is constituted by a monolithic element made of injection-moulded plastic material, for example nylon. As may be seen in particular in Figure 3, each supporting sectional element 12 has an external groove 14 and an internal groove 16. The two grooves 14, 16 extend continuously throughout length of each supporting sectional element 12. Each supporting sectional element 12 is moreover provided with a ribbing 18 that extends in a vertical plane, made integrally with the respective supporting sectional element 12. The ribbing 18 extends throughout the radiusing portion 12c and over a substantial part of the seat portion 12a and of the backrest portion 12b. The ribbing 18 extends on the bottom side of the seat portion 12a and on the rear side of the backrest portion 12b.

[0011] With reference to Figures 2 and 3, the two supporting sectional elements 12 are fixed to a transverse supporting element 20 carried by a central column 22 of a base 24 provided with wheels 26. The transverse supporting element 20 has two side portions 28, fixed to which are the two supporting sectional elements 12. In the embodiment illustrated in the figures, fixing of the supporting sectional elements 12 to the transverse supporting element 20 is made by means of screws 30 that engage aligned holes 32, 34 formed in the side portions 28 and in the ribbing 18 in an area corresponding to the seat portion 12a of each supporting sectional element 12. The transverse supporting element 20 is preferably made of metal material, for example die-cast aluminium.

[0012] With reference to Figures 2 and 2A, the supporting sectional elements 12 are moreover connected to one another by means of a dorsal transverse element 36, the side ends of which are inserted in the internal grooves 16 of the two supporting sectional elements 12, at the top ends of the respective backrest portions 12b. The ends of the transverse element 36 are preferably fixed to the sectional elements 12 by means of screws 38, which engage holes 40 provided on the rear part of the sectional elements 12.

[0013] With reference to Figures 1 to 3, the chair 10 comprises a sheet 42 of flexible material that is tensioned between the two lateral supporting sectional elements 12. The sheet of flexible material 42 is preferably constituted by a single piece of fabric, mesh or the like, which is held by the lateral supporting sectional elements 12 in the configuration illustrated in Figures 1 and 2, where the sheet 42 has a seat portion 42a, a backrest portion 42b, and an arched radiusing portion 42c, in an area corresponding to the respective portions 12a, 12b and 12c of the supporting sectional elements 12.

[0014] As illustrated in particular detail in Figures 3 and 3A, the sheet of flexible material 42 has two side edges 44, which are inserted and fixed in the respective external grooves 14 of the supporting sectional elements 12. Preferably, the side edges 44 are sewn so as to form a loop in order to present a tubular seat in which a flexible lamina 46 is inserted. The side parts of the sheet of flexible material 42 wrap around the top part of the supporting sectional elements 12, and the side edges 44 are anchored to the supporting sectional elements 12 in the external grooves 14. Fixing of the side edges 44 to the supporting sectional elements 12 can be completed by means of screws. As may be noted in Figure 3, the sheet of flexible material 42 remains tensioned between the side supports 12.

[0015] With reference to Figures 4 to 7, the ribbing 18 of each supporting sectional element 12 is provided with a plurality of through notches 48 set at a distance from one another along the longitudinal axis of the ribbing 18. The ribbing 18 of each supporting sectional element 12 extends in a vertical plane of symmetry of the respective supporting sectional element 12. If the ribbing 18 were continuous, each supporting sectional element 12 would be basically rigid as regards bending in the vertical plane of symmetry. The notches 48 form respective points of localized bending of the supporting sectional elements 12. In an area corresponding to each notch 48, the supporting sectional element 12 is able to perform a movement of bending. The notches 48 are distanced from one another in a longitudinal direction by stretches 50 in which the ribbing 18 is continuous. The supporting sectional element 12 in an area corresponding to the stretches 50 is basically rigid for the movements of bending in the vertical plane of symmetry. The notches 48 form hinge points between substantially rigid contiguous sections of the supporting sectional element 12.

[0016] With reference to Figure 4, each notch 48 comprises a substantially drop-shaped through hole 52 made in the internal part of the ribbing 18. Each notch 48 has two divergent walls 54 facing one another, which extend from the hole 52 to the outer edge of the ribbing 18. The walls 54 form an angle α that represents the maximum amplitude of the movement of bending in each point of localized bending. In fact, the movement of bending of the supporting sectional element 12 produces a mutual approach of the facing surfaces 54. When the surfaces 54 are in contact with one another as illustrated in Figure 5, the supporting sectional element 12 becomes rigid in

regard to a further deformation of bending. Each point of localized bending of the sectional element 12 is hence self-limiting, with a maximum amplitude of bending defined by the geometry of the respective notch 48.

[0017] Figures 4 and 5 show in side view a stretch of a supporting sectional element 12 in the resting position and in the position of maximum inclination backwards, respectively. As may be noted, in the position of maximum inclination backwards illustrated in Figure 5 the walls 54 of each notch 48 are in contact with one another, i.e., each point of localized bending is in the position of maximum bending. The fact that the points of localized bending are self-limiting is particularly important in so far as it prevents the risk of an excessive bending from causing yielding of the supporting sectional element 12.

[0018] Figure 6 shows the radiusing portion 12c of a supporting sectional element 12 in the resting position (solid line) and in the position of maximum inclination backwards (dashed line). In the position of maximum inclination, the backrest is inclined by approximately 22° with respect to the resting position. The stiffness of the movement of bending of the supporting sectional element depends upon the geometry of the notches 48. As illustrated by way of example in Figure 7 notches 48' can be provided, which extend throughout the width of the ribbing 18 and notches 48", which extend only through a part of the height of the ribbing 18. The notches 48" could for example be arranged in the areas in which it is desired to obtain a movement of bending with a higher stiffness. The notches 48" could for example have a maximum inclination α'' in the region of 3°, whilst the notches 48' could have a maximum inclination α' in the region of 4°. By varying the geometry of the notches it is possible to vary the flexural stiffness and the maximum angle of inclination in an area corresponding to each point of localized bending. Furthermore, by varying the distance between the contiguous notches, it is possible to vary the geometry of deflection of the supporting sectional elements 12.

[0019] In the embodiment illustrated in Figures 1 to 3, the ribbing 18 has a rectangular cross section. The ribbing 18 can have a thickness (dimension in the transverse direction) comprised between 2 and 20 mm. The ribbing 18 can have a height (extension in a vertical plane) comprised between 10 and 60 mm.

[0020] Illustrated in Figures 8 and 9 is an alternative embodiment of the cross section of the supporting sectional element 12. In this case, the ribbing 18 has a substantially parabolic shape with a maximum width equal to the width of the sectional element 12, which can be in the region of 15-40 mm. The height of the ribbing 18 can be comprised between 10 and 60 mm.

[0021] Each notch 48 can have a height comprised between 5 mm and 60 mm. The angle between the divergent walls 54 of each notch 48 can be comprised between 1° and 22°. In general, the angle between the walls 54 is in the region of 3°-4° so that the notches 48 are very narrow. Consequently, closing of the notches 48 during bending of the supporting sectional elements 12 does not entail the risk of pinching of the user's fingers. Whenever necessary, the notches 48 can be protected by means of co-moulded compressible elastomer elements that close the side and front outer edges of each notch 48 partially or completely.

[0022] Return from the deflected position to the resting position occurs as a result of the elastic return of the material constituting the supporting sectional elements 12, thanks to the particular elasticity of the plastic material constituting the sectional elements. As illustrated in Figures 2 and 3, to increase the characteristics of elastic return of the supporting sectional elements 12, each of said sectional elements can be provided with at least one elastic member 56. Said elastic member can advantageously be constituted by a small bar of metal material with high elasticity, for example spring steel, inserted in the internal groove 16 (Figure 3) of each supporting sectional element 12. If necessary, there may be provided an elastic member 56 in each of the grooves 14, 16 of each supporting sectional element 12. The elastic member 56 can be arranged in the radiusing portion 12c of each supporting sectional element 12 and in any other area in which it is desired to increase the characteristics of elastic return of the sectional element.

[0023] Illustrated in Figures 10 to 13 is a second embodiment of the chair according to the present invention. The elements corresponding to the ones previously described are designated by the same reference numbers.

[0024] In this embodiment of the invention, the two ribbed supporting sectional elements 12 are connected to one another by two transverse elements 58, 60 formed integrally by moulding with the supporting sectional elements 12. As illustrated in Figure 11, the two supporting sectional elements 12, connected to one another by the transverse elements 58, 60, constitute a framework formed by a single piece of injection-moulded plastic material.

[0025] The first transverse element 58 is set in an area corresponding to the top ends of the backrest portions 12b. The second transverse element 60 is set in an area corresponding to the front end of the seat portions 12a. In this variant, each supporting sectional element 12 can be provided with just one groove (the external groove 14), serving for anchorage of the side edges 44 of the sheet of flexible material 42. The two supporting sectional elements 12 are fixed, in a way similar to that of the embodiment previously described, to a transverse supporting element 20 of metal material, which is fitted on the central column 22 of the base 24.

[0026] This second embodiment enables simplified assembly of the sheet of flexible material 42 on the supporting sectional elements 12. For insertion of the side edges 44 of the sheet of flexible material 42 into the external grooves 14 of the supporting sectional elements 12 the flexibility of the transverse elements 58, 60 is exploited, which enables approach of the supporting sectional elements 12 to one another. After insertion of the

side edges 44 in the external grooves 14, the supporting sectional elements 12 are brought back into their resting position by the elastic return of the transverse elements 58, 60, by setting the sheet of flexible material 42 in tension between the supporting sectional elements 12. The structure is definitively stiffened in a transverse direction by fixing of the ribbed supporting sectional elements 12 to the transverse supporting element 20, as illustrated in Figure 12. The elastic members 56 can be inserted in the same external grooves 14 in which the side edges of the flexible sheet 42 are inserted (see Figure 12). Alternatively, there could be provided seats for the elastic members 56 on the internal sides of the supporting sectional elements 12.

[0027] Figures 14 to 16 illustrate a third embodiment of the chair 10 according to the present invention. In this case, the chair 10 comprises a shaped thin plate 62 made of injection-moulded plastic material having a seat portion 62a, a backrest portion 62b and an arched radiusing portion 62c. The plate of plastic material 62 has two integral ribbings 64 that project in a vertical plane from the bottom or rear surfaces of the portions 62a, 62b, 62c. The ribbings 64 with the corresponding portions of the plate 62 constitute two lateral supporting sectional elements 12, between which the flexible plastic material forming the seat and the backrest of the chair extends. As in the variants described previously, the ribbings 64 are provided with through notches 48, which form points of localized bending of the supporting sectional elements 12.

[0028] The ribbings 64 are fixed to a transverse supporting element 20 carried by a central column 20, in a way similar to what was described previously. In the rear surface of the plate 62, in an area corresponding to the radiusing portion 62c, there are preferably made two integral seats 66 for housing elastic members 56 (see, in particular Figures 15 and 16). The seats 66 can be positioned on the inner side of the ribbings 64 (as illustrated in the figures) or else on the outer side.

