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(71) Applicant: **CARBONMADE S.R.L.** [IT/IT]; Via Jacopo Bernardi, 25/C, 31100 Treviso (TV) (IT).

(72) Inventor: **MAZZUCATO, Mattia**; Via G.D'Annunzio, 7/B, 31100 Treviso (IT).

(74) Agent: **GALLO, Luca**; Gallo & Partners SRL, Via Rezzonico, 6, 35131 Padova (IT).

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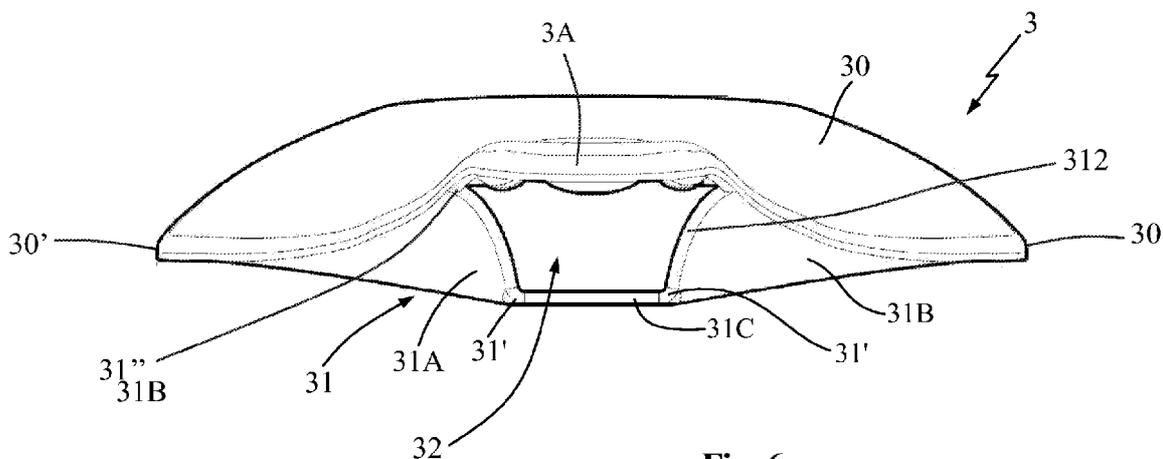


Fig. 6

(57) Abstract: Saddle for a bicycle which comprises a hull (3), fully made of a composite material, and formed by a shaped sheet-like portion (30) and by a stem portion (31), which is integral with the sheet-like portion (30), is mechanically connected, due to fixing means (4), to the seat post tube (2) of the bicycle frame, projects below the sheet-like portion (30), and is elastically pliable in order to damp the stresses due to the roughness of the terrain and transmitted to the hull (3) through the fixing means (4).



SADDLE FOR A BICYCLE

DESCRIPTION

Field of application

5 The present invention regards a saddle for a bicycle in accordance with the preamble of the independent claim.

The present saddle is inserted in the industrial field of production of bicycles and in particular in the field of components for bicycle frames, preferably of high technology type, and advantageously but not exclusively usable for a professional use, i.e. for racing bicycles or more generally for competition bicycles.

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State of the art

As is known, bicycle saddles are generally formed by a rigid or semi-rigid body which constitutes the lower part of the saddle and which in the technical jargon of the field is termed with the name "hull", and by a padding, which is fixed above the hull and is for example made of an expanded elastomeric material.

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The saddle is then conventionally connected to the bicycle frame by means of fixing means which are arranged below the hull. Generally, such fixing means comprise a seat post reinforcement formed by a pair of shaped bars or by a single bar bent on itself, known in the technical jargon of the field with the name "fork". This reinforcement is usually mechanically connected on the front and back to the hull of the saddle by means

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of screws or rivets, and in an intermediate position by means of a clamp to a steering column or seat post tube, in turn mechanically connected to the bicycle frame.

