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(54) **METHOD OF PRODUCING ARMCHAIR SIDE PANELS AND SIDE PANELS THUS PRODUCED**

(57) For application to the production of sides for pedestal seats (3), step seats (33) and step front seats (133), by a one-piece plastic moulding process, using a mould that comprises a fixed part (1), from which there is obtained a main body (2), common to all of them, and interchangeable parts (6), (66), (4), (44), (144) which give rise to means for supporting the seat side on the floor or on a step, and to a fixed armrest (8) or end extensions (9) of the side on which a folding armrest (12) is attached.

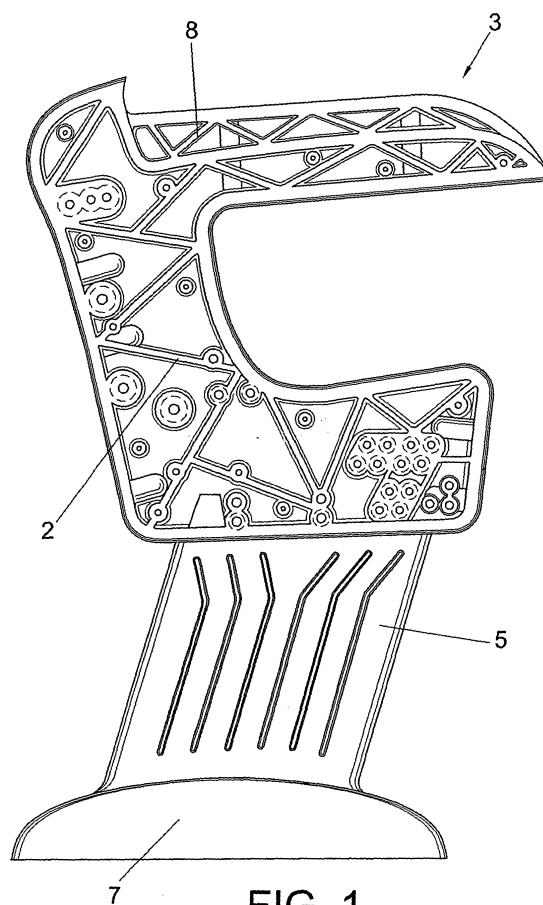


FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a procedure in which complete plastic material sides, including anchorages for fastening to the floor or even steps, as well as fixed armrests or means for jointing folding armrests, can be produced in the same operation.

[0002] According to the procedure covered by the invention, sides for seats are made by using a single mould which has a fixed part that permits the production of the main body of the side, common to all of them, and a series of inserts or exchangeable parts that enable the differentiating items or parts of each side to be produced.

[0003] This invention also refers to the seat sides that are produced by means of this and the folding armrest that pivots in relation to this side.

BACKGROUND OF THE INVENTION

[0004] The actual applicant of the present invention is the holder of PCT ES01/00285 in which a procedure is described for producing variable configuration frames for cinema seats and/or the like.

[0005] In accordance with the procedure described in this invention the seat sides are obtained from a single mould which has a fixed part whose configuration matches the body of the side, which is common to all sides, and an exchangeable part of variable geometry from which the leg and bearing shoe, in such a way that, depending on the configuration of the exchangeable part of the mould, sides are obtained with legs of different lengths and bearing shoes of different angles.

[0006] This procedure successfully uses a single mould to produce seat sides for adjustment to the desired height of the seat and adaptation to the different slopes present in the floor.

[0007] The holder of the present invention also applied for Invention Patent ES 2 179 754 which is entitled "Procedure for producing a seat side and the side produced by this procedure" and refers to a procedure for producing sides using a mould that has a fixed part from which the main body and leg of the side are obtained, and a moving part that produces the shoe for anchoring it to the floor.

[0008] According to this Patent, by adjusting the position of the moving piece in relation to the fixed piece we can obtain a leg of varying length as well as a shoe of varying inclination.

[0009] With the above-mentioned procedures sides with legs of varying length and shoes of varying inclination can be produced but always for application or anchorage on a level floor.

[0010] Seats are often also set in place on stepped surfaces, in the form of tiers, in which the sides may be anchored to the horizontal plane of the steps or else suspended from the front or vertical face of the steps.

[0011] It appears quite obvious that the sides de-

scribed in the foregoing Patents are not suitable for anchoring to a step, as, if we try and attach the seat side directly to the horizontal surface of the step, the body of the side will be fixed by its base without the need to include legs or shoes as well, while if it is attached to the front of the step, it will require a curved leg and a vertical flange of configurations that are therefore different from the legs and shoes used conventionally in the seat side with a leg that is attached to the flat floor.

[0012] Furthermore, the possibility is considered that the seat sides should include a fixed armrest as an integral part of the side, or else folding armrests with the means needed for pivoting the aforesaid armrest.

DESCRIPTION OF THE INVENTION

[0013] The procedure for producing seat sides covered by this invention enables complete plastic sides, i.e. including the necessary support or anchoring means, to be produced in the same moulding operation, as well as the fixed armrests or the means necessary for the provision of folding armrest joints, so that all the possible seat side configurations are obtained from the same mould.

[0014] For this purpose, the mould includes a fixed part from which most of the seat side is obtained and two exchangeable or variable parts which produce the differentiating or distinctive items or parts of each side.

[0015] Specifically, the fixed part of the mould provides for the production of the body of the side proper, excluding the end or top finish in which the armrest is extended or jointed, as well as the lower part corresponding to the side support or anchoring means.

[0016] One of the exchangeable parts permits the manufacture of the top of the side and it may have different configurations, an initial configuration according to which a fixed armrest is produced as a prolongation of the upper part of the body of the side, and a second one which is used to produce end extensions to the side where the folding armrest will be attached.

[0017] The other exchangeable part of the mould is for producing the support area of the side, presenting different configurations depending on the surface on which the seat is to be anchored and thus, for instance, the following configurations are envisaged:

- When the seat has to be anchored on a flat surface, whether level or sloping, it will enable the leg and the shoe to obtain support, as both legs and shoes can be made available of different lengths and angles, respectively, depending on the inside configuration of the exchangeable part used.
- When the seat has to be installed on a step, and particularly on the horizontal plane of the step, this exchangeable part of the mould will not produce any part of the side and the side rests directly on the step.
- When the seat is mounted on the step front, it will permit production of the vertical anchor flange and the connecting piece between the flange and the bot-

tom part of the seat side.

[0018] In this way, with a single mould by simply changing the two exchangeable parts we can obtain all the possible side configurations, including the different anchoring elements and even the fixed armrests or the items that permit the installation of folding armrests.

[0019] Specifically, the following types of sides may be produced:

- Seat side with fixed armrest and leg or shoe for anchoring on a flat floor, whether level or sloping, where the legs have different lengths and the shoes different angles.
- Seat side for installing a folding armrest, with a leg and shoe for anchoring to a flat floor, whether level or sloping, where the legs have different lengths and the shoes different angles.
- Side with a fixed armrest for anchoring to the step.
- Side for folding armrest for anchoring to the step.
- Side with fixed armrest for anchoring to the step front.
- Side for folding armrest for anchoring to the step front.

[0020] The folding armrest side solution makes allowance for end extensions to be prolonged at the top from the rear of the body of the side in a parallel layout, forming an empty space between them that accommodates the folding arm rear end, which pivots in relation to these extensions by means of a pin consisting of the body of a bolt which first passes through one of the extensions and then penetrates a through-hole in this end and afterwards in the other extension, to be secured finally with a nut.

[0021] The rear end of the armrest has a generally cylindrical shape and belongs to a support body which exhibits an elongated body of a general rectangular prismatic configuration provided with fins on each side at its base.

[0022] Between the rear end of the support and the elongated body there is a protuberance at the top, which, together with the base fins, forms the contact surfaces of a supplementary piece, of two possible designs, with or without a glass holder, which is installed on the support to which it is attached by means of screws that pass through the base of the supplementary piece and engage in threaded holes defined in the support.

[0023] In the rear folding of the armrest, its turn will be limited by the protuberance when it comes up against a rear wall of the side situated between the extensions. The other position of the armrest, i.e. its horizontal operational position for which it fulfils its function of acting as the resting surface for the arms, matches up with the situation of the armrest on a horizontal plateau located between the end extensions of the side.

DESCRIPTION OF THE DRAWINGS

[0024] To supplement the description being given and

to assist a clearer understanding of the features of the invention, in accordance with a preferred specimen of the practical embodiment of same, this description is accompanied by a set of drawings wherein, for purely informative and non-restrictive purposes, the following is represented:

Figure 1.- It shows a side view of the pedestal seat side with a fixed armrest.

Figure 2.- It shows a side view of the seat side with a fixed armrest, for anchoring on a step.

Figure 3.- It shows a side view of the seat side with a fixed armrest, for anchoring on the front of a step.

Figure 4.- It shows a side view of the pedestal seat side with a joint for the folding armrest.

Figure 5.- It shows a side view of the seat side with a joint for a folding armrest, for anchoring on a step.

Figure 6.- It shows a side view of the seat side with a joint for a folding armrest, for anchoring on the front of a step.

Figure 7.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the pedestal seat side with a fixed armrest.

Figure 8.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the seat side with a fixed armrest for anchoring on a step.

Figure 9.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the seat side with a fixed armrest for anchoring on the front of a step.

Figure 10.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the pedestal seat side with a joint for a folding armrest.

Figure 11.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the seat side with a joint for a folding armrest, for anchoring on a step.

Figure 12.- It shows a side view of the mould, composed of the fixed part and the variable parts, for producing the seat side with a joint for a folding armrest, for anchoring on the front a step.

Figure 13.- It shows a perspective view of the seat side in which the folding armrest is seen in the horizontal position.

Figure 14.- It shows a perspective view of the seat side in which the folding armrest is seen in its upper position of maximum folding.

Figure 15.- It shows a perspective view of the folding armrest in which its component parts may be seen, without the supplementary piece.

Figure 16.- It shows a perspective view of the folding armrest with the support piece and the supplementary piece attached.

Figure 17.- It shows a cross-sectional view of figure 16 according to A-A.

Figure 18.- It shows a detail drawing of the folding armrest during the action of folding, in which we observe the rear positional stop and the horizontal plateau between which the armrest is folded.

PREFERRED EMBODIMENT OF THE INVENTION

[0025] In the light of the figures which is described below the procedure for making the seat sides covered by this invention enables complete seat sides of plastic material to be produced in a one-piece moulding, comprising the countless possible variations for the sides, both as regards their means for anchoring to the floor and to the different armrest versions that may be fitted.

[0026] With this procedure we may obtain complete pedestal sides (3), i.e. for anchoring to a flat floor, step sides (33) for mounting on the horizontal plane of a step or stepped floor, and step front sides (133) for installation suspended from the vertical face of steps, while the seat sides may each comprise a fixed armrest (8) or parallel end extensions (9) for attaching folding armrests (12).

[0027] The sides produced in a single piece also comprise all the elements needed for bracing, for the installation of the seat and the seat, and for fitting finish covers.