[0029] The plate of plastic material 62, in order to be able to bend backwards, must not have a concave curvature on the surfaces of the seat and of the backrest since said curvature would stiffen the backrest, preventing it from bending backwards. For this reason, in this embodiment the chair 10 is preferably provided with padded panels (not illustrated) fixed to the surfaces of the seat and backrest of the plate of plastic material 62.

[0030] Also in this embodiment, the ribbings 64 of the supporting sectional elements 12 can have different shapes in cross section. For example, illustrated in Figures 17 and 18 is an alternative embodiment, in which the ribbings 64 have a substantially parabolic shape in cross section.

[0031] Illustrated in Figure 19 is a variant of the chair of Figure 14. Also in this case, the ribbings 64 are formed integrally with a plate 62 of plastic material. The problem of the impossibility of providing concave resting surfaces of the seat and backrest is solved by forming in the plate 62 a plurality of transverse openings 68 that extend between the ribbed supporting sectional elements 12. The height of the openings 68 must be sufficiently wide so as not to constitute a hazard for the fingers of the user during bending backwards of the plate 62. In this embodiment, the seat and the backrest of the chair are formed by two ribbed supporting sectional elements 12 arranged laterally and extending between which is a plurality of transverse slats 70 parallel to one another and set at a distance from the transverse openings 68. The slats 70 can have a concave sectional element so as to provide concave resting surfaces in an area corresponding to the seat portion 62a and the backrest portion 62b.

[0032] In the version illustrated in Figures 14 and 19, the ribbings 64 do not necessarily need to be positioned in an area corresponding to the side edges of the plate 62. In a possible variant illustrated in Figure 20, the ribbings 64 can be displaced laterally towards the median plane of the chair.

[0033] The chair according to the present invention enables provision of a flexible seat formed by a fabric or by an elastic mesh or, alternatively, by a sheet of injection-moulded plastic material. The supporting sectional elements 12 can be provided with a large number of points of localized bending distributed along a substantial part of the ribbed sectional elements. In particular, the present invention enables positioning of the points of start of bending in a very advanced position (approximately half of the seat). This characteristic increases comfort for the user considerably as compared to a chair in which the movement of bending backwards regards just the backrest or a portion thereof. The most advanced notch can be set in the immediate vicinity of the area of fixing of the supporting sectional elements 12 to the transverse supporting element 20.

Claims

1. A chair comprising two ribbed supporting sectional elements (12) set at a distance from one another in a transverse direction and connected to a base (22, 24) by means of a transverse supporting element (20), wherein each of said ribbed supporting sectional elements (12) is basically L-shaped, with a seat portion (12a), a backrest portion (12b), and a rounded radiusing portion (12c) between the seat portion (12a) and the backrest portion (12b), and wherein extending between said supporting sectional elements (12) is a material basically in the form of a sheet (42, 62) forming a seat (42a, 62a) and a backrest (42b, 62b), said chair being **characterized in that** each of said ribbed supporting sectional elements (12) is provided with a plurality of through notches (48), which are set at a distance from one another in a longitudinal direction and form respective points of localized bending that enable bending of the supporting sectional element (12) in a vertical

plane, said notches (48) being distanced from one another by respective stretches (50) substantially rigid to bending in said vertical plane.

2. The chair according to Claim 1, **characterized in that** each of said notches (48) has two opposite surfaces (54) that come into contact upon one another to limit the amplitude of the local bending of the sectional element.

3. The chair according to Claim 1, **characterized in that** said notches (48) are formed in an integral ribbing (18) that extends in a median vertical plane of the respective supporting sectional element (12).

4. The chair according to Claim 3, **characterized in that** said notches (48) are distributed along said seat portions (12a), said backrest portions (12b) and said radiusing portions (12c) of said supporting sectional elements (12).

5. The chair according to Claim 3, **characterized in that** said ribbing (18) has a thickness comprised between 2-20 mm and a height comprised between 10-60 mm.

6. The chair according to Claim 2, **characterized in that** each of said notches (48) enables a localized bending of the sectional element with a maximum amplitude comprised between 1°-22°.

7. The chair according to Claim 1, **characterized in that** said sheet material (42) is constituted by a fabric or by a mesh with side edges (44) anchored in respective external grooves (14) of said supporting sectional elements (12).

8. The chair according to Claim 1, **characterized in that** said sheet material (62) consists of injected plastic material integral with said supporting sectional elements (12).

9. The chair according to Claim 1, **characterized in that** said supporting sectional elements (12) are joined together by transverse elements (58, 60) formed integrally with said supporting sectional elements (12).

10. The chair according to Claim 1, **characterized in that** each of said supporting sectional elements (12) comprises at least one elastic member (56) formed by a bar of elastic metal material inserted in a seat of said supporting sectional element (12).

11. The chair according to Claim 2, **characterized in that** said supporting sectional elements (12) with said integral ribbing (18) are made of injection-moulded plastic material.

Amended claims in accordance with Rule 137(2) EPC.

1. A chair comprising two ribbed supporting sectional elements (12) set at a distance from one another in a transverse direction and connected to a base (22, 24) by means of a transverse supporting element (20), wherein each of said ribbed supporting sectional elements (12) is basically L-shaped, with a seat portion (12a), a backrest portion (12b), and a rounded radiusing portion (12c) between the seat portion (12a) and the backrest portion (12b), and wherein extending between said supporting sectional elements (12) is a material basically in the form of a sheet (42, 62) forming a seat (42a, 62a) and a backrest (42b, 62b), said chair being **characterized in that**

- each of said ribbed supporting sectional elements (12) is provided with a plurality of through notches (48), which are set at a distance from one another in a longitudinal direction and form respective points of localized bending that enable bending of the supporting sectional element (12) in a vertical plane, said notches (48) being distanced from one another by respective stretches (50) substantially rigid to bending in said vertical plane,
- said supporting sectional elements (12) with said integral ribbing (18) are made of injection-moulded plastic material, and that
- said supporting sectional elements (12) are joined together by transverse elements (58, 60) formed integrally with said supporting sectional elements (12).

2. The chair according to Claim 1, **characterized in that** each of said notches (48) has two opposite surfaces (54) that come into contact upon one another to limit the amplitude of the local bending of the sectional element.

3. The chair according to Claim 1, **characterized in that** said notches (48) are formed in an integral ribbing (18) that extends in a median vertical plane of the respective supporting sectional element (12).

4. The chair according to Claim 3, **characterized in that** said notches (48) are distributed along said seat portions (12a), said backrest portions (12b) and said radiusing portions (12c) of said supporting sectional elements (12).

5. The chair according to Claim 3, **characterized in that** said ribbing (18) has a thickness comprised between 2-20 mm and a height comprised between 10-60 mm.

6. The chair according to Claim 2, **characterized in that** each of said notches (48) enables a localized bending of the sectional element with a maximum amplitude comprised between 1°-22°.

7. The chair according to Claim 1, **characterized in that** said sheet material (42) is constituted by a fabric or by a mesh with side edges (44) anchored in respective external grooves (14) of said supporting sectional elements (12).

8. The chair according to Claim 1, **characterized in that** said sheet material (62) consists of injected plastic material integral with said supporting sectional elements (12).

9. The chair according to Claim 1, **characterized in that** each of said supporting sectional elements (12) comprises at least one elastic member (56) formed by a bar of elastic metal material inserted in a seat of said supporting sectional element (12).

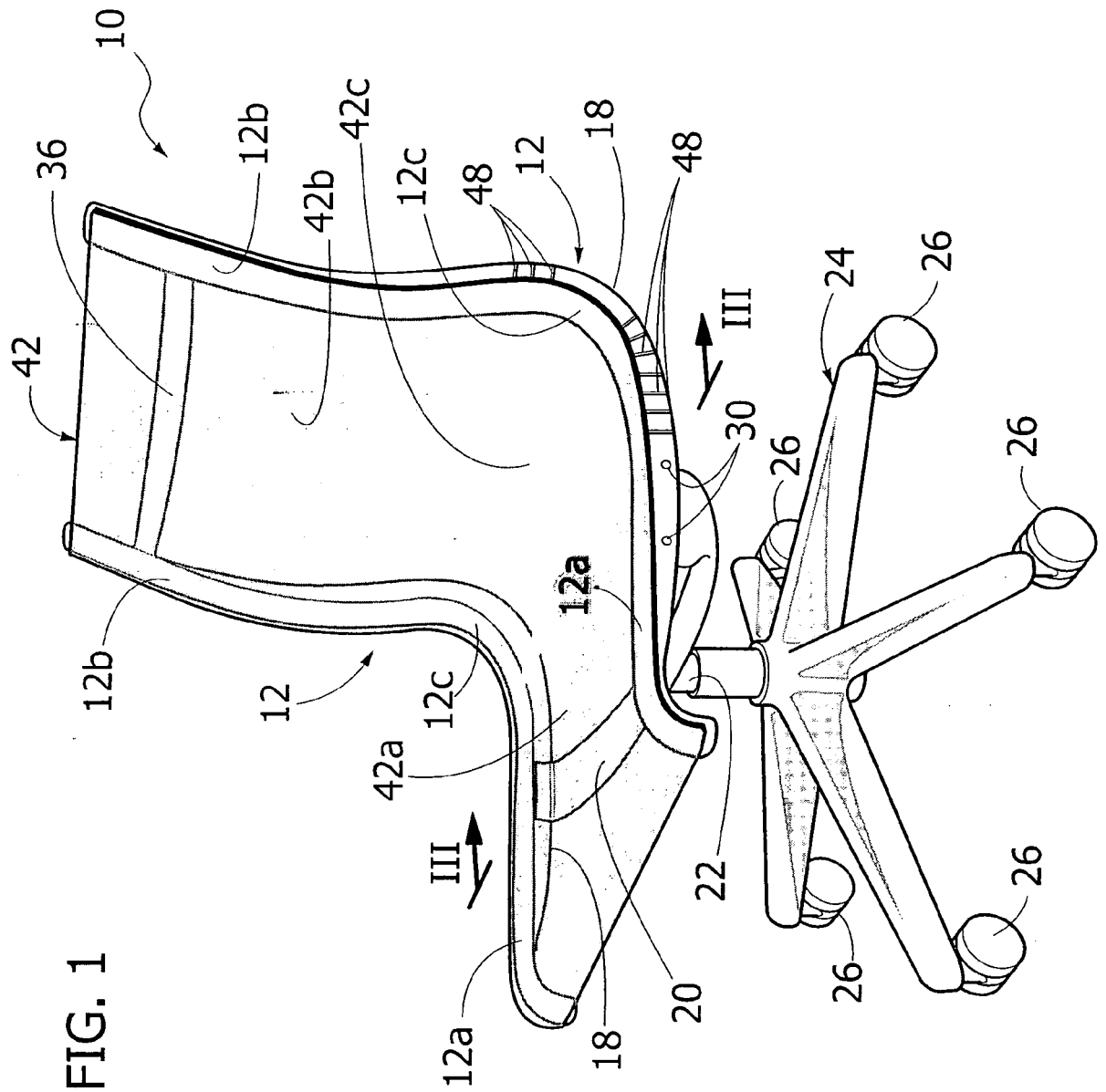
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FIG. 1