In order to decrease the weight of all the components which constitute the bicycle, especially in the case of racing or competition bikes, composite materials are currently used which in particular are carbon fiber provided with very limited weight and high

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mechanical performances.

For example, it is known from the patent JP H02145321 to make the seat post reinforcement of plastic reinforced in carbon fiber, or it is known from the patent CN 2737646 to make the seat post steering column of carbon fiber.

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It is also known from the patent WO 2017213315 to make a saddle for a bicycle made of carbon fiber. More in detail, the saddle internally delimits an empty space obtained by means of a thin sheet of carbon fiber shaped in the form of the saddle. The saddle

comprises an abutment portion on which a user sits and a support portion which is formed integral with the abutment portion and is fixed to the upper part of a seat post steering column by means of a seat post reinforcement.

5 It is known for example from CN 204623628 to make saddles comprising a hull made of plastic material and a cover with cushion function made of carbon fiber. The hull is connected to the seat post steering column by means of a normal fork seat post reinforcement. It is known, for example from IT 1324279, to make fork seat post reinforcements of carbon fiber possibly to be covered with a metallic reinforcement mesh at the anchorage zone of the clamp for the mechanical connection of the fork to
10 the seat post steering column.

Also known from DE 20000745 is a bicycle saddle which comprises an abutment portion provided below a support rod integral with the abutment portion and intended to be inserted in the seat post steering column and to be fixed to the latter by means of horizontal screws. The saddle can be provided with elastic elements between the
15 abutment portion and the support rod in order to damp stresses due to the roughness of the terrain.

Also known from NO 201 10869 is a saddle made of carbon fiber, in which the abutment portion and the support portion are connected by forming, on the back and front, junction angles less than 90° , in a manner such to allow the abutment portion to have a
20 certain elasticity with respect to the stem portion.

The saddles of known type described briefly above have in practice demonstrated that they do not lack drawbacks.

A first drawback lies in the fact that such saddles of known type do not reconcile the need for lightness with the needs for satisfactory mechanical performances, in particular
25 with reference to the damping response that the saddle must have.

Presentation of the invention

In this situation, the problem underlying the present invention is therefore that of overcoming the drawbacks shown by the solutions of known type, by providing a bicycle saddle which has extremely limited weight.

30 Further object of the present invention is to provide a bicycle saddle, which is particularly strong mechanically.

Further object of the present invention is to provide a bicycle saddle which optimally damps the roughness of the terrain.

Further object of the present invention is to provide a bicycle saddle which is comfortable.

- 5 Further object of the present invention is to provide a bicycle saddle which is simple to mount and is entirely reliable in operation.

Brief description of the drawings

The technical characteristics of the finding, according to the aforesaid objects, are clearly found in the contents of the below-reported claims and the advantages thereof
10 will be more evident in the following detailed description, made with reference to the enclosed drawings, which represents several merely exemplifying and non-limiting embodiments of the invention in which:

- figure 1 shows a perspective view of a first embodiment of a saddle for bicycles, object of the present invention, provided with a hull mounted on a seat post support
15 through fixing means;
- figure 2 shows a view of the saddle of figure 1 with the fixing means illustrated in exploded view;
- figure 3 shows a perspective view of the hull of the saddle of figure 1;
- figure 4 shows a side view of the hull of the saddle of figure 1;
- 20 - figure 5 shows a bottom view of the hull of the saddle of figure 1;
- figure 6 shows a front view of the hull of the saddle of figure 1;
- figure 7 shows a rear view of the hull of the saddle of figure 1;
- figure 8 shows a top view of the hull of the saddle of figure 1;
- figure 9 shows a sectional view of the hull of the hull of the saddle of figure 1 made
25 along the trace VIII-VIII of figure 8;
- figure 10 shows a perspective view of a second embodiment of a saddle for bicycles, object of the present invention, mounted on a seat post support through fixing means;
- figure 11 shows a view of the saddle of figure 10 with the fixing means illustrated in exploded view;
- 30 - figure 12 shows a perspective view of a third embodiment of a saddle for bicycles, object of the present invention, mounted on a seat post support through fixing means;