[0028] The procedure consists of moulding the sides in a single mould which enables different configurations of the sides to be obtained, for which purpose the mould is provided with a fixed part (1) and two variable or interchangeable parts that present different configurations in accordance with the differentiating items envisaged for each side.

[0029] Specifically, the fixed part (1) permits the production of the main body (2) of the side, common to all the side configurations, but without including the floor anchor elements, nor the upper part to which the respective armrest is attached or coupled.

[0030] The mould also includes an upper interchangeable piece or part (6), (66) which provides for the production, respectively, of a fixed armrest (8) and the end extensions (9) specified for the jointing of a folding armrest (12).

[0031] A lower interchangeable piece or part (4), (44), (144) is also used to permit production of the leg (5) and

shoe (7) for resting on a flat floor or the curved leg (10) and vertical flange (11) for installing on the front face of a step. In the event of step mounting, this lower interchangeable part (44) is blind, so that no side element or part is produced.

[0032] Figures 1 to 6 show the six different configurations of sides that may be made with the procedure covered by this invention, while the configurations of the different parts of the mould required in each case are represented in figures 7 to 12.

[0033] Specifically, figure 1 represents a seat side with a fixed armrest (8), a leg (5) and an anchor shoe (7), for mounting on a flat floor, whether level or sloping, produced from a mould composed of a fixed part (1) and two interchangeable and variable parts (6), (4) as may be observed in figure 7.

[0034] Figure 2 represents a seat side with a fixed armrest (8) for installing on a step, produced from a mould consisting of a fixed part (1) and an upper interchangeable part (6). In this case, the lower interchangeable part (44) will be blind so that no moulding is produced in it, as may be observed in figure 8.

[0035] Figure 3 represents a side with a fixed armrest (8), a curved leg (10) and a vertical flange (11) for anchoring on the front of a step, obtained from a mould consisting of a fixed part (1) and two interchangeable and variable parts (6) and (144), as may be observed in figure 9.

[0036] Figure 4 represents a side provided with end extensions (9) for attaching a folding armrest (12), a leg (5) and an anchor shoe (7) for installation on a flat floor, whether horizontal or sloping, produced from a mould consisting of a fixed part (1) and two interchangeable parts (66) and (4), as may be observed in figure 10.

[0037] Figure 5 represents a side provided with end extensions (9) for attaching a folding armrest (12) for installation on a step, produced from a mould consisting of a fixed part (1) and an upper interchangeable part (66). The lower interchangeable part (44) is blind so that no moulding is produced, as may be seen in figure 11.

[0038] Figure 6 represents a side provided with end extensions (9) for attaching a folding armrest (12), a curved leg (10) and a vertical flange (11) for installing on the front of a step, produced from a mould consisting of a fixed part (1) and two interchangeable and variable parts (66), (144), as may be seen in figure 12.

[0039] The end extensions (9) are prolonged rearwards and upwards from the main body (2) between which a space is defined that accommodates the rear end (13) of the folding armrest (12), which is provided with a through-hole (14) facing holes (15) defined in the end extensions (9) through which runs a bolt (16), secured with a nut (26), which acts as the pivot pin of the folding armrest (12) in respect of the main body (2).

[0040] The folding armrest (12) has a rear end (13) of a sensibly cylindrical shape belonging to an elongated support (17) of a generally rectangular prismatic configuration provided with fins on each side (18) at its base,

which, along with a protuberance (19) located between the rear end (13) and the support (17) form the contact surfaces on which there rests a supplementary piece (20), with or without a glass-holder (21), which is attached by means of screws (22) that run through the base of the support (17) and engage in threaded holes (23) defined in the supplementary piece (20).

[0041] Between the end extensions (9) there lies a rear wall (24) which acts as the upper positional stop which the protuberance (19) of the folding armrest (12) comes up against during its rear folding movement. Between these end extensions (9) there is also a horizontal plateau (25) which acts as the horizontal positional stop for the folding armrest (12).

Claims

1. Procedure for producing seat sides for their application as pedestal sides (3), step sides (33) or step front sides (133), essentially **characterised in that** it permits the manufacture, in a single moulding operation, of complete sides of plastic material which comprise the elements of support or anchorage of the seats to different surfaces, as well as integrated armrests or means for attaching folding armrests, using for this purpose a single mould consisting of:

- a fixed part (1) from which the main body (2) common to all sides is produced and to which the other elements of the side are added in the moulding operation
- an upper interchangeable piece or part (6), (66) which give rise to a fixed armrest (8) or to upper end extensions (9) of the side for attaching a folding armrest (12), and
- a lower interchangeable part or piece (4), (44), (144) which gives rise to means for supporting the seat side on the floor or on the step (5), (7), (10) and (11).

2. Procedure for producing seat sides as defined in claim 1, **characterised in that** the pedestal seat side(3), with a fixed armrest (8), leg (5) and shoe (7), is produced by a one-piece plastic moulding process, using a mould that comprises the fixed part (1), the upper interchangeable part (6) and the lower interchangeable part (4).

3. Procedure for producing seat sides as defined in claim 1, **characterised in that** the pedestal seat side (3), for a folding armrest, with a leg (5) and shoe (7), is produced by a one-piece plastic moulding process, using a mould comprising the fixed part (1), the upper interchangeable part (66) and the lower interchangeable part (4).

4. Procedure for producing seat sides as defined in

claim 1, **characterised in that** the step seat side(33), with a fixed armrest (8), is produced by a one-piece plastic moulding process, using a mould comprising the fixed part (1), the upper interchangeable part (6) and the lower interchangeable part (44).

5. Procedure for producing seat sides as defined in claim 1, **characterised in that** the step seat side(33), for a folding armrest, is produced by a one-piece plastic moulding process, using a mould comprising the fixed part (1), the upper interchangeable part (66) and the lower interchangeable part (44).

6. Procedure for producing seat sides as defined in claim 1, **characterised in that** the step front seat side(33), with a fixed armrest (8), leg (5) and shoe (7), is produced by a one-piece plastic moulding process, using a mould comprising the fixed part (1), the upper interchangeable part (6) and the lower interchangeable part (144).

7. Procedure for producing seat sides as defined in claim 1, **characterised in that** the step front seat side(33), for a folding armrest, with a leg (5) and shoe (7), is produced by a one-piece plastic moulding process, using a mould comprising the fixed part (1), the upper interchangeable part (66) and the lower interchangeable part (144).

8. Seat side produced according to the procedure described in claims 1 and 2, **characterised in that** the pedestal seat side (3) is produced in plastic in a single piece, comprising the main body (2), a leg (5), a shoe (7), and a fixed armrest (8).

9. Seat side produced according to the procedure described in claims 1 and 3, **characterised in that** the pedestal seat side (3) is produced in plastic in a single piece, comprising the main body (2), a leg (5), a shoe (7), and an end extension (9) for the attachment of a folding armrest (12).

10. Seat side produced according to the procedure described in claims 1 and 4, **characterised in that** the step seat side (33) is produced in plastic in a single piece, comprising the main body (2) and a fixed armrest (8).

11. Seat side produced according to the procedure described in claims 1 and 5, **characterised in that** the step seat side (33) is produced in plastic in a single piece, comprising the main body (2) and end extensions (9) for the attachment of a folding armrest (12).

12. Seat side produced according to the procedure described in claims 1 and 6, **characterised in that** the step front seat side (133) is produced in plastic in a

single piece, comprising the main body (2) a curved leg (10), a vertical flange (11) and a fixed armrest (8).

13. Seat side produced according to the procedure described in claims 1 and 6, **characterised in that** the step front seat side (133) is produced in plastic in a single piece, comprising the main body (2) a curved leg (10), a vertical flange (11) and end extensions (9) for jointing a folding armrest (12). 5
14. Seat side as defined in claims 9, 11 and 13, **characterised in that** the end extensions (9) are prolonged rearwards and upwards from the main body (2) between which a space is defined that accommodates the rear end (13) of the folding armrest (12), which is provided with a through-hole (14) facing holes (15) defined in the end extensions (9) through which runs a bolt (16), secured with a nut (26), which acts as the pivot pin of the folding armrest (12) in respect of the main body (2). 10 15 20
15. Seat side as defined in claims 9, 11, 13 and 14, **characterised in that** the folding armrest (12) has a rear end (13) of a sensibly cylindrical shape belonging to an elongated support (17) of a generally rectangular prismatic configuration provided with fins on each side (18) at its base, which, along with a protuberance (19) located between the rear end (13) and the support (17) form the contact surfaces on which there rests a supplementary piece (20), which is attached by means of screws (22) that run through the base of the support (17) and engage in threaded holes (23) defined in the supplementary piece (20). 25 30
16. Seat side as defined in claims 9, 11, 13, 14 and 15, **characterised in that** between the end extensions (9) there lies a rear wall (24) which acts as the upper positional stop which the protuberance (19) of the folding armrest (12) comes up against during its rear folding movement. Between these end extensions (9) there is also a horizontal plateau (25) which acts as the horizontal positional stop for the folding armrest (12). 35 40
17. Seat side as defined in claim 16 **characterised in that** the supplementary piece (20) is provided with a glass-holder (21). 45