FIG. 2

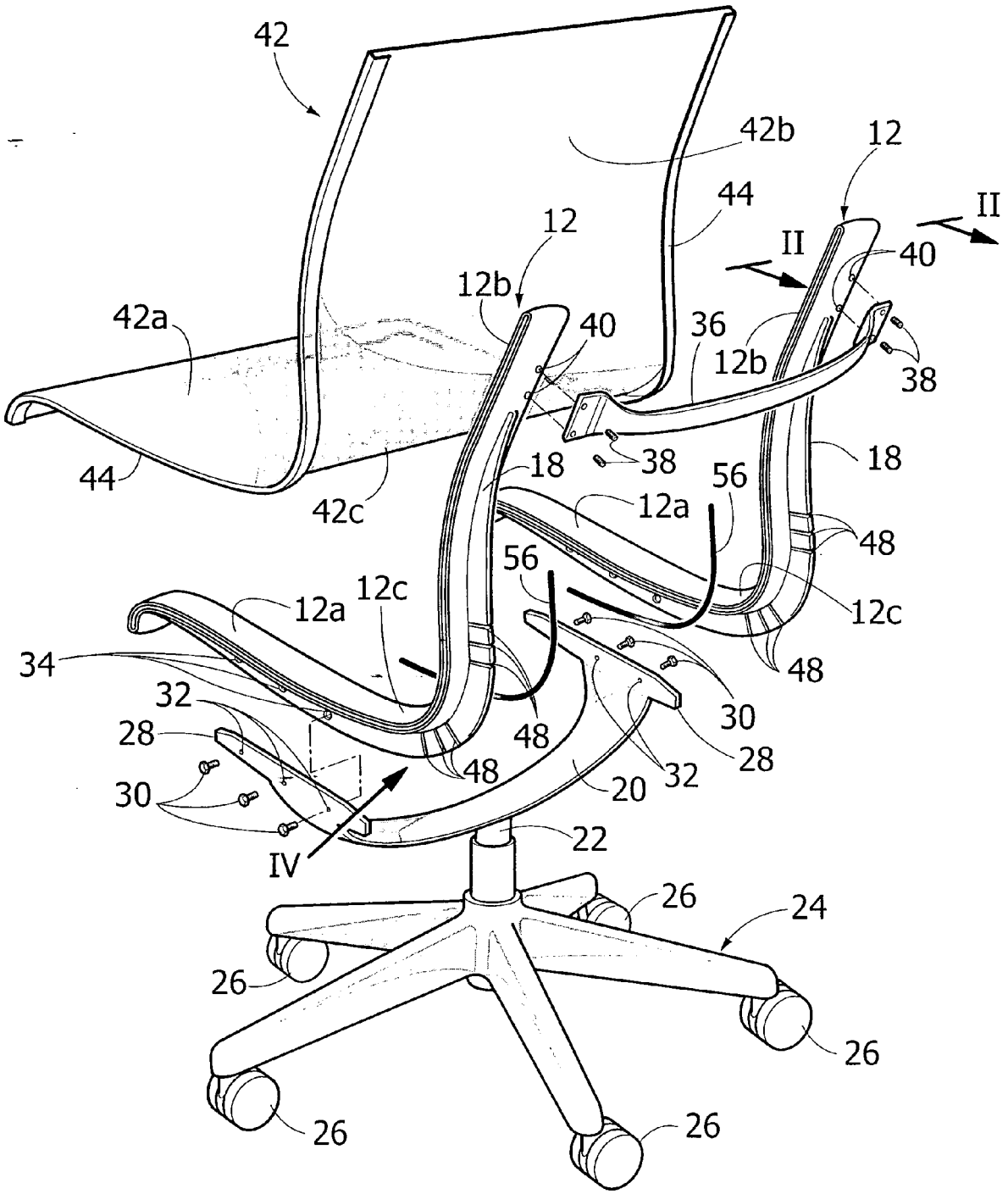
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FIG. 2A

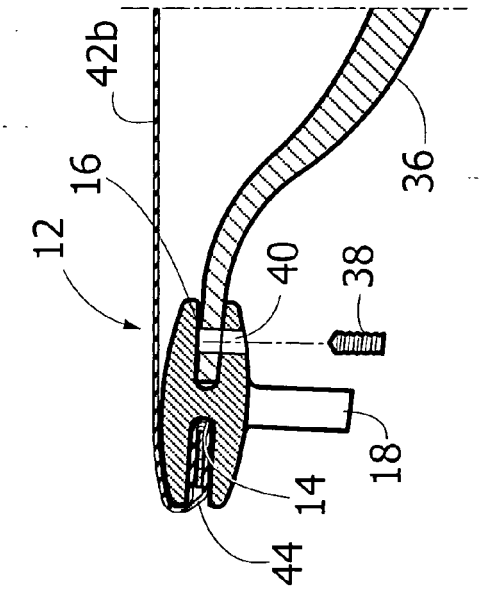
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FIG. 3

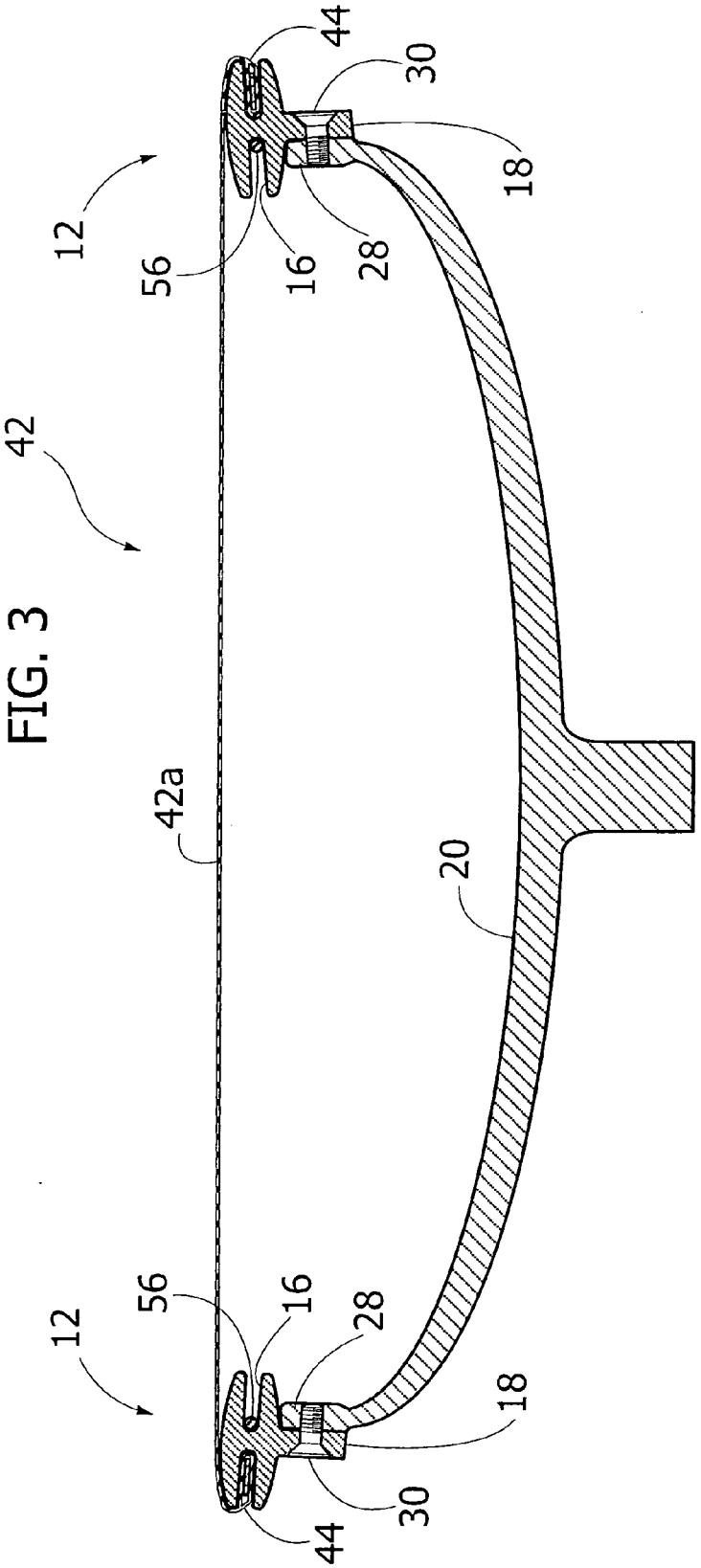
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FIG. 3A