- figure 13 shows a view of the saddle of figure 12 with the fixing means illustrated in exploded view;
- figure 14 shows a perspective view of the saddle, object of the present invention, lacking fixing means and comprising a hull with a cover padding superimposed thereon;
- figure 15 shows a side view of the hull and of the cover padding of the saddle, object of the present invention;
- figure 16 shows a front view of the hull and of the cover padding of the saddle, object of the present invention;
- figure 17 shows a top view of the hull and of the cover padding of the saddle, object of the present invention;
- figure 18 shows an exploded view of the hull and of the cover padding of the saddle, object of the present invention;
- figure 19 shows a detail of the saddle, object of the present invention, relative to the padding;
- figure 20 shows a top perspective view of a fourth embodiment of a saddle for bicycles, object of the present invention, without representing the fixing means of the hull which for example could be made in accordance with one of the preceding embodiments.

20 Detailed description of a preferred embodiment

In accordance with the figures of the enclosed drawings, reference number 1 overall indicates a saddle for a bicycle, object of the present invention.

This is intended to be mechanically connected to the steering column or seat post tube 2 of the frame of a bicycle.

25 The saddle 1 comprises a hull 3 made of rigid or semi-rigid material and fixing means 4 arranged below the hull 3 and adapted to connect the latter to the seat post tube 2 of the bicycle.

More in detail, the seat post tube 2 is known to be provided with a lower end, which is usually adjustably inserted in a tubular seat of the bicycle frame, and an upper end, which carries, mechanically associated therewith, a head 2', e.g. via welding (or only a shaped end), on which the aforesaid fixing means 4 of the saddle 1 are typically

mounted.

In accordance with the idea underlying the present invention, the hull 3 is made of a composite material, i.e. preferably entirely of a single composite material such as carbon fiber, glass fiber, Kevlar etc.. For example, the composite material comprises
5 multiple superimposed layers of carbon and Kevlar.

The hull 3 comprises two portions 30, 31 integral with, in particular obtained with superimposed layers of composite material and in particular of carbon fiber, sized and with fibers oriented in order to confer the desired mechanical performances to the different parts of the hull 3.

10 For example, the different layers of carbon fiber fabrics, pre-impregnated with resin, will have shapes and superimposition in order to vary the mechanical performances as a function of the areas of the hull. For example, larger thicknesses will be used, advantageously also with stronger fibers at the plate-like portion 30 in proximity to the connection with the stem portion 31, given that in such zone the load of the weight of
15 the cyclist is transferred from the seat to the tube.

The selection of the layers or of the type of composite material, such as for example advantageously the carbon fiber and the relative resin to be used, can vary depending on the characteristics of the hull 3 that one wishes to attain and depending on the use destination of the saddle, i.e. for example for racing bikes, for mountain bikes, for
20 professional competition bikes or for leisure bikes.

More in detail, the hull 3 comprises a sheet-like portion 30 shaped for defining the seat of the cyclist user and a stem portion 31, which is integral - without interruption - with the sheet-like portion 30, is mechanically connected to the fixing means 4, and projects below the sheet-like portion 30.

25 Considering, at first glance, that the sheet-like portion 30 defines a sitting plane, which in particular is substantially horizontal, the stem portion 31 is extended below said plane with a vertical component.

The stem portion 31 is shaped and sized for being elastically pliable with regard to the stresses transmitted to the hull 3 through the fixing means 4 and of course through the
30 bicycle frame and due to the roughness of the terrain, so as to damp such stresses and facilitate the comfort of the user cyclist.

Due to the present invention, the damping means which are normally integrated in the means for fixing the hull 3 to the seat post tube 2 are instead obtained with a stem portion 31 integral with the remaining sheet-like portion 30 of the same hull 3.