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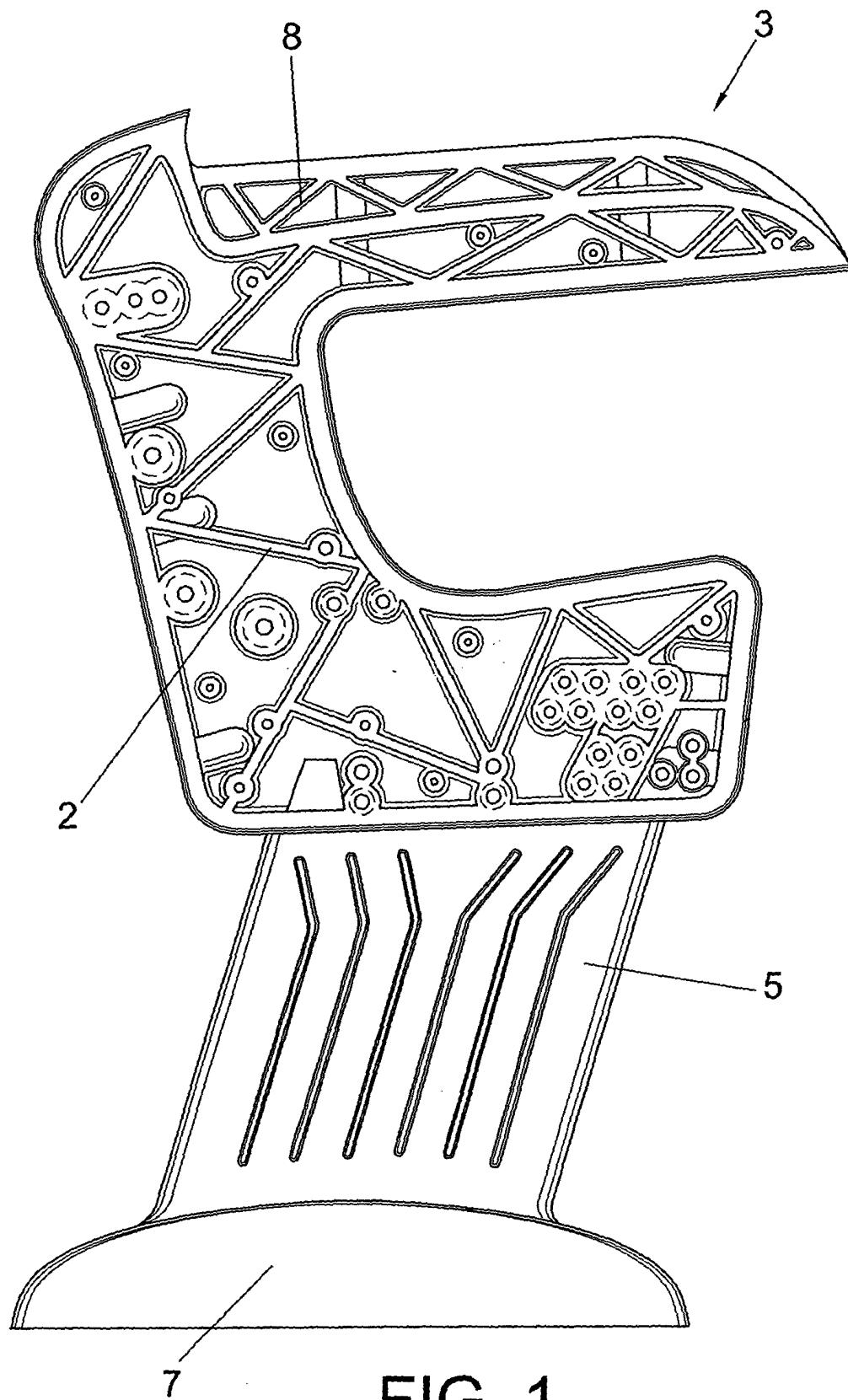