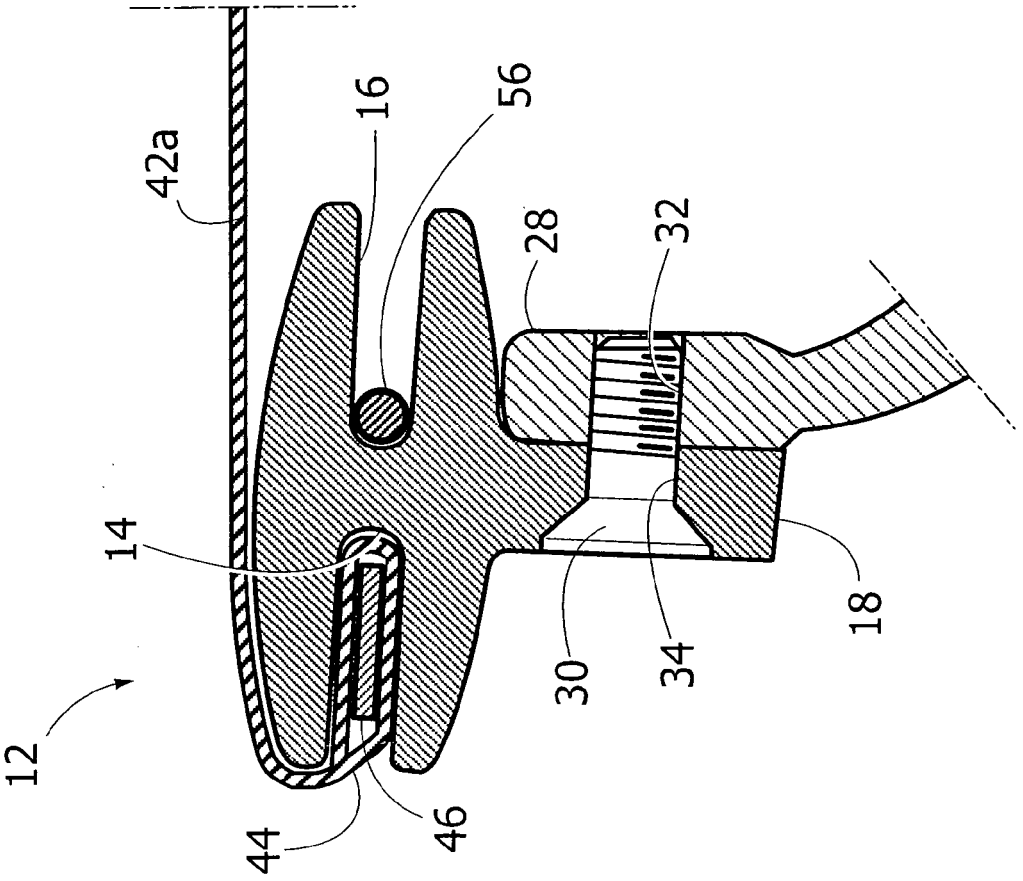

FIG. 4

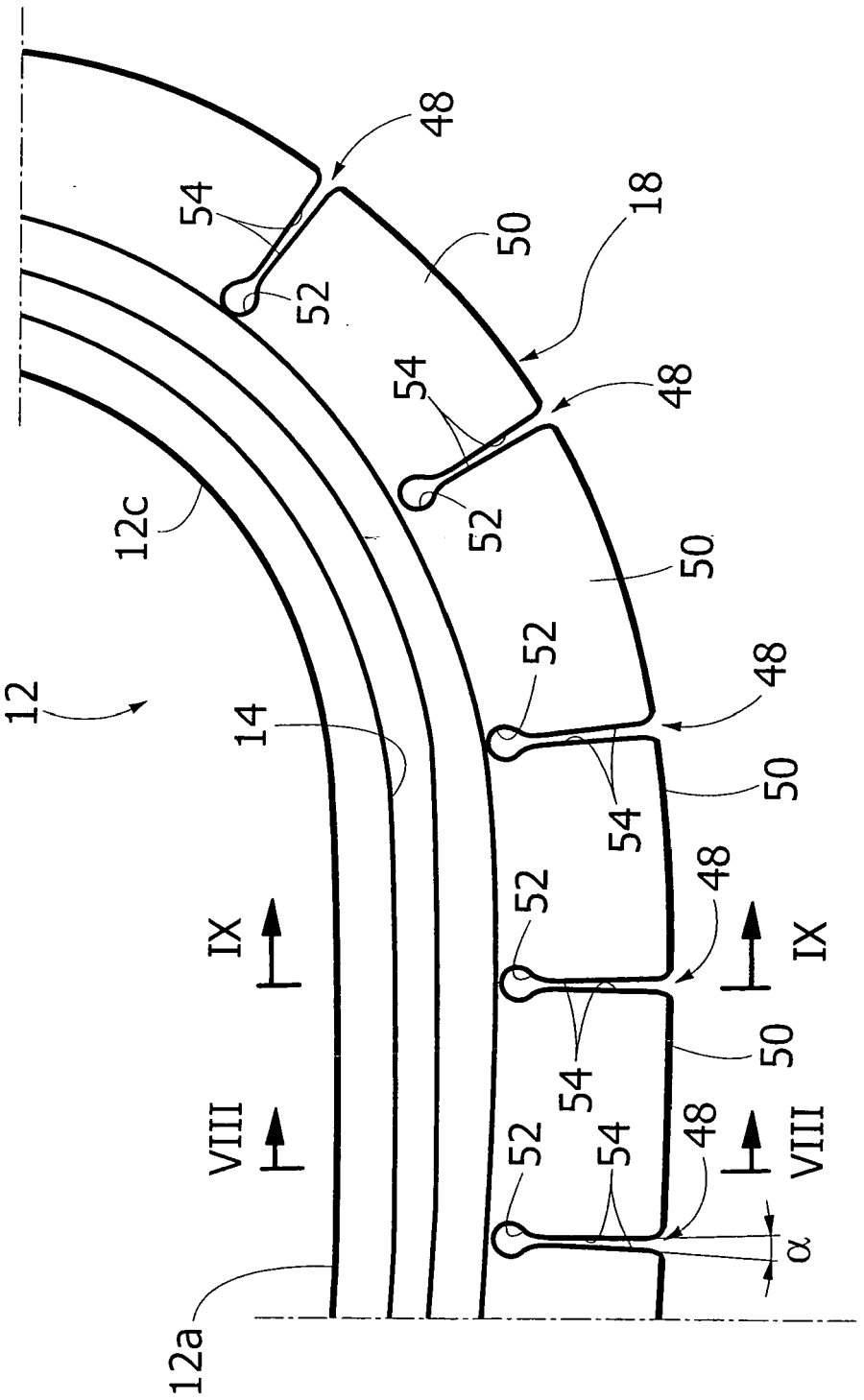
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FIG. 5

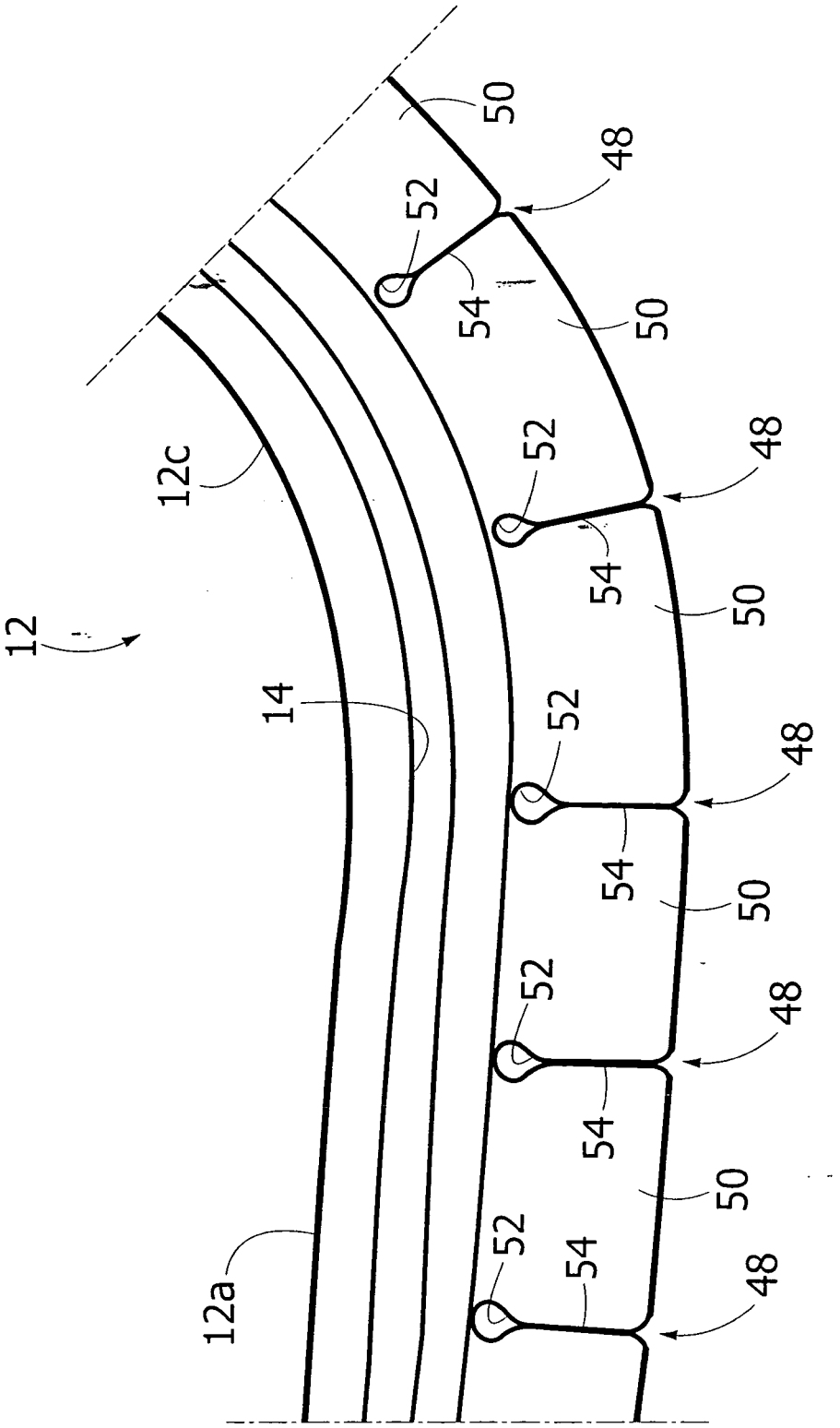
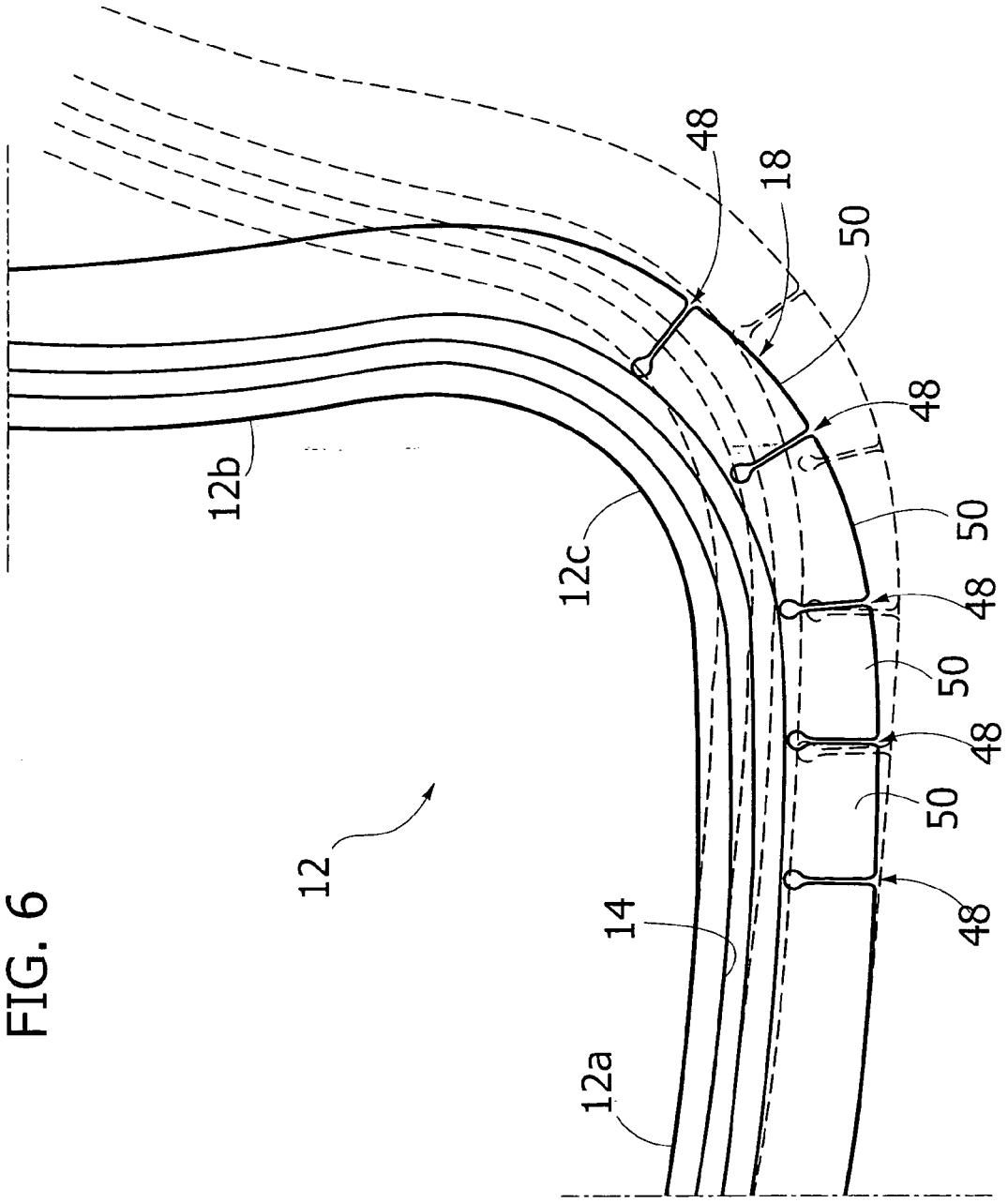