In this manner, the components are reduced, entirely to the advantage of the structural and mounting simplicity of the saddle 1 and in particular reducing the overall weight of the saddle 1.

The sheet-like portion 30 of the hull 3 has a main longitudinal extension which is extended, along a longitudinal extension direction Y, from an enlarged rear portion 3A to a tapered front portion 3B.

Advantageously, the sheet-like portion 30 is provided with two lateral edges 30', which are placed to connect the enlarged rear portion 3A with the tapered front portion 3B and are extended, along the longitudinal extension direction Y, on two opposite sides of the sheet-like portion 30 itself.

The stem portion 31 of the hull 3 is advantageously obtained with two or more ribs 31A, 31B.

Such ribs comprise at least two lateral ribs 31A, 31B. These are preferably extended, in accordance with the illustrated embodiments, along the longitudinal extension direction Y. With such expression, it must not be intended that the two ribs 31A, 31B must be parallel to the longitudinal extension direction Y but only that they have a main component in such direction in order to follow the elongated extension along such longitudinal extension direction Y that has the saddle 1.

In accordance with the embodiment of figures 1-19, the stem portion 31 comprises two lateral ribs 31A, 31B, each of which is extended, along the longitudinal extension direction Y, with elongated shape, preferably without interruptions.

In accordance with the embodiment illustrated in figures 20 and 21, the ribs are lateral and there are four of them, indicated with 31A, 31A', 31B, 31B'

Slots 33 can be provided in the aforesaid ribs 31A, 31A', 31B, 31B'.

Of course, without departing from the protective scope of the present patent, a higher number of such ribs could also be present.

Each of the lateral ribs 31A, 31A', 31B, 31B' is extended, in particular in the form of a wall, from an upper edge 31'', connected to the sheet-like portion 30, to a lower edge

31'.

The stem portion 31 also comprises an anchorage wall 31C, which is substantially parallel to the sheet-like portion 30 and connects the lower edges 31' of the lateral ribs 31A, 31A', 31B, 31B', defining a through opening 32. The latter has an extension with
5 an axis Y' substantially parallel to the longitudinal extension axis Y of the sheet-like portion 30 of the hull 3.

The anchorage wall 31C is engaged by the fixing means 4 in order to allow fixing the hull 3 to the tube 2.

Advantageously, the stem portion 31 is extended, along the longitudinal extension
10 direction Y, between an open rear edge 311 and an open front edge 312, between which the through opening 3 is extended in a through manner along the axis Y', substantially in the form of a channel. In particular, each open edge 31A, 31B is defined by respective front/rear edges of the anchorage wall 31C and of the lateral ribs 31A, 31A', 31B, 31B'.

More in detail, the through opening 32 is delimited above the sheet-like portion 30,
15 below the anchorage wall 31C and at the sides by the lateral ribs 31A, 31A', 31B, 31B', being extended, along the axis Y' thereof, between two passages delimited by the corresponding open edges 311, 312 of the stem portion 31. Advantageously, the ribs 31A, 31A', 31B, 31B' are extended, starting from the corresponding upper edges 31'',
20 from the corresponding lateral edges 30' of the sheet-like plate 30 to the two lower edges 31' of connection with the anchorage wall 31C.

Each lateral rib 31A, 31A', 31B, 31B', along its entire extension from the upper edge 31'' to the lower edge 31', is inclined with respect to the anchorage wall 31C, defining with the latter, inside the through opening 32, an obtuse inclination angle α .

25 In particular, each lateral rib 31A, 31A', 31B, 31B' has the aforesaid inclination at the lower edge 31' of connection to the anchorage wall 31C.

The inclination angle α is delimited between the internal surfaces (which face the through opening 32) of the coupling wall 31 and of the corresponding lateral rib 31A, 31A', 31B, 31B', hence extended within the through opening 32. The inclination angle
30 α is defined on the transverse section of the stem portion 31, obtained on a plane orthogonal to the longitudinal extension direction Y.