FIG. 1

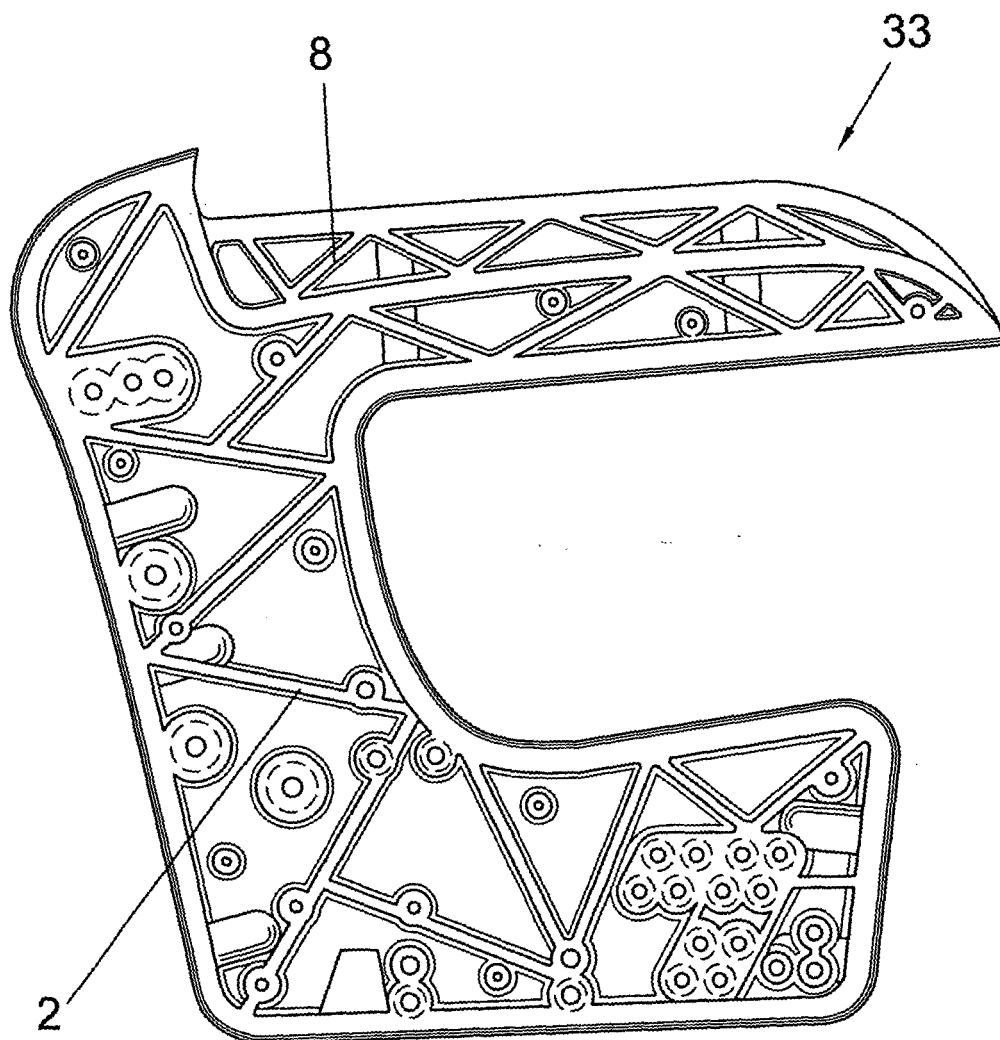


FIG. 2

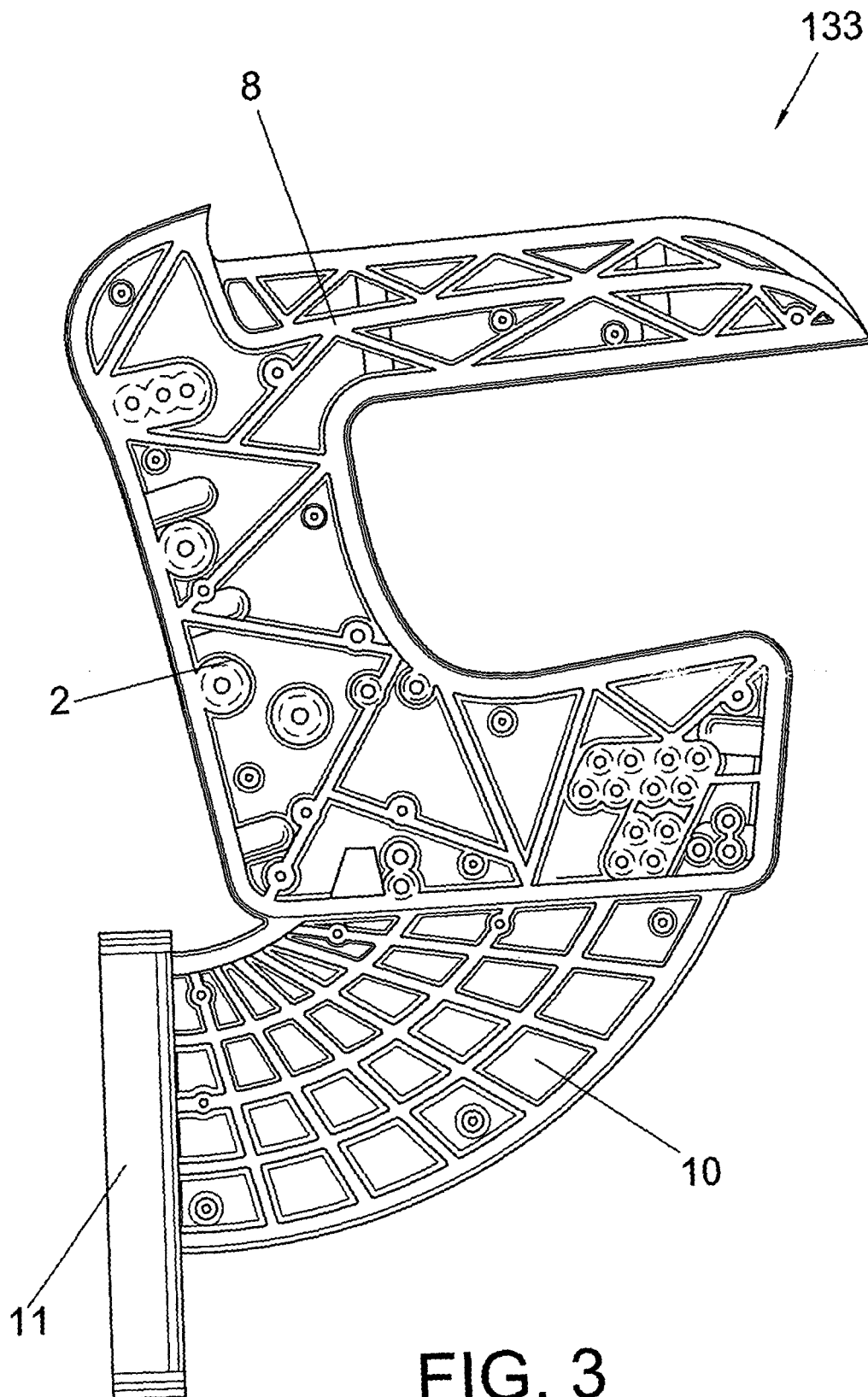


FIG. 3

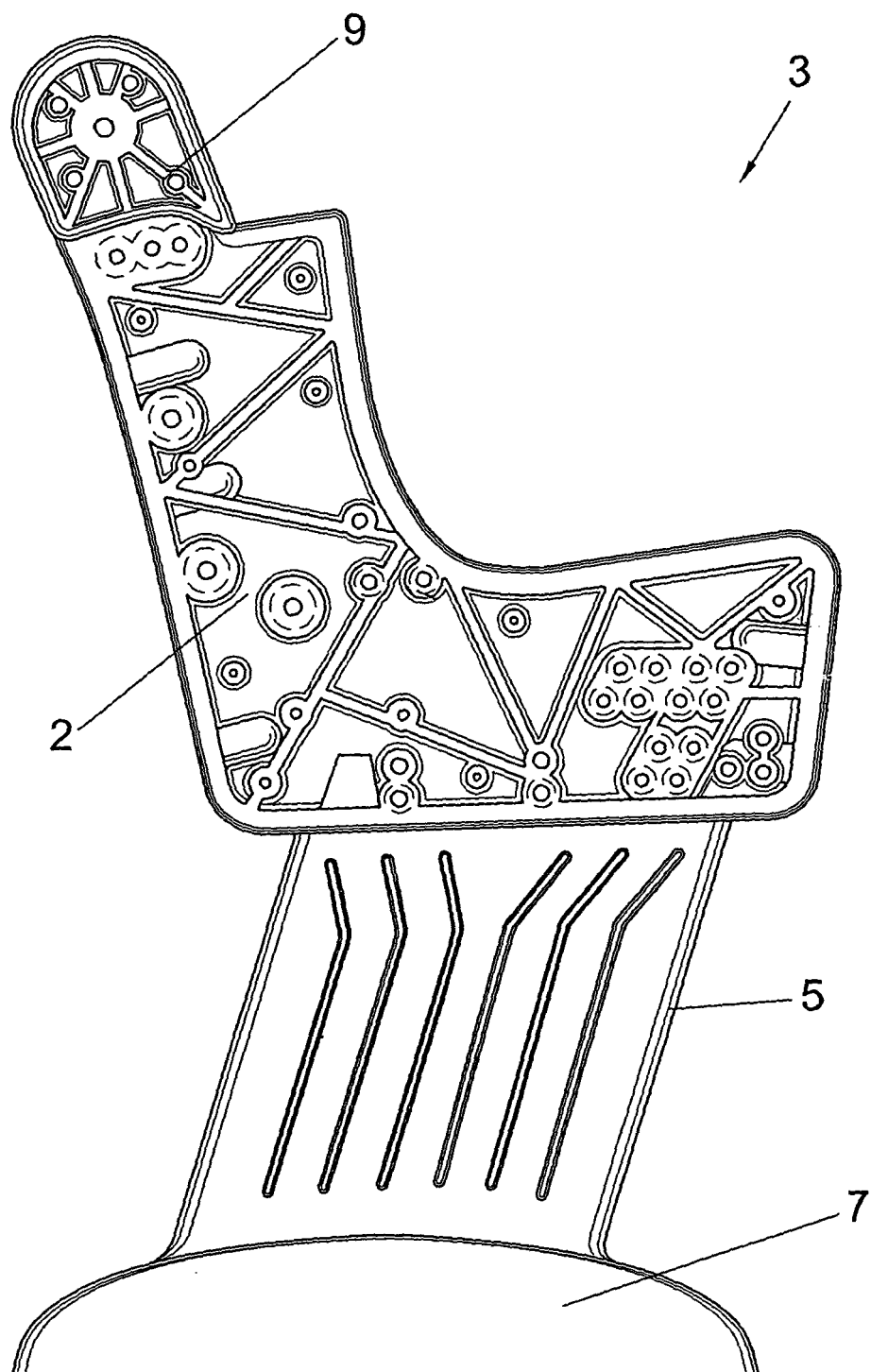


FIG. 4

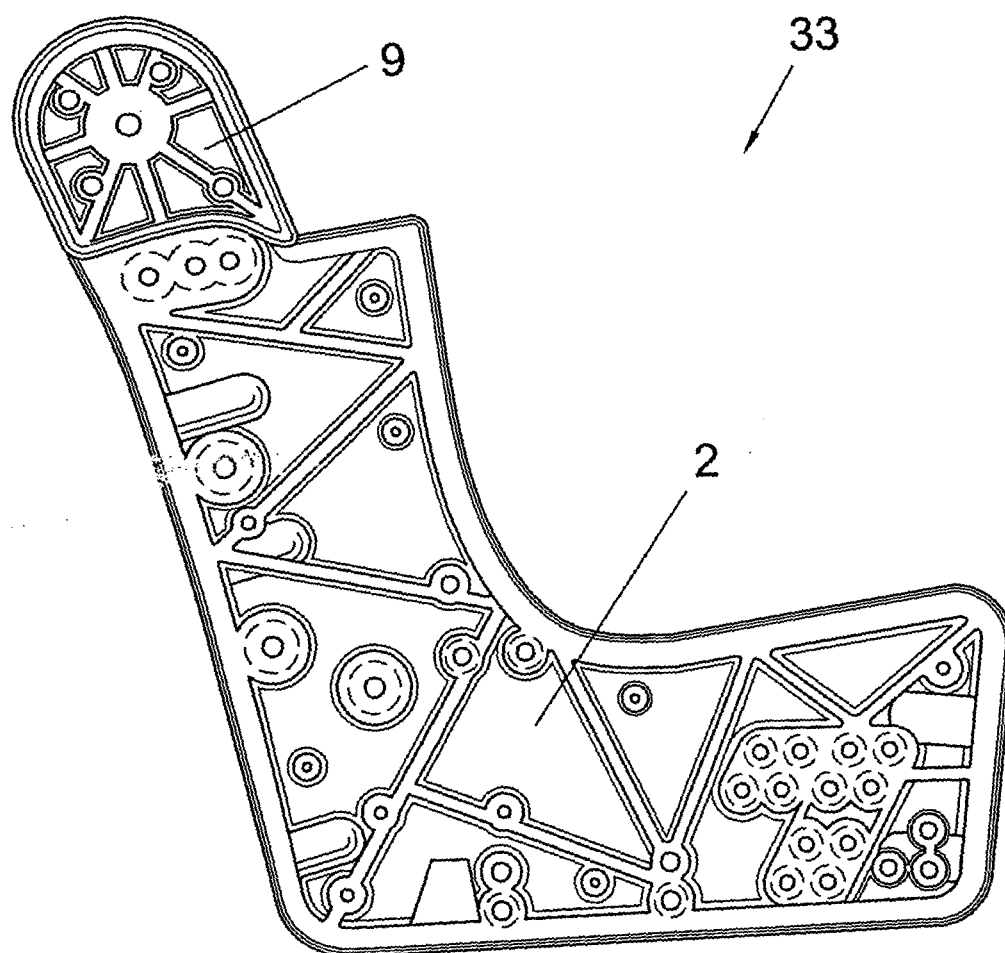
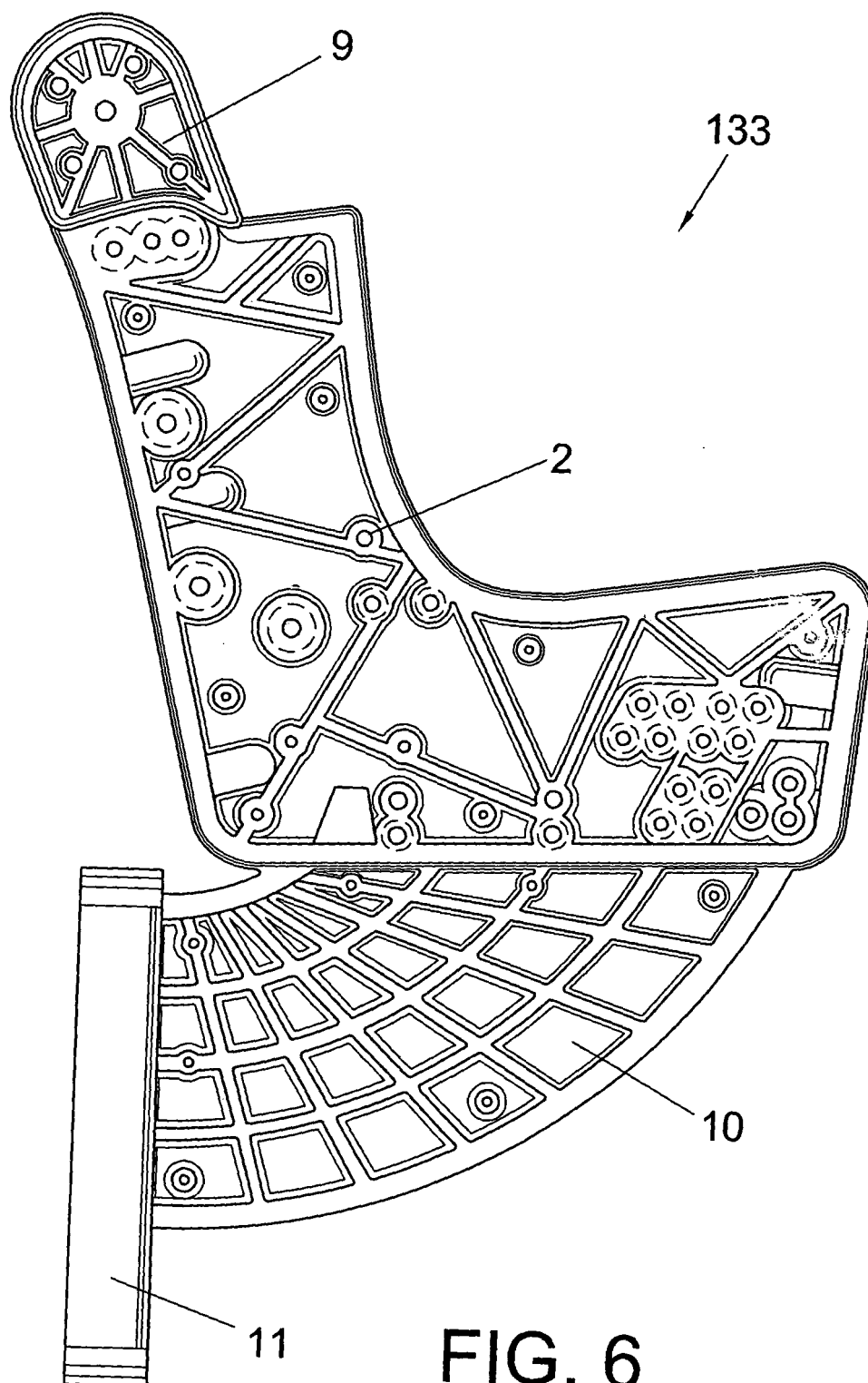