FIG. 6



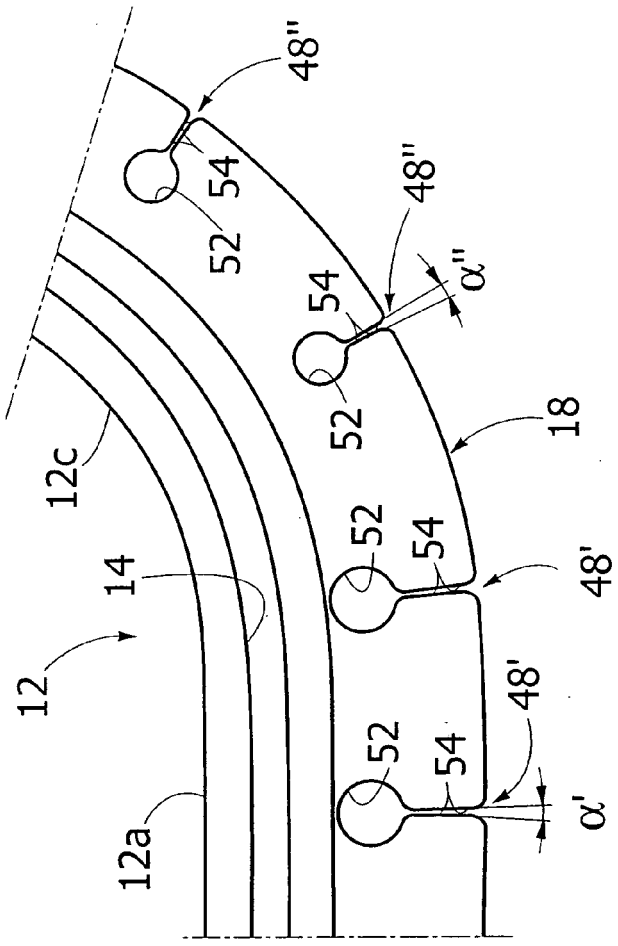


FIG. 7

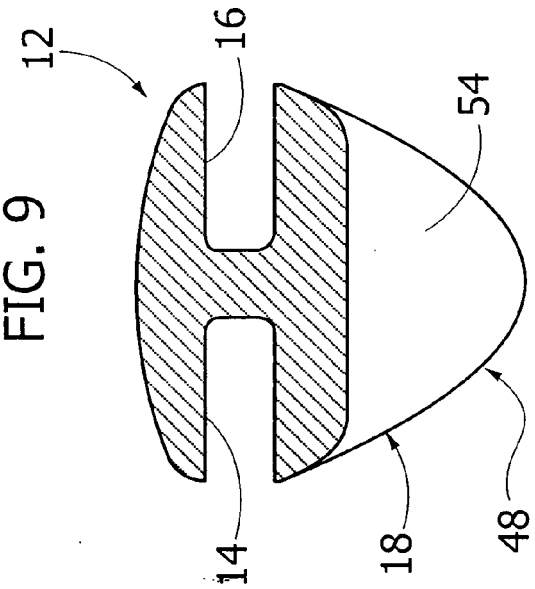


FIG. 9

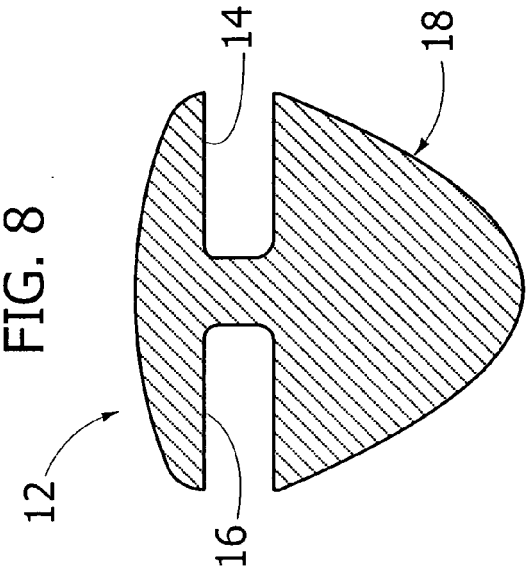
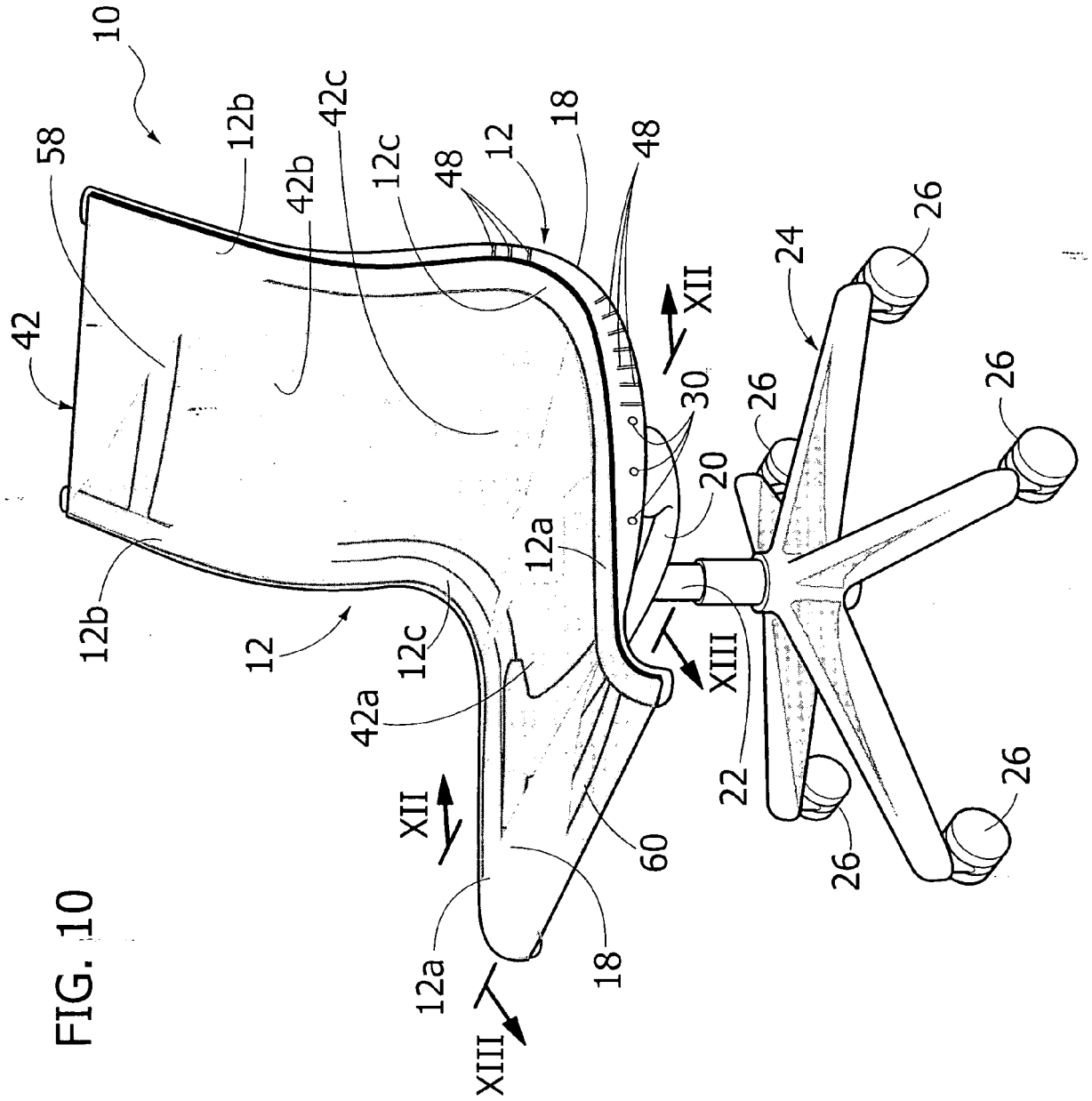


FIG. 8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12c
XIII
42a
22
XII
60
26
26
12a
18
XIII