Advantageously, the aforesaid inclination angle α is substantially comprised between 175° and 100° .

Preferably, with reference to the examples of the enclosed figures, the lateral rib 31A, 31A', 31B, 31B' has transverse section variable along its extension along the longitudinal extension direction Y. Consequently, in particular, the inclination angle α varies, preferably progressively, along the extension direction Y, in particular at the lower edge 31' of the lateral rib 31A, 31A', 31B, 31B'.

In any case, the values that the inclination angle α assumes, along the extension of the lateral rib 31A, 31A', 31B, 31B' along the longitudinal extension axis Y, are always those of an obtuse angle (greater than 90° and less than 180°).

Advantageously, the inclination angle α varies, preferably in a continuous manner, between a first angle value $V1$ comprised between 170° and 175° at the open rear edge 311 of the stem portion 31, and a second angle value $V2$ comprised between 100° and 140° at the open front edge 312 of the stem portion 31.

The inclination of the lateral ribs 31A, 31A', 31B, 31B' according to the present invention ensures that the stresses that are transmitted to the stem portion 31 by the ground (through in particular the fixing means 4) or by the weight of the cyclist (through the sheet-like portion 30) always act substantially in bending the lateral ribs 31A, 31A', 31B, 31B'. Consequently, following the aforesaid stresses, the lateral ribs 31A, 31A', 31B, 31B' are subjected to bending forces which determine appropriate elastic deformations of the lateral ribs 31A, 31A', 31B, 31B' made of composite material, allowing damping the stresses and facilitating the comfort of the cyclist.

Advantageously, each lateral rib 31A, 31A', 31B, 31B', along its entire extension from the upper edge 31'' to the lower edge 31', is inclined with respect to the sheet-like portion 30, defining with the latter, inside the through opening 32, an acute lateral angle β .

In particular, each lateral rib 31A, 31A', 31B, 31B' has the aforesaid inclination, at the upper edge 31'' of connection to the sheet-like portion 30.

The lateral angle β is delimited between the internal surfaces (which face the through opening 32) of the sheet-like portion 30 and of the corresponding lateral rib 31A, 31A', 31B, 31B', hence extended within the through opening 32. The lateral angle β is defined

on the transverse section of the stem portion 31, obtained on a plane orthogonal to the longitudinal extension direction Y.

Advantageously, the lateral angle β is substantially comprised between 10° and 40° .

Suitably, the lateral angle β varies, preferably progressively, along the extension
5 direction Y (in particular following the variation of the shape of the transverse sections of the lateral rib 31A, 31A', 31B, 31B'), in any case maintaining acute angle values.

The acute lateral angle β between the sheet-like portion 30 and the lateral ribs 31A, 31A', 31B, 31B' further determines a stress of the latter by means of bending forces, hence ensuring a suitable elasticity of the stem portion 31.

10 Advantageously, the upper edge 31'' of each lateral rib 31A, 31A', 31B, 31B' forms a sharp edge with the corresponding lateral edge 30' of the sheet-like plate 30, with the tip of such edge directed towards the exterior of the hull 3.

Advantageously, each lateral rib 31A, 31A', 31B, 31B' has transverse section, obtained on a plane orthogonal to the longitudinal extension direction Y, with substantially
15 curved shape with convexity directed towards the through opening 32. In particular, therefore, each lateral rib 31A, 31A', 31B, 31B' is externally concave, being joined to the corresponding lateral edge 30' of the sheet-like portion 30 by means of the aforesaid sharp edge.

Advantageously, the enlarged rear portion 3A of the sheet-like portion 30 is extended
20 (along the longitudinal extension direction Y) cantilevered from the stem portion 31, and the tapered front portion 3B of the sheet-like portion 30 is extended (along the longitudinal extension direction Y) cantilevered from the stem portion 31 in the opposite direction with respect to the enlarged rear portion 3A.