FIG. 5



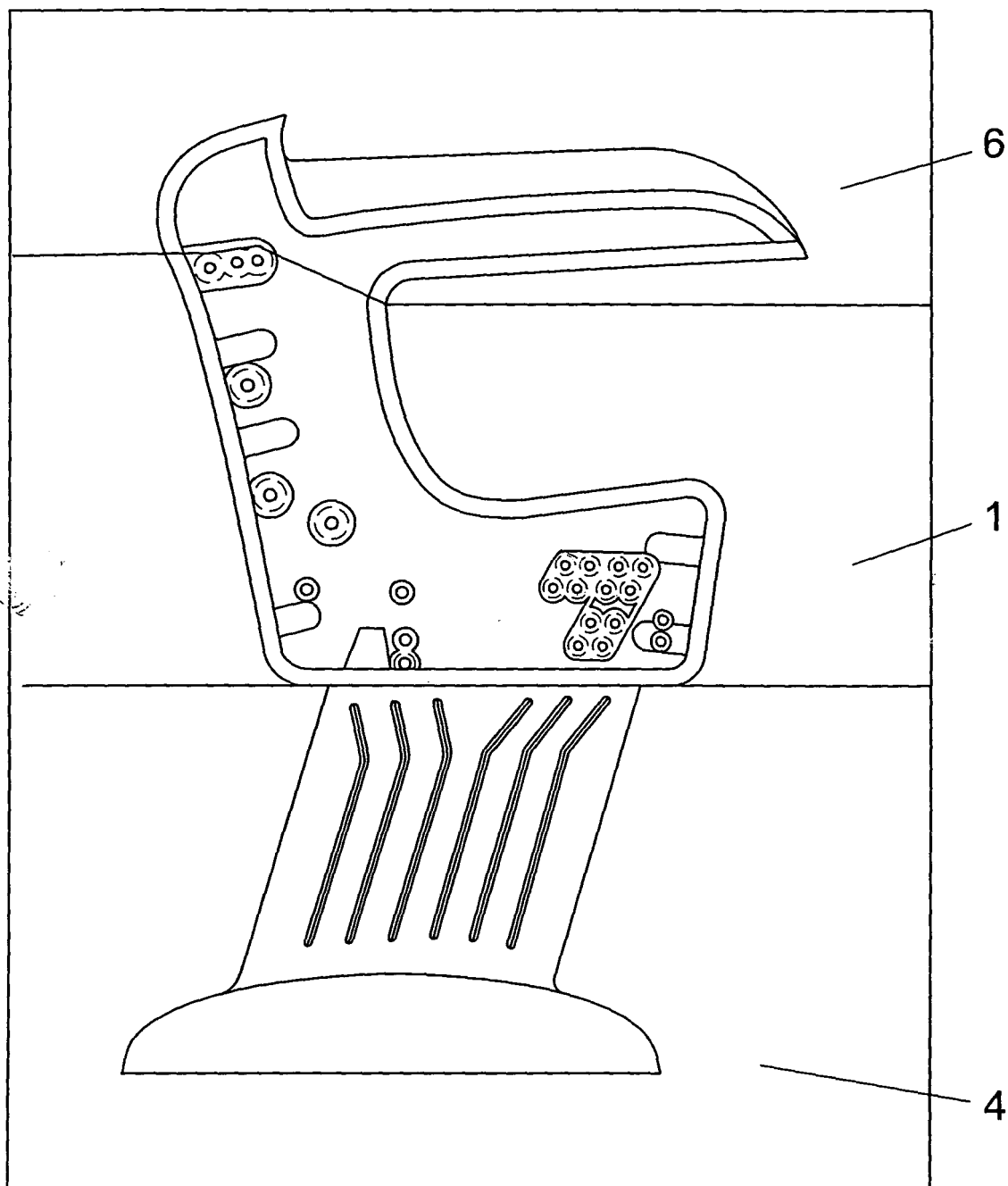


FIG. 7

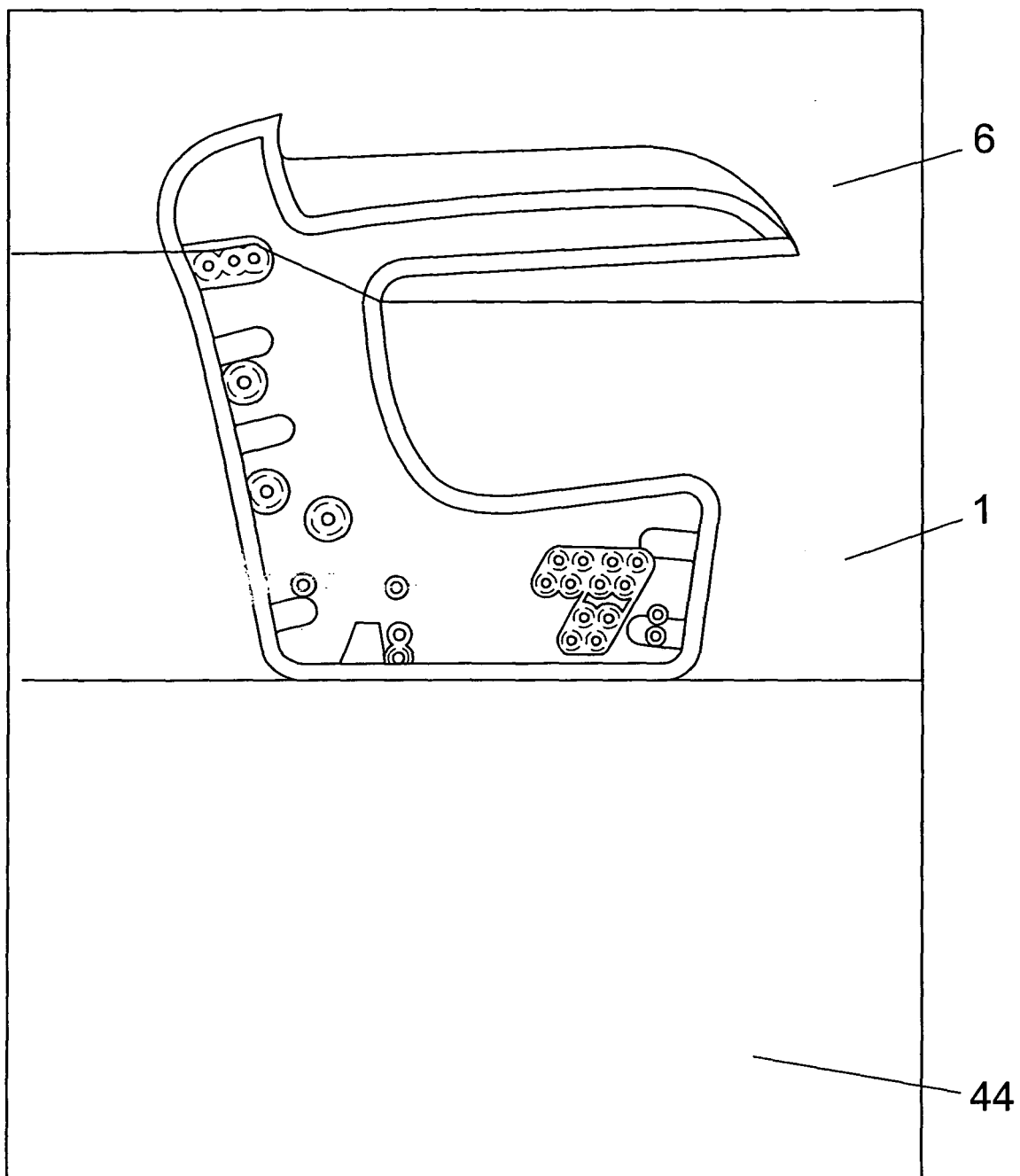


FIG. 8

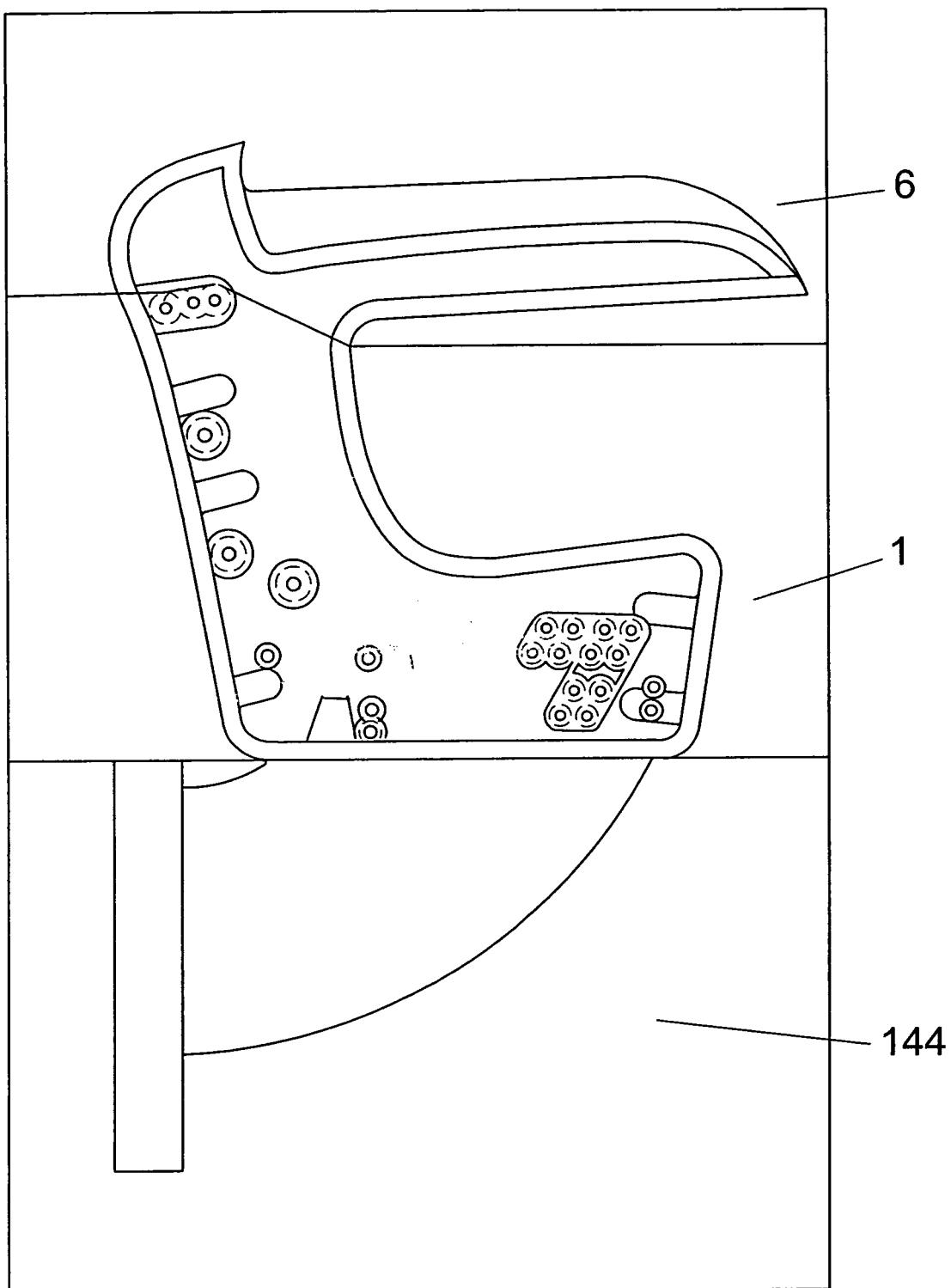


FIG. 9

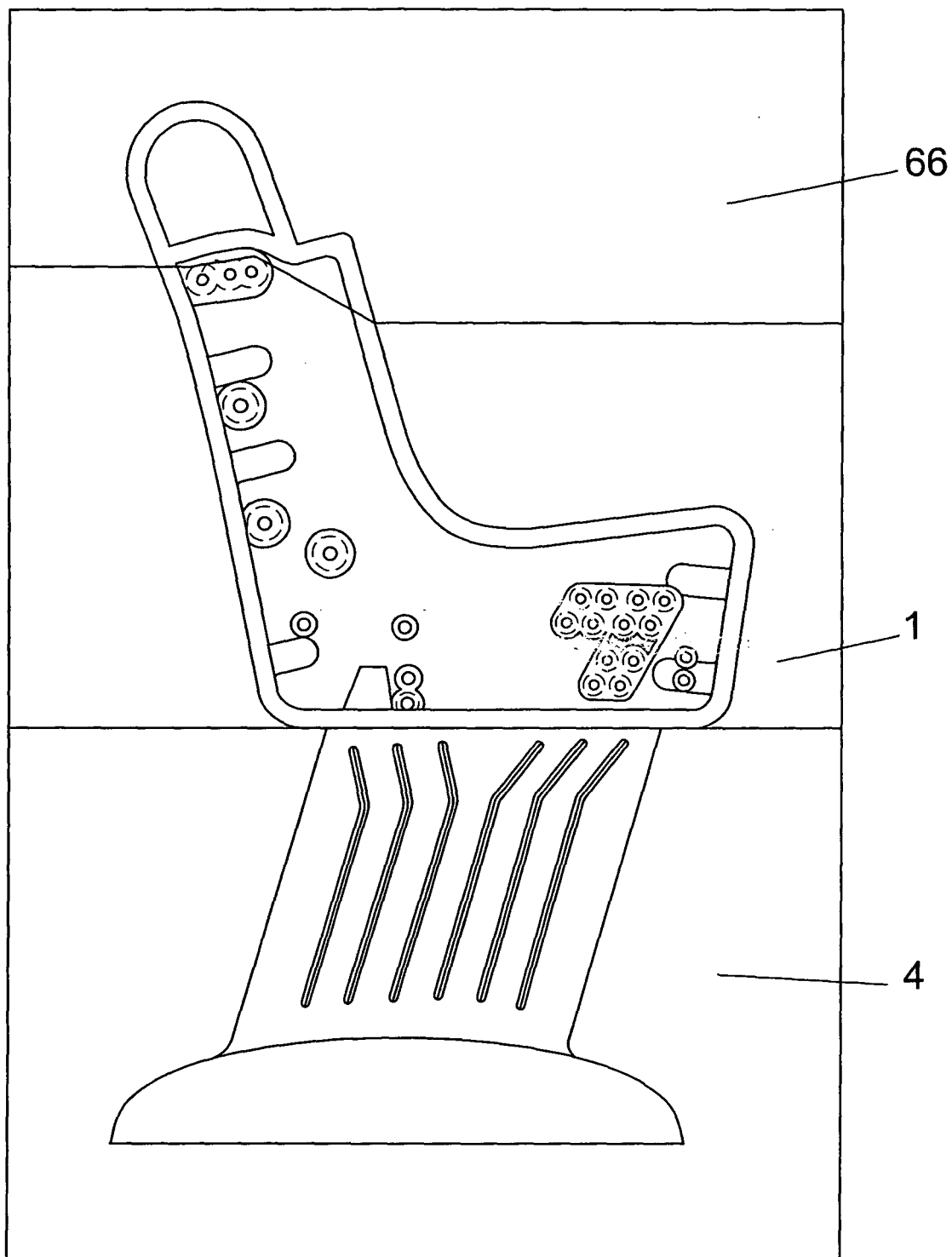


FIG. 10

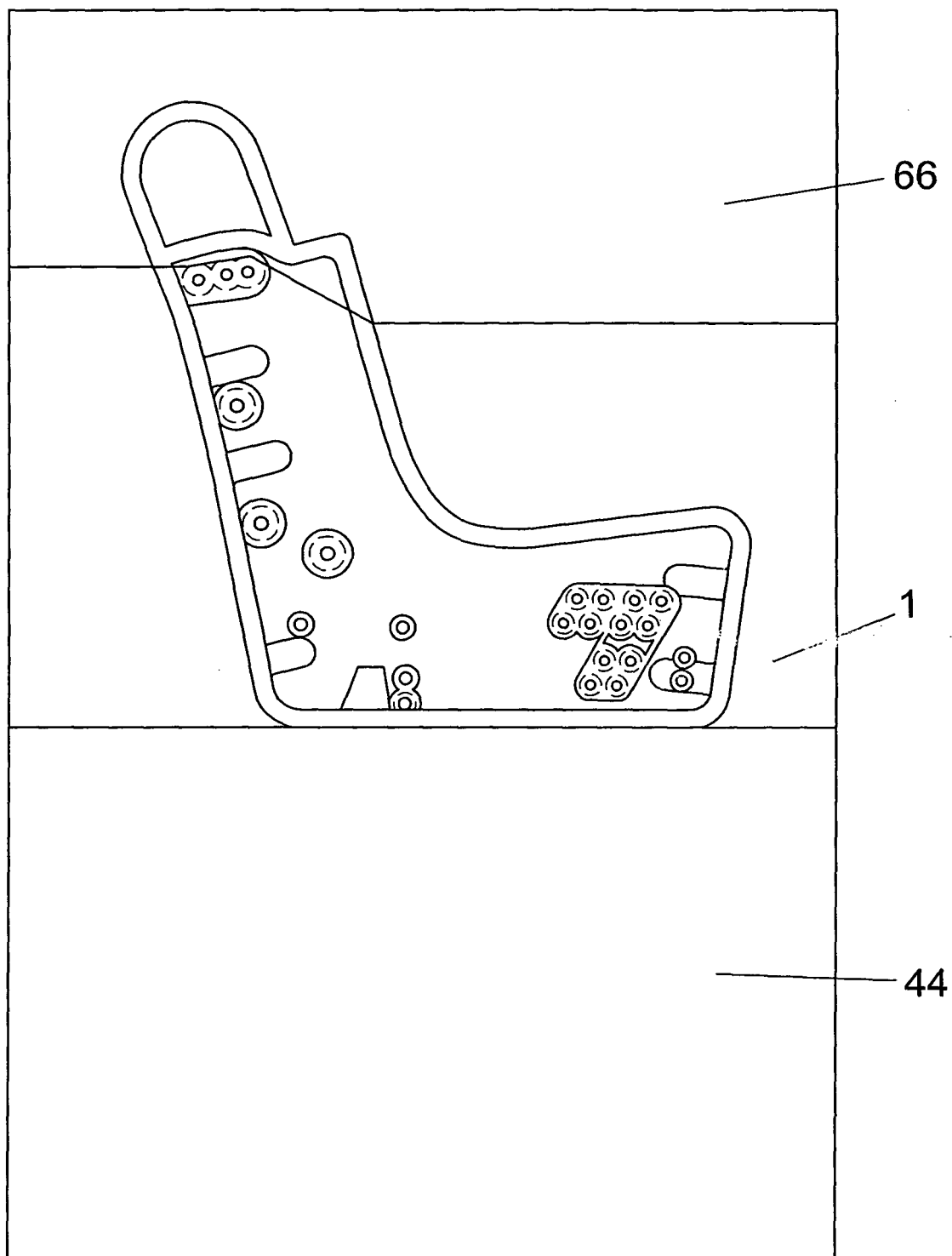


FIG. 11

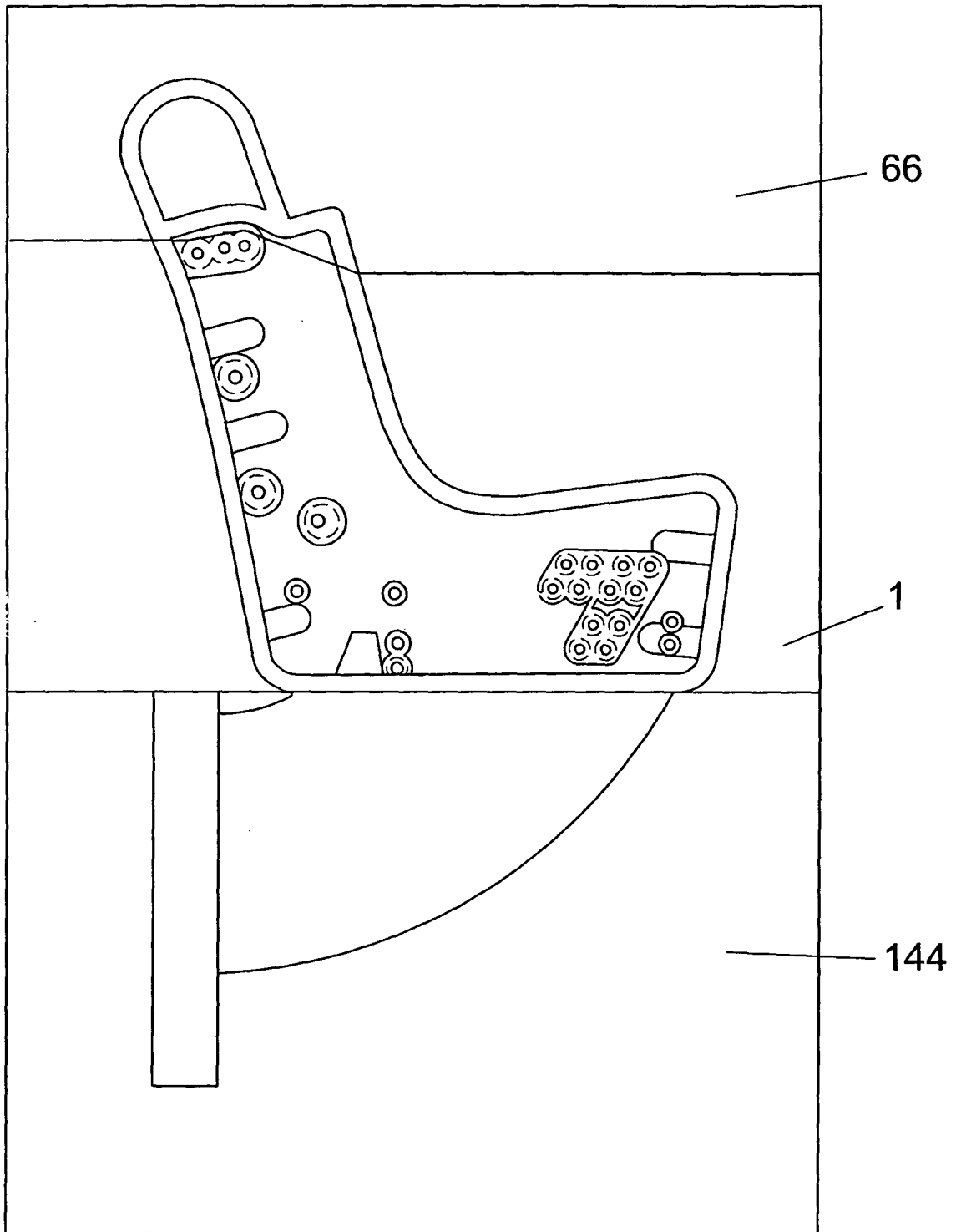


FIG. 12

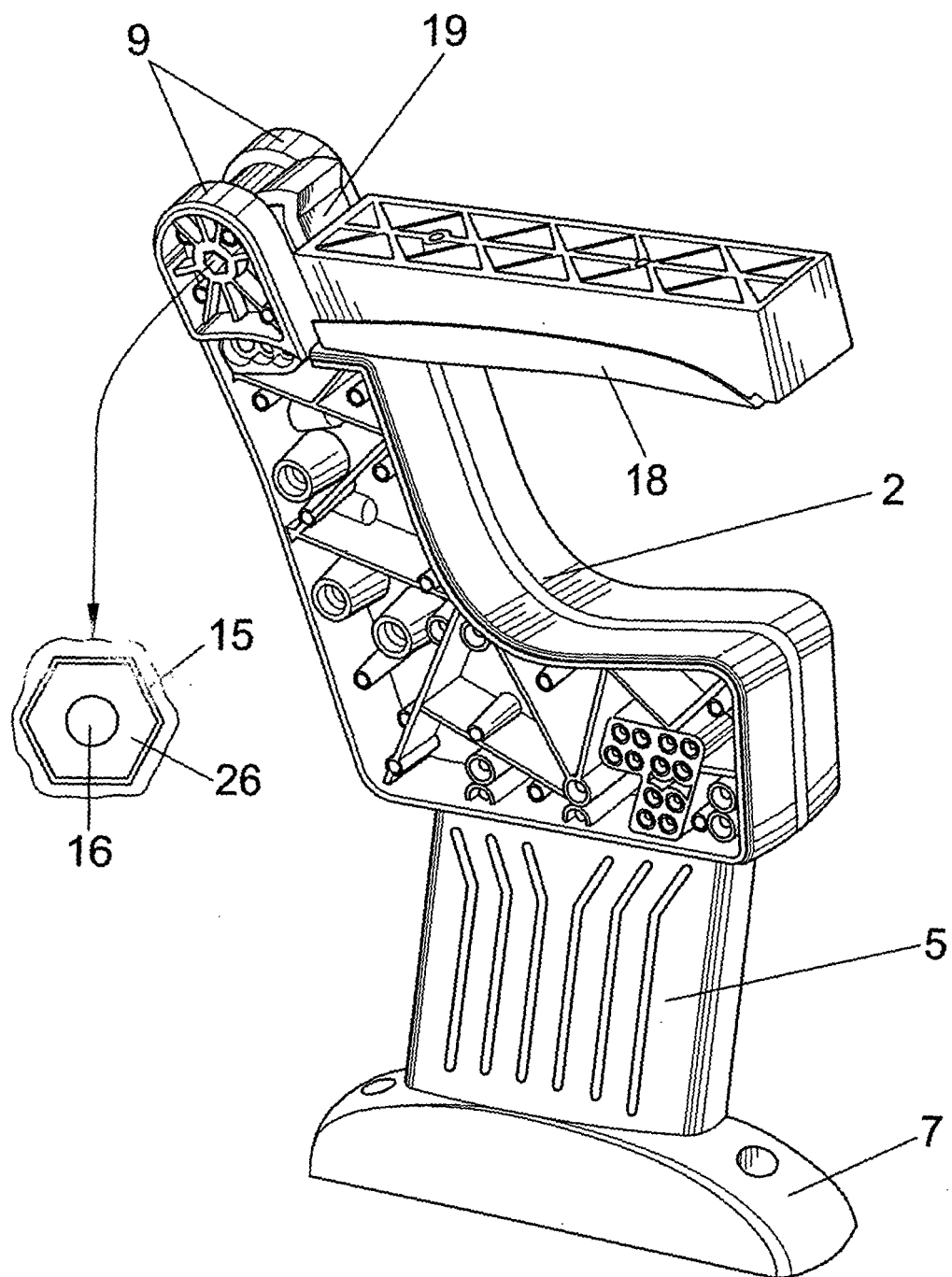


FIG. 13