FIG. 10

FIG. 11

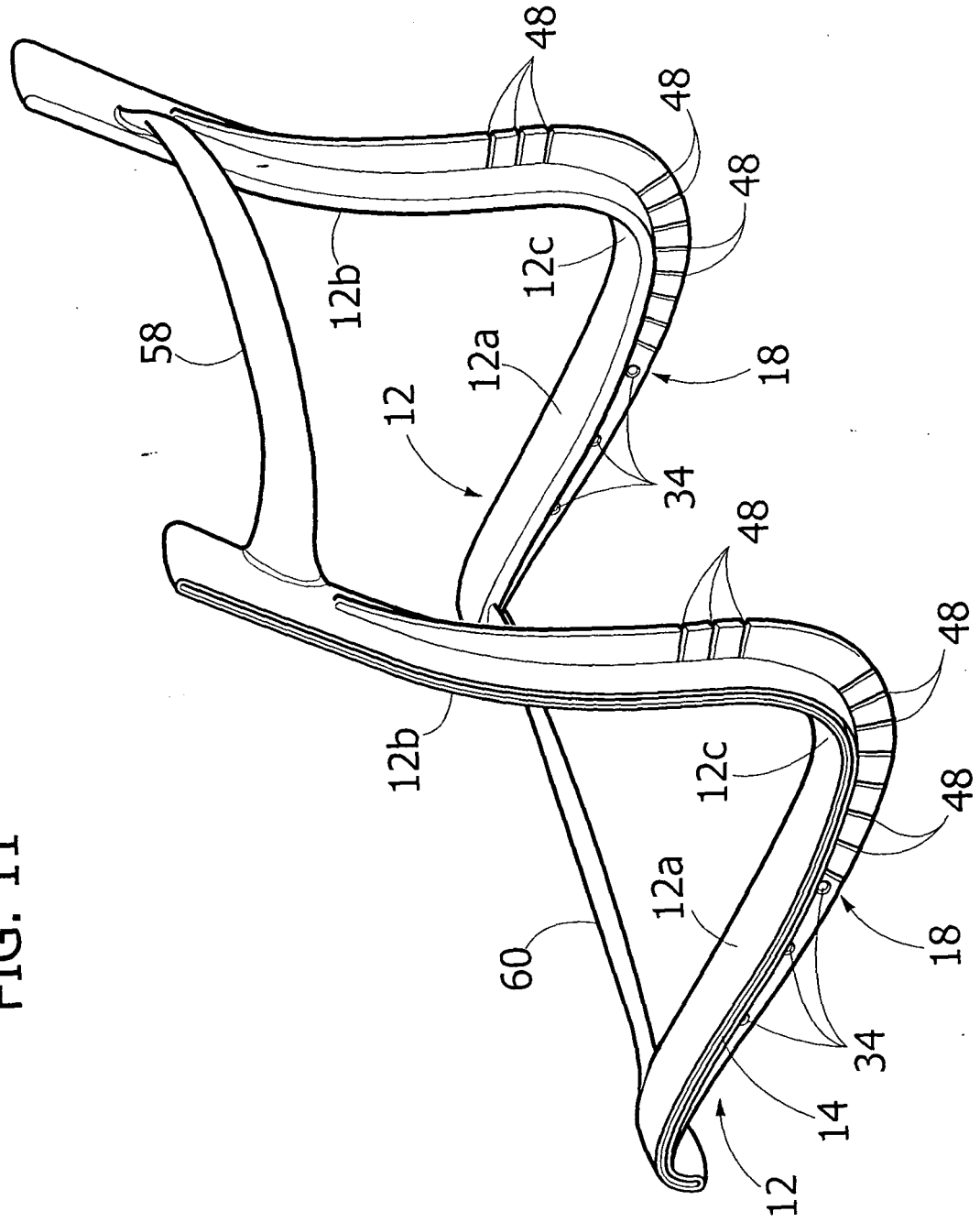
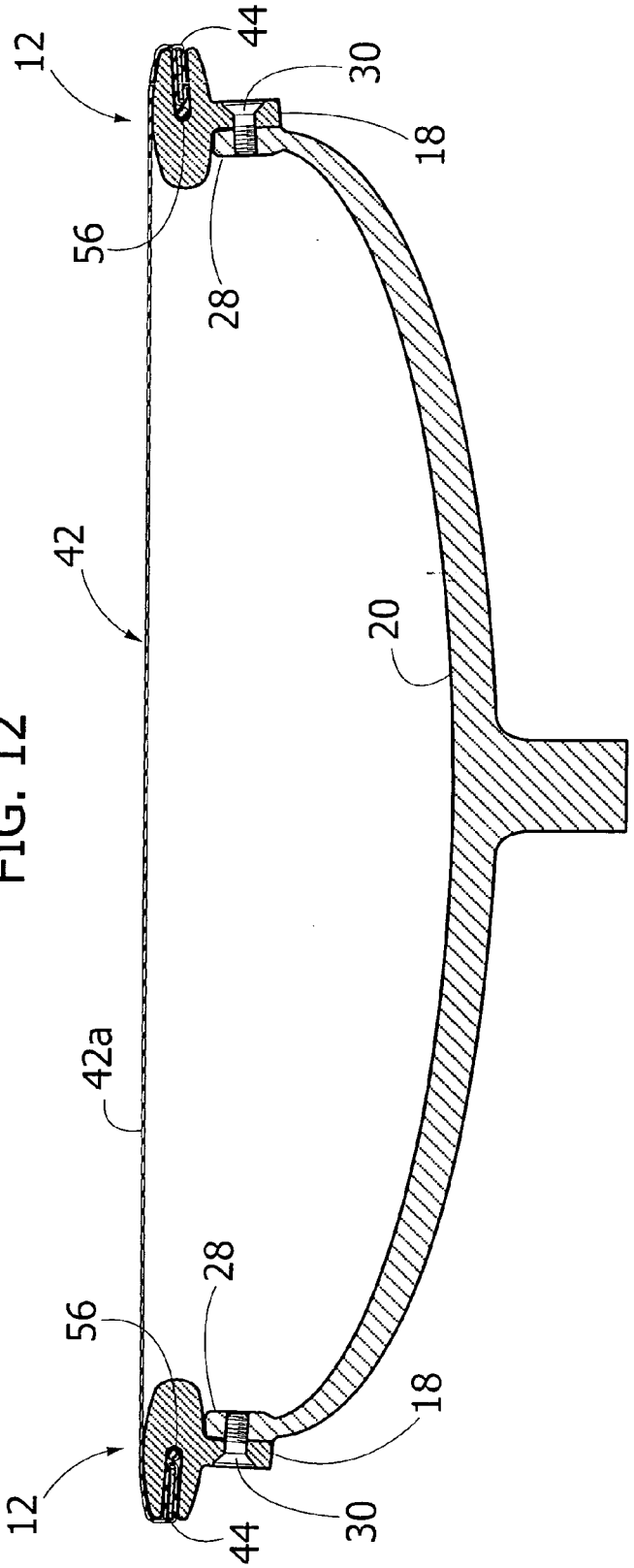


FIG. 12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42a
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FIG. 13

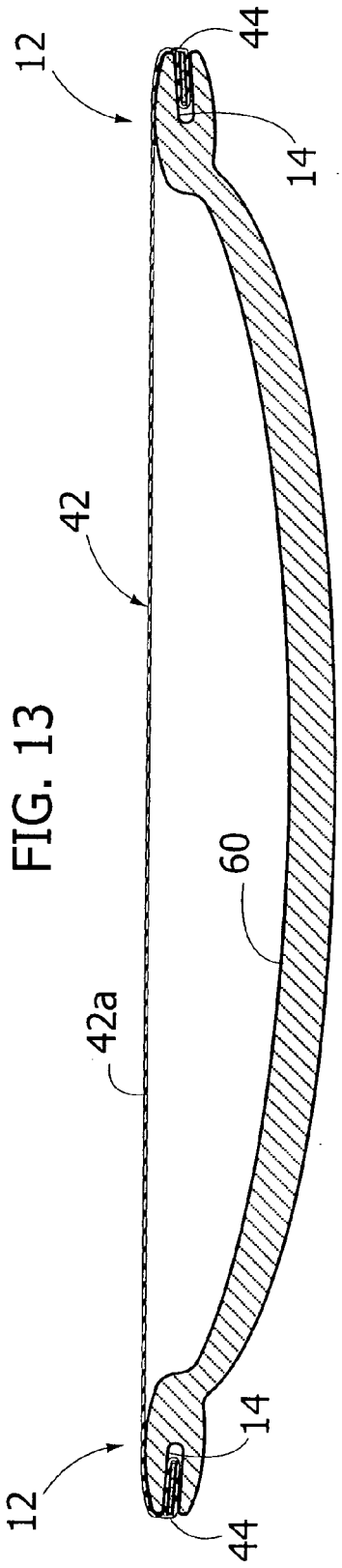
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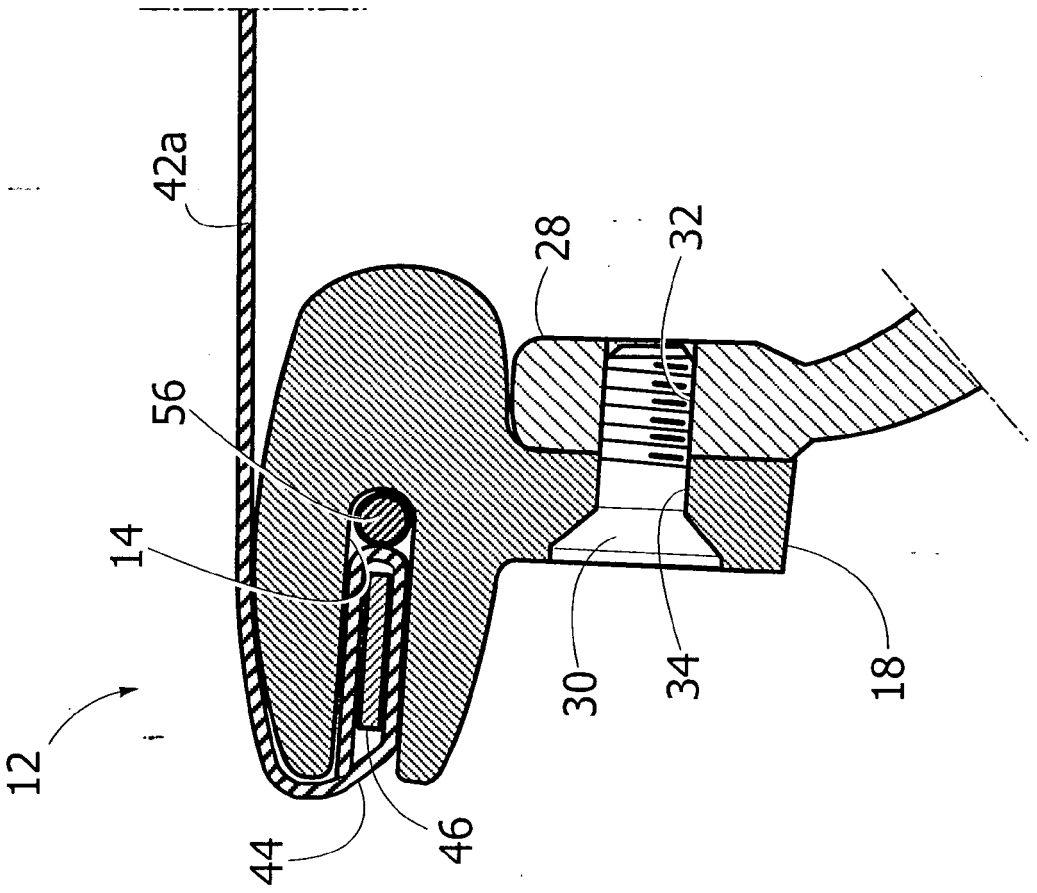
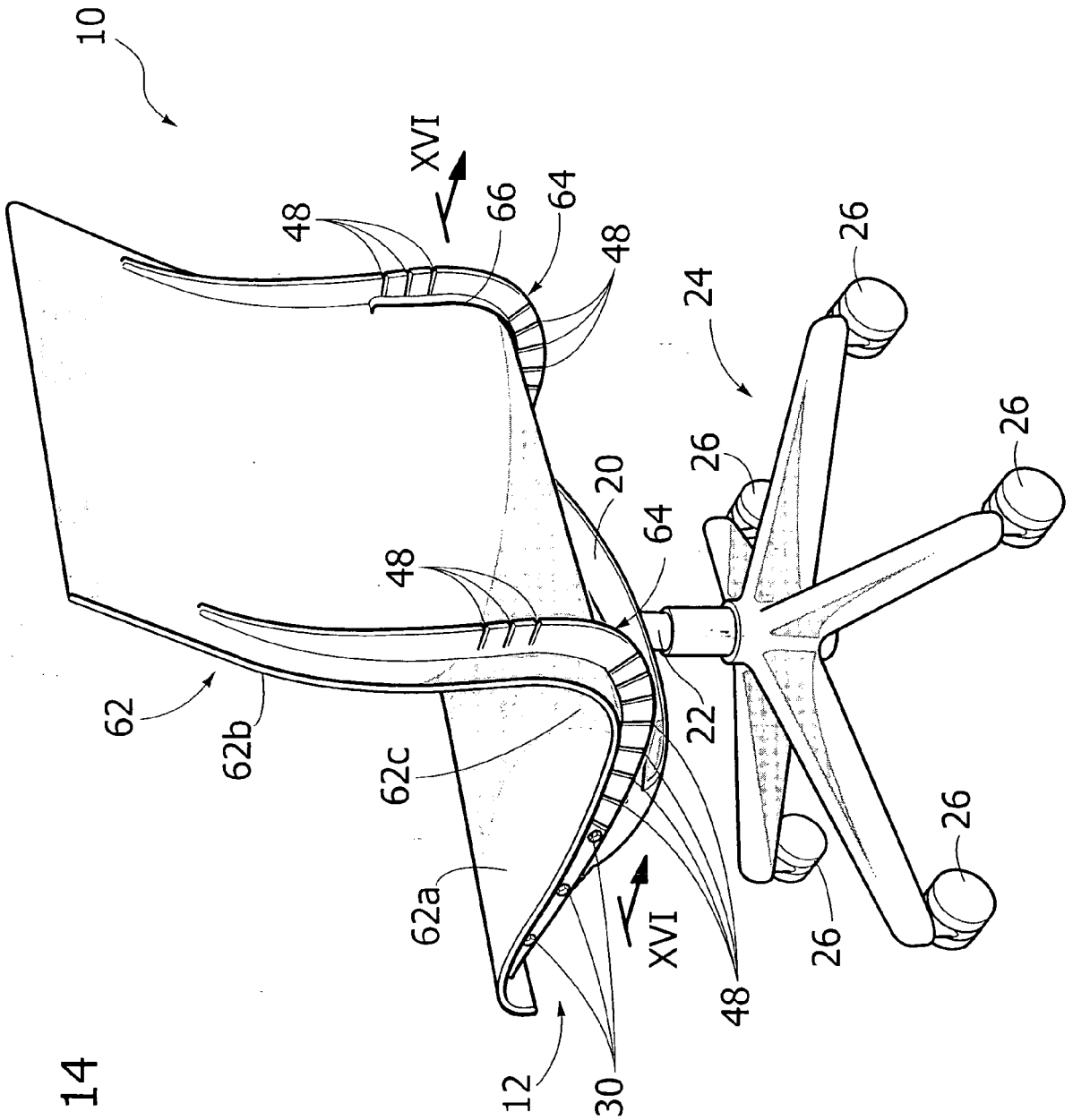
FIG. 12A