In particular, the enlarged rear portion 3A is extended projectingly with respect to the
25 open rear edge 311 of the stem portion 31, and the tapered front portion 3B is extended projectingly with respect to the open front edge 312 of the stem portion 31 itself.

Preferably, the enlarged rear portion 3A and the tapered front portion 3B are extended projectingly, respectively from the open rear edge 311 and from the open front edge 312, for a protrusion distance (along the longitudinal extension direction Y) greater than
30 or equal to 1/5 of the length of the sheet-like portion 30 (along the longitudinal extension direction Y), in particular greater than or equal to about 1/4 of the length of

the sheet-like portion 30, and still more particularly between about 1/4 and 1/3 of the length of the sheet-like portion 30.

The aforesaid projecting configuration of the enlarged rear portion 3A and of the tapered front portion 3B allows such portions 3A, 3B to bend more greatly than the
5 remaining part of the sheet-like portion 30, ensuring greater comfort for the cyclist.

Advantageously, the stem portion 31 is arranged, along the longitudinal extension direction Y, in an intermediate position between the enlarged rear portion 3A and the tapered front portion 3B, in particular in a manner such to be arranged on the point of greatest application of force by the cyclist during bicycle use.

10 Preferably, the stem portion 31 has length, along the longitudinal extension direction Y, comprised between 20% and 45% of the length of the sheet-like portion 30.

In particular, by length of the stem portion 31 it is intended the length of the latter (between its open lateral edges 311, 312) at the upper edge 31'' of the lateral ribs 31A, 31A', 31B, 31B'.

15 Advantageously, the length of the stem portion 31 is reduced from the upper edges 31'' to the lower edges 31' of the lateral ribs 31A, 31A', 31B, 31B'.

Preferably, the length of the stem portion 31 along the lower edges 31' (which advantageously correspond to the length of the anchorage wall 31C) is comprised between 25% and 40% of the length of the sheet-like portion 30 and in particular is
20 equal to about 33% of the length of the latter.

In accordance with the three embodiments of figures 1, 10 and 12, the fixing means 4 can provide for different configurations, even different from those exemplifyingly described above. These in any case share the same characteristic of connecting the seat post tube 2 to the stem portion 31 of the hull 3.

25 Preferably, in accordance with all the embodiments illustrated in the enclosed figures, the fixing means 4 comprise at least one plate 40 inserted in the through opening 32 in abutment above the anchorage wall 31C.

The abovementioned anchorage means 4 also advantageously comprise a counter-plate 41, which is mounted in abutment beneath the anchorage wall 31C of the stem portion 31
30 and is advantageously fixed to the plate 40 by means of screw means 42, for example by two screws in accordance with the embodiments of the enclosed drawings.

Advantageously, the anchorage wall 31C is provided with at least one passage opening crossed by the fixing means 4 (in particular by the screw means 42) in order to fix the stem portion 31 to the tube 2, and in particular in order to fix the plate 40 to the counter-plate 41. Adjustments of the position of the saddle 1 are provided for so that the cyclist
5 can select the optimal position of the saddle 1. Such position is defined by the cyclist as a function of his/her physiognomy and on his/her biking comfort preferences. The adjustment of the position of the saddle 1 provides for a height adjustment, an adjustment of the tilt with respect to the seat post support and a forward and backward adjustment in order to vary the distance of the saddle with respect to the handlebar.

10 The height adjustment is for example obtainable in a conventional manner, by varying the length of the tube 2 part that is inserted in the provided tubular seat of the bicycle frame.

The forward or backward adjustment of the saddle with respect to the handlebar and the adjustment of the tilt of the saddle with respect to the seat post tube 2 are obtained as
15 specified herein with respect to the preferred but non-limiting embodiments of the enclosed figures.