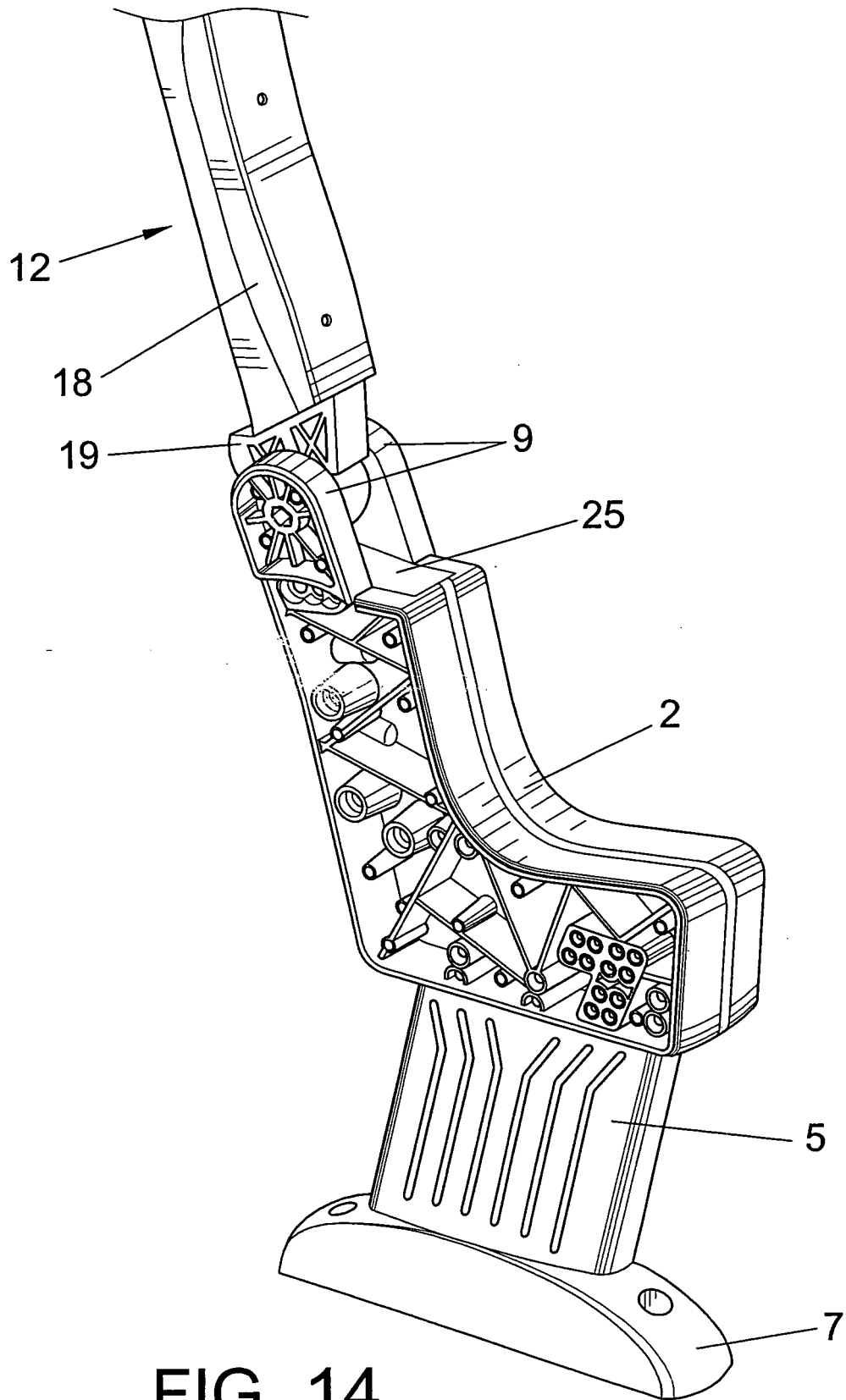


FIG. 14

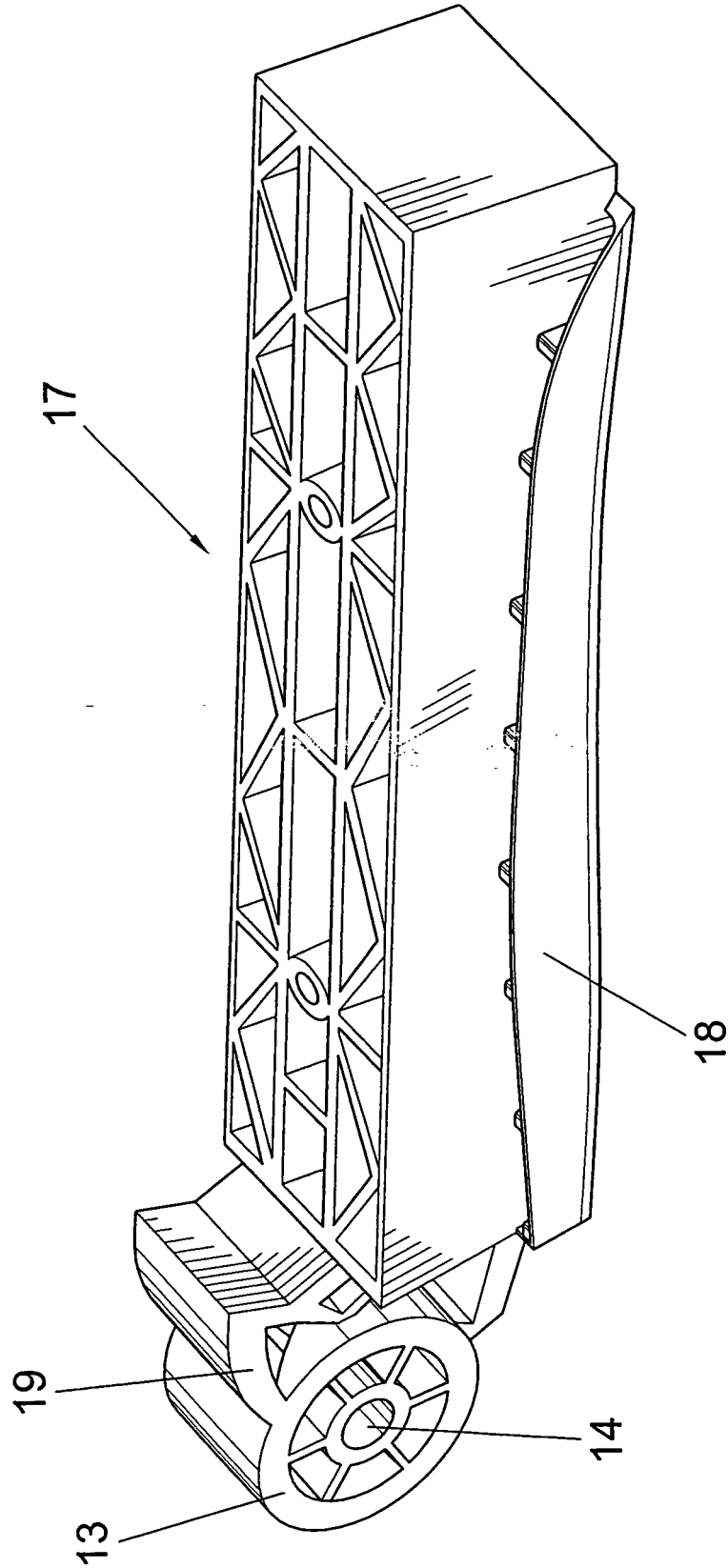


FIG. 15

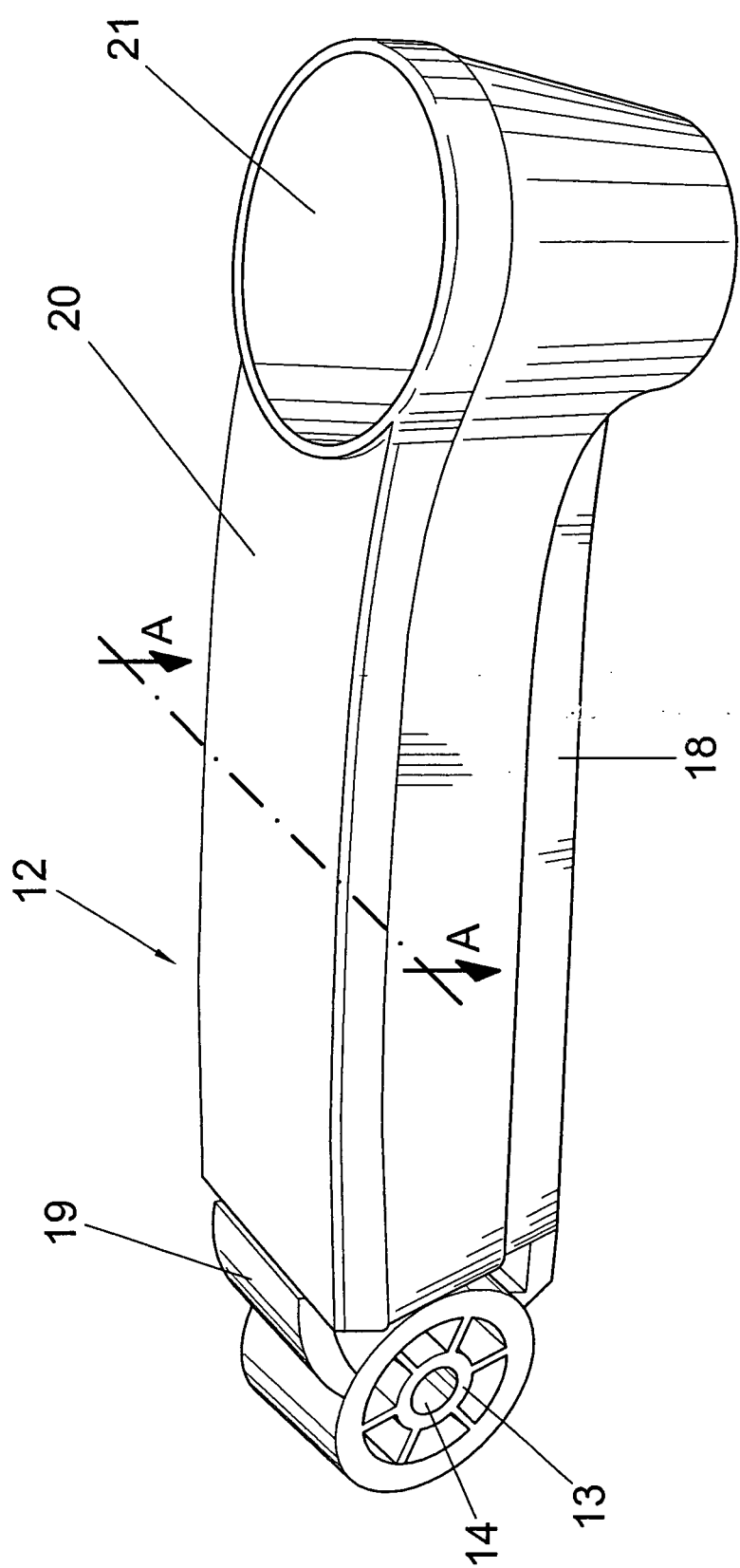


FIG. 16

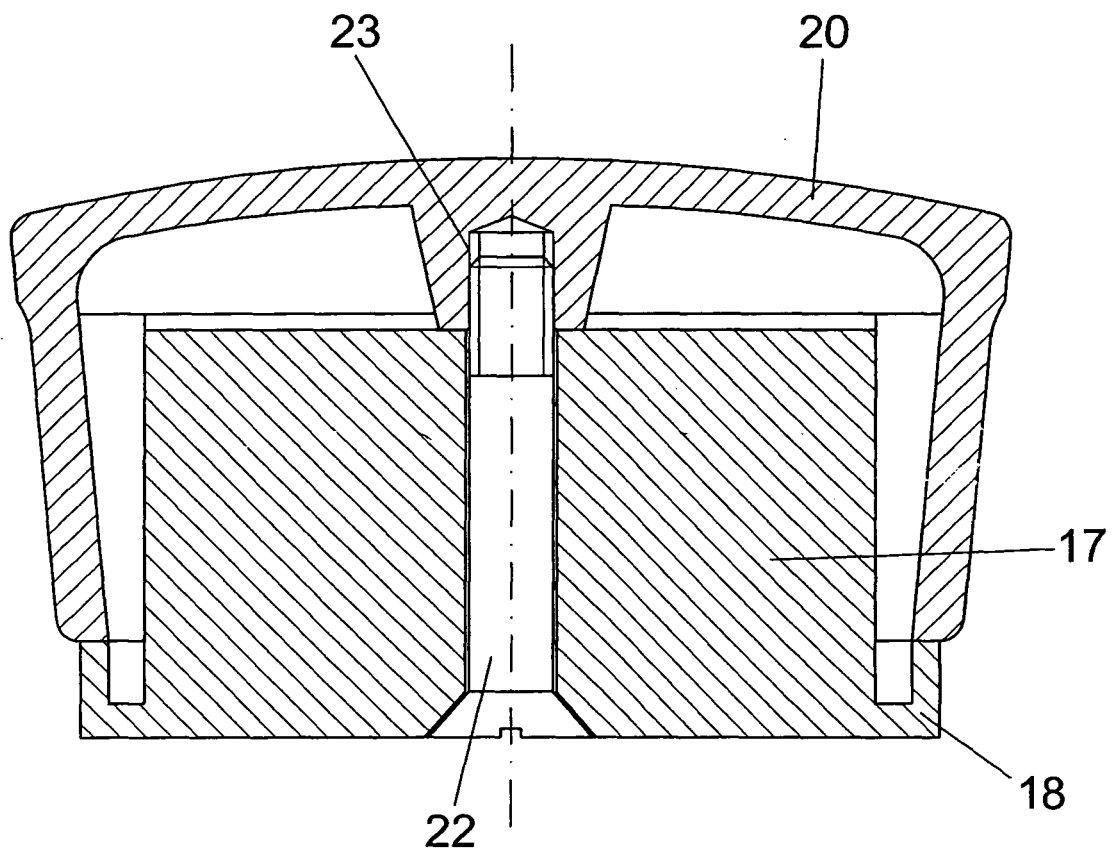


FIG. 17
A-A

A-A

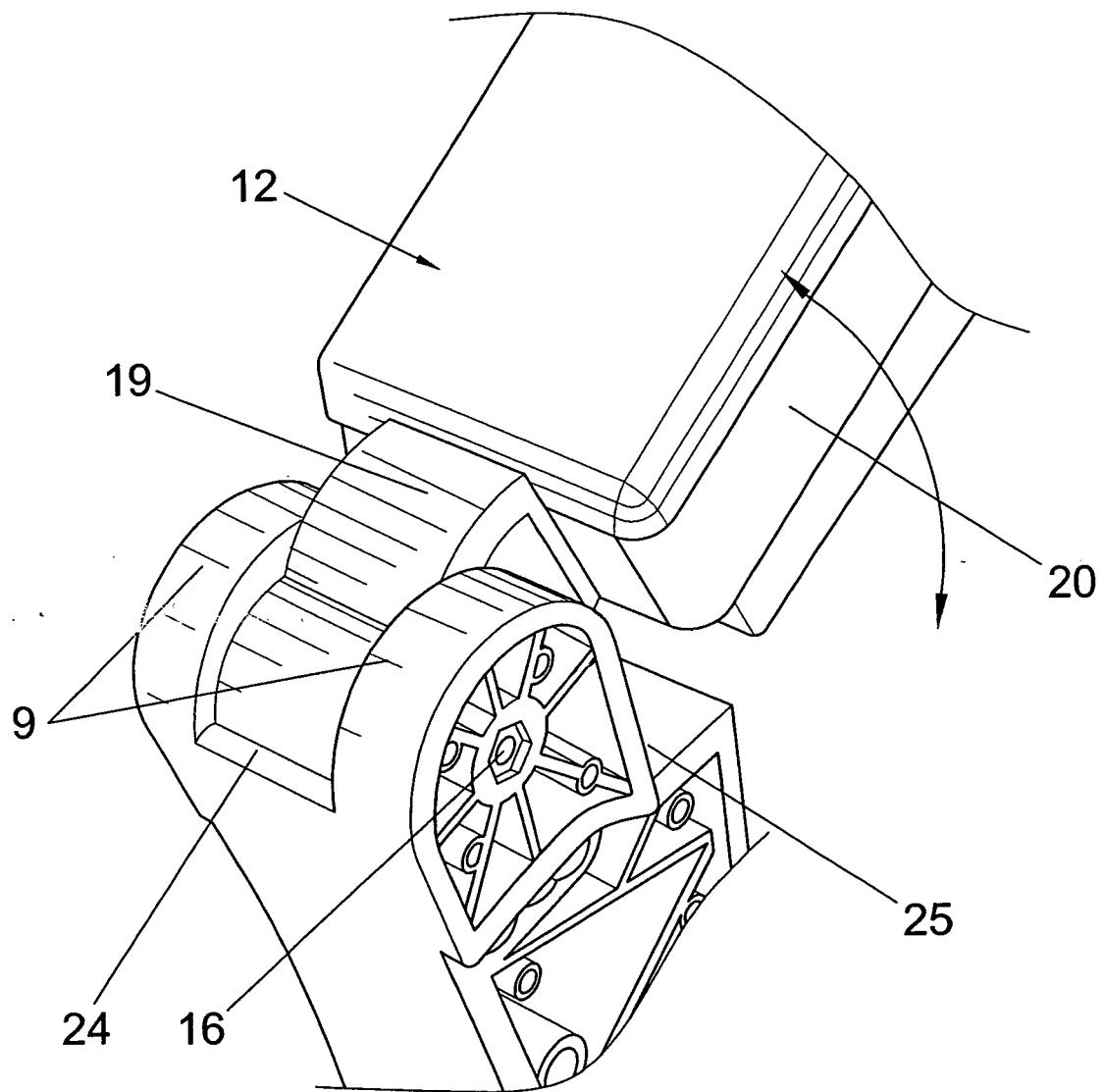


FIG. 18

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 2003/000602

A. CLASSIFICATION OF SUBJECT MATTER		
IPC⁷ A47C 5/12, 7/56, 1/16, 7/54 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC⁷ A47C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT, EPODOC, WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 8409957 U (PITER ZECH) 25.07.1985, figures 1-3,5.	1-3,6-9,12,13
A	WO 2003/007758 A (EURO SEATING) 30.01.2003, page 9, line 27- page 11, line 27; figures 1-4,7.	1,2,8
A	ES 2179754 A (EURO SEATING) 16.01.2003, the whole document.	1,2,8
A	ES 219192 U (INDUSTRIAS FIGUERAS) 01.09.1976, page 3, line 23 - page 5, line 9; figures 1,2.	1,2,6,8,12
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Date of the actual completion of the international search		Date of mailing of the international search report
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