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62b
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XVI
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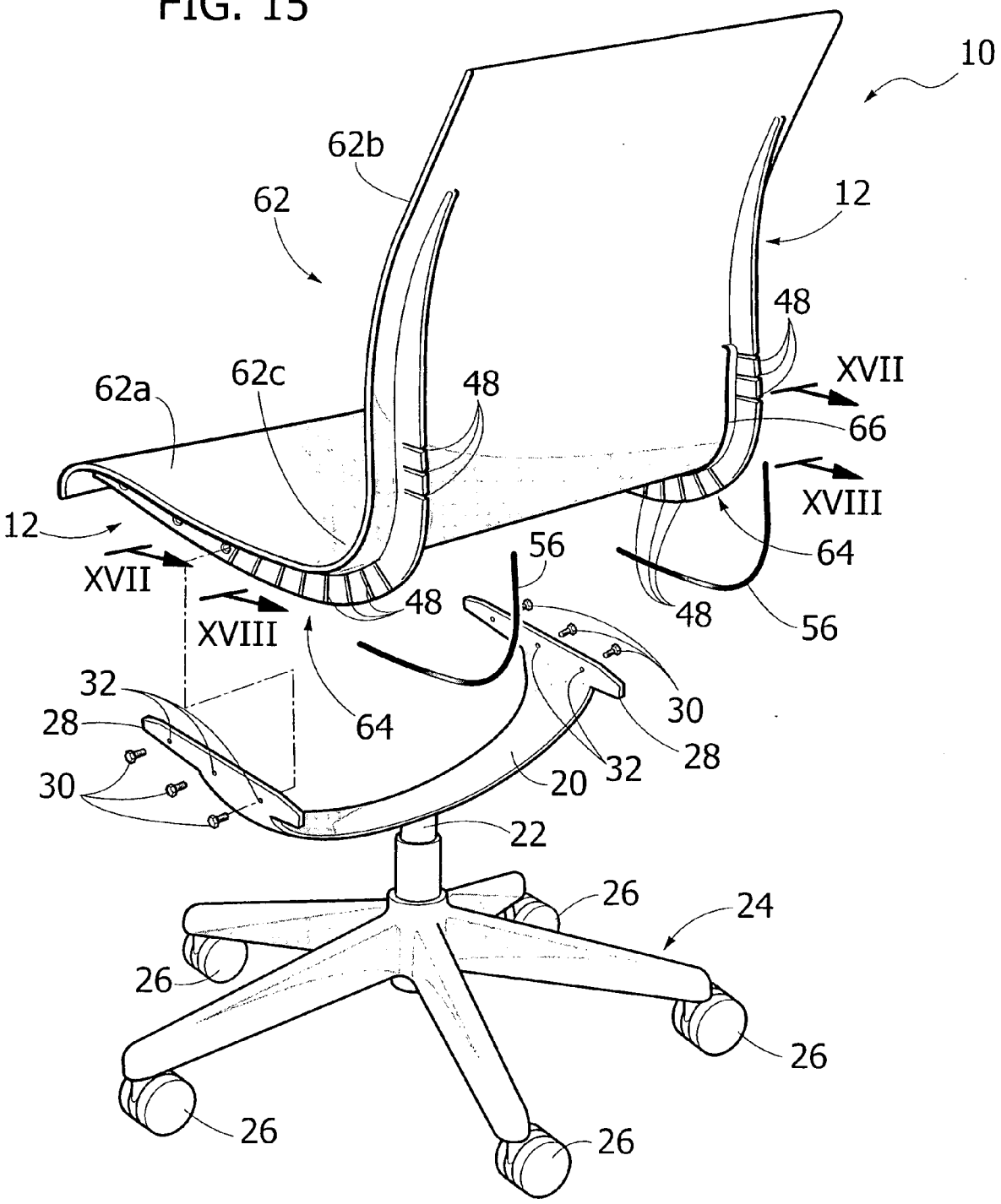
FIG. 14

FIG. 15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62c
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XVIII
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XVII
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FIG. 16