In order to allow adjusting the position of the hull 3 of the saddle in the longitudinal extension direction Y, the anchorage wall 31C is preferably provided with two corresponding elongated slots 310 (advantageously defining the aforesaid passage
20 opening), which are crossed by the stems of the screws 42 in order to tighten the anchorage wall 31C and hence the hull 3 in different longitudinal positions, i.e. with the hull 3 more forward or backward.

For the adjustment of the tilt of the hull 3, the fixing means 4 advantageously comprise a curved support 43 mechanically coupled with the counter-plate 41, which allows
25 rotating the hull 3 around a horizontal axis, orthogonal with respect to the axis of longitudinal extension Y of the saddle 1.

More in detail, in accordance with the embodiment of figure 10, such curved support 43 is made on the head 2' of the seat post tube 2, in particular in the form of a cylindrical pin transverse to the extension of the tube 2. This supports the counter-plate 41. The
30 latter can be locked in the desired tilted position by means of two lateral jaws 44 connected with screws 45 to the lateral ends of the curved support 43 and susceptible of

gripping two below-projecting sides 46 of the counter-plate 41.

In accordance with the embodiment of figure 12, such curved support 43 is made on the head 2' of the seat post tube 2 in the form of a curved guide, according to a circular arc profile. A slide 47 is engaged thereon, which is fixed with screws 48 to the counter-plate 41 in order to adjust the angular position of the hull 3 of the saddle 1.

In accordance with the embodiments of the enclosed figures, the hull 3 is provided with an elongated central slot 300 in the longitudinal extension direction Y of the same hull 3 and which in particular affects the ischial zone.

The hull 3 can also be advantageously covered by a padding layer 10 which is visible in the enclosed figures 14-19.

The invention thus conceived therefore attains the pre-established objects.

CLAIMS

1. Saddle (1) for a bicycle, which comprises:

- a hull (3);

5 - fixing means (4) arranged below said hull (3), intended to connect said hull (3) to a seat post tube (2) of a bicycle;

wherein said hull (3) is made of a composite material and comprises:

- a shaped sheet-like portion (30), which is provided with a longitudinal extension direction (Y), along which said shaped sheet-like portion (30) is extended from an enlarged rear portion (3A) to a tapered front portion (3B); and

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- a stem portion (31) integral with said sheet-like portion (30), mechanically connected to said fixing means (4), and projecting below said sheet-like portion (30);

wherein said stem portion (31) comprises:

- at least two lateral ribs (31A, 31B), each of which is extended from an upper edge (31'')

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(31'') connected to said sheet-like portion (30), to a lower edge (31'),
- an anchorage wall (31C), which is substantially parallel to said sheet-like portion (30) and connects the lower edges (31') of said two lateral ribs (31A, 31B), defining a through opening (32) which is extended with an axis (Y') substantially parallel to said longitudinal extension direction (Y),

20

wherein said anchorage wall (31C) is engaged by said fixing means (4),

wherein each lateral rib (31A, 31B), along its entire extension from said upper edge (31'')

25 such that said stem portion (31) is elastically pliable in order to damp the stresses due to the roughness of the terrain and transmitted to said hull (3) through said fixing means (4).

2. Saddle (1) for bicycles according to claim 1, characterized in that said sheet-like portion (30) is provided with two lateral edges (30') placed to connect said enlarged rear portion (3A) with said tapered front portion (3B);

30

wherein said two lateral ribs (31A, 31B) are extended, from the corresponding upper

edges (31''), starting from the lateral edges (30') of said sheet-like plate (30) up to corresponding said two lower edges (31').

3. Saddle (1) for bicycles according to claim 2, characterized in that the upper edge (31'') of each said lateral rib (31A, 31B) forms a sharp edge with the corresponding said lateral edge (30') of said sheet-like portion (30).

4. Saddle (1) for bicycles according to any one of the preceding claims, characterized in that said stem portion (31) is extended, along said longitudinal extension direction (Y), between an open rear edge (311) and an open front edge (312), between which said through opening (32) is extended in a through manner along said axis (Y').