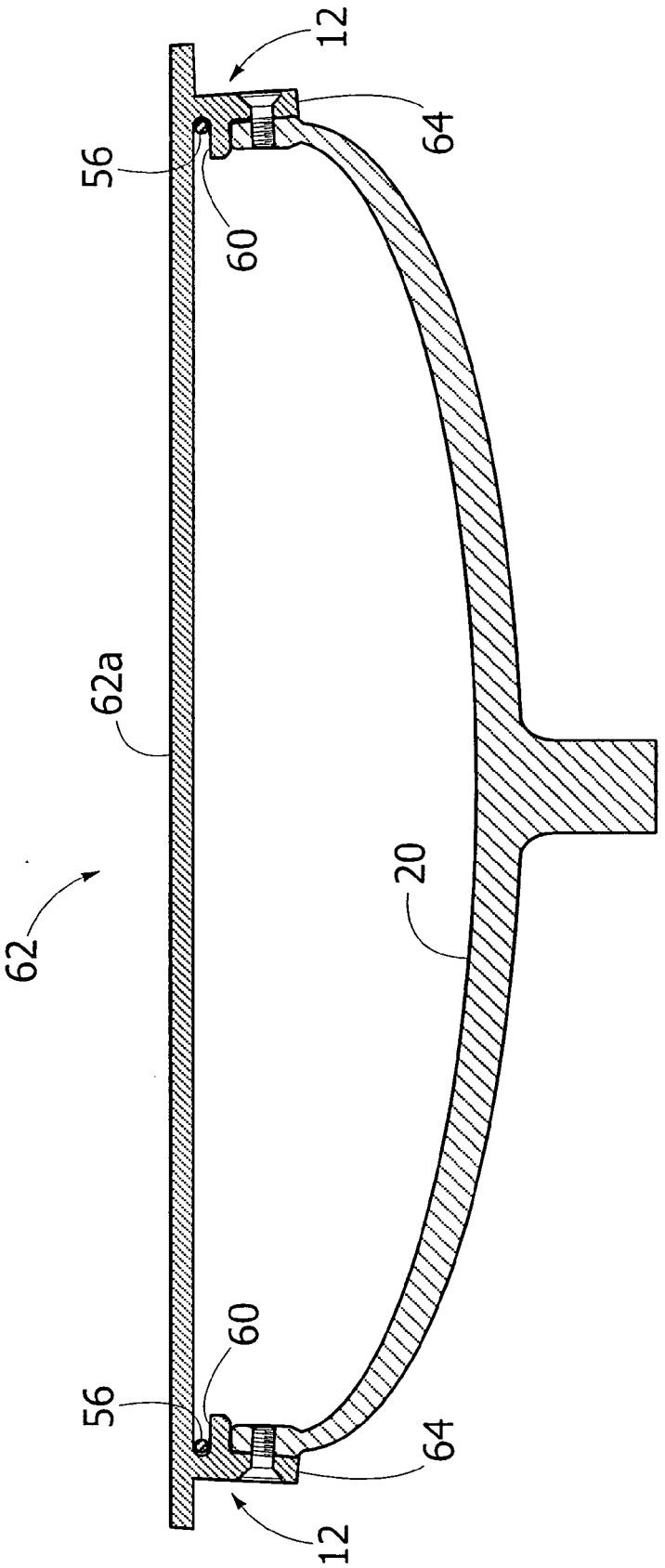


FIG. 17

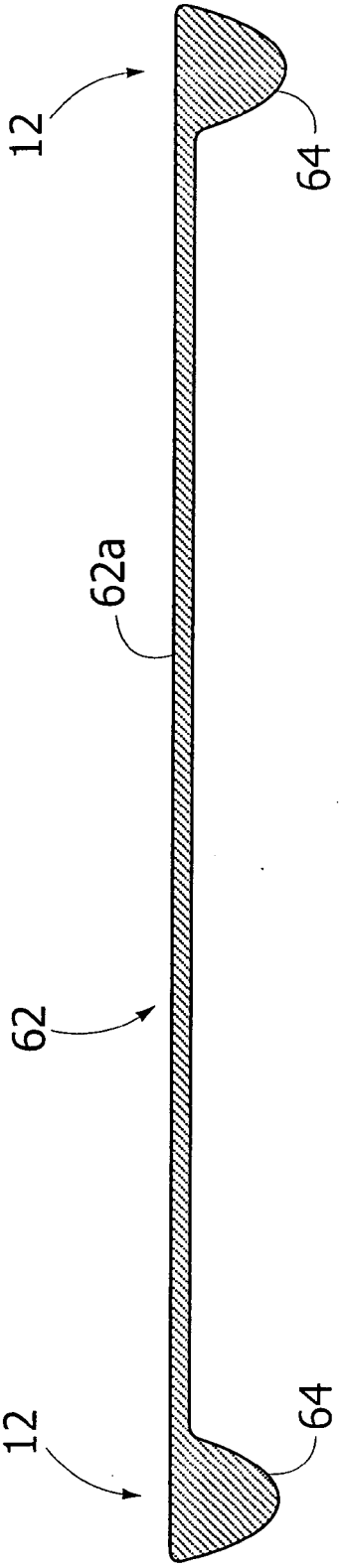
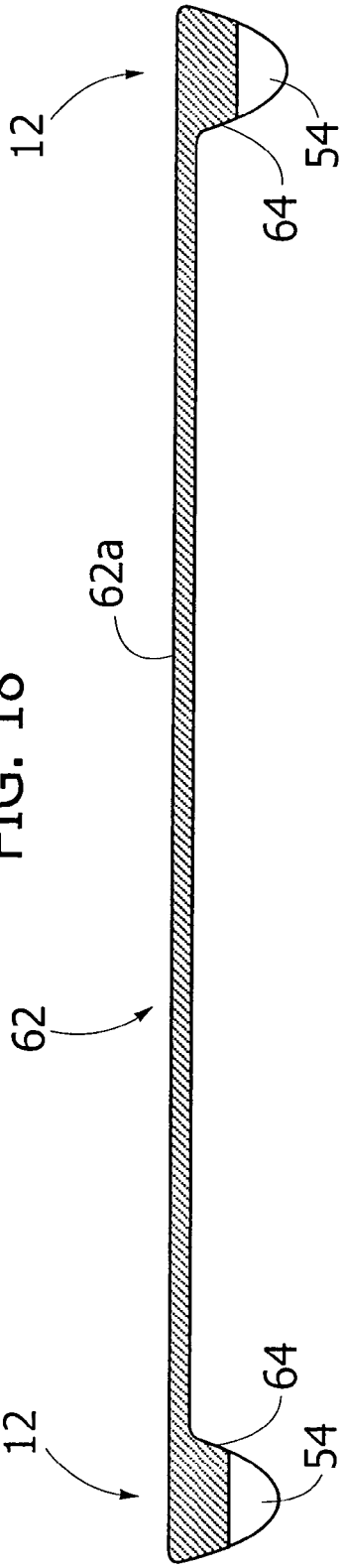


FIG. 18



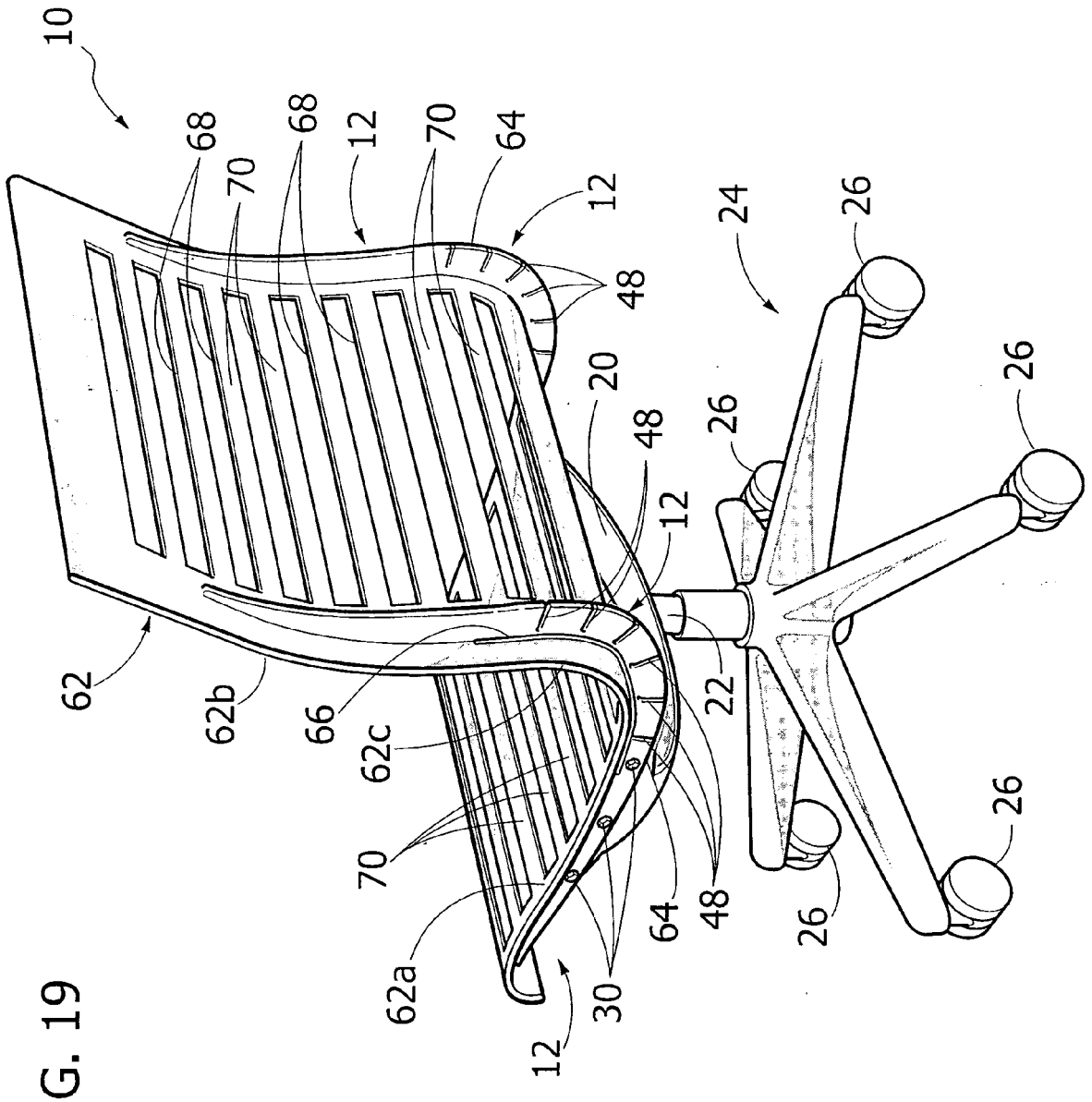

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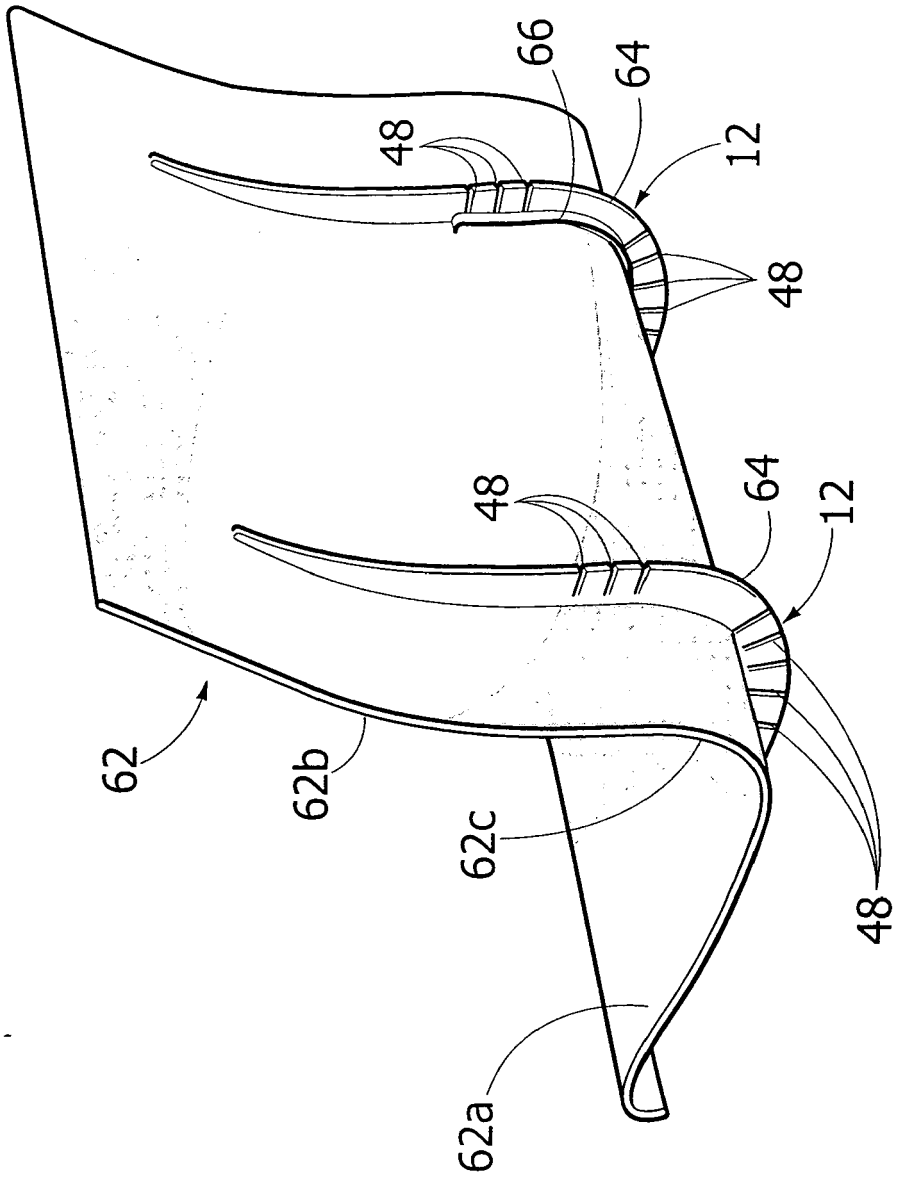
FIG. 19

FIG. 20



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Application Number
EP 08 42 5266

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 September 2008	Kus, Slawomir

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