5. Saddle (1) for bicycles according to any one of the preceding claims, characterized in that said inclination angle (a) is substantially comprised between 175° and 100°.

6. Saddle (1) for bicycles according to claims 4 and 5, characterized in that said inclination angle (a) varies from a first angle value (V1) comprised between 170° and 175° at the rear edge (311) of said stem portion (31), to a second angle value (V2) comprised between 100° and 140° at the open front edge (312) of said stem portion (31).

7. Saddle (1) for bicycles according to any one of the preceding claims, characterized in that the enlarged rear portion (3A) of said sheet-like portion (30) is extended, along said longitudinal extension direction (Y), cantilevered from said stem portion (31), and the tapered front portion (3B) of said sheet-like portion (30) is extended, along said longitudinal extension direction (Y), cantilevered from said stem portion (31) in the opposite direction with respect to said enlarged rear portion (3A).

8. Saddle (1) for bicycles according to claims 4 and 7, characterized in that said enlarged rear portion (3A) is extended projectingly with respect to the open rear edge (311) of said stem portion (31), and said tapered front portion (3B) is extended projectingly with respect to the open front edge (312) of said stem portion (31).

9. Saddle (1) for bicycles according to claim 8 or 9, characterized in that said stem portion (31) is arranged, along said longitudinal extension direction (Y), in an intermediate position between said enlarged rear portion (3A) and said tapered front portion (3B).

10. Saddle (1) for bicycles according to any one of the preceding claims, characterized

in that said stem portion (31) has length, along said longitudinal extension direction (Y), comprised between 20% and 45% of the length of the sheet-like portion (30) along longitudinal extension direction (Y).

5 **11.** Saddle (1) for bicycles according to any one of the preceding claims, characterized in that each said lateral rib (31A, 31B), along its entire extension from said upper edge (31'') to said lower edge (31'), is inclined with respect to said sheet-like portion (30), defining, with said sheet-like portion (30), inside said through opening (32), an acute lateral angle (β).

10 **12.** Saddle (1) for bicycles according to claim 11, characterized in that said a lateral angle (β) is substantially comprised between 10° and 40°.

13. Saddle (1) for bicycles according to any one of the preceding claims, characterized in that each said lateral rib (31A, 31B) has transverse section, obtained on a plane orthogonal to said longitudinal extension direction (Y), with substantially curved shape with convexity directed towards said through opening (32).

15 **14.** Saddle (1) for bicycles according to any one of the preceding claims, characterized in that each said rib (31A, 31B) is mainly extended, with elongated shape, along said longitudinal extension direction (Y).

20 **15.** Saddle (1) for bicycles according to any one of the preceding claims, characterized in that said fixing means (4) comprise at least one plate (40) inserted in said through opening (32) in abutment above said anchorage wall (31C).

16. Saddle (1) for bicycles according to claim 15, characterized in that said anchorage means (4) comprise at least one counter-plate (41) in abutment beneath said anchorage wall (31C) and fixed to said plate (40) by means of screw means (42).

25 **17.** Saddle (1) for bicycles according to claim 16, characterized in that said anchorage wall (31C) is provided with elongated slots (310) crossed by said screw means (42) in order to adjust the position of said hull (3) along said longitudinal extension direction (Y).

30 **18.** Saddle (1) for bicycles according to any one of the preceding claims, characterized in that the sheet-like portion (30) of said hull (3) is provided with an elongated central slot (300) along said longitudinal extension direction (Y).

19. Saddle (1) for bicycles according to any one of the preceding claims, characterized

in that said hull (3) is covered by a padding layer (10).

20. Saddle (1) for bicycles according to claim 16 or 17, characterized in that said fixing means (4) comprise a curved support (43) mechanically coupled to said counter-plate (41) in order to support it in an adjustable angular position.

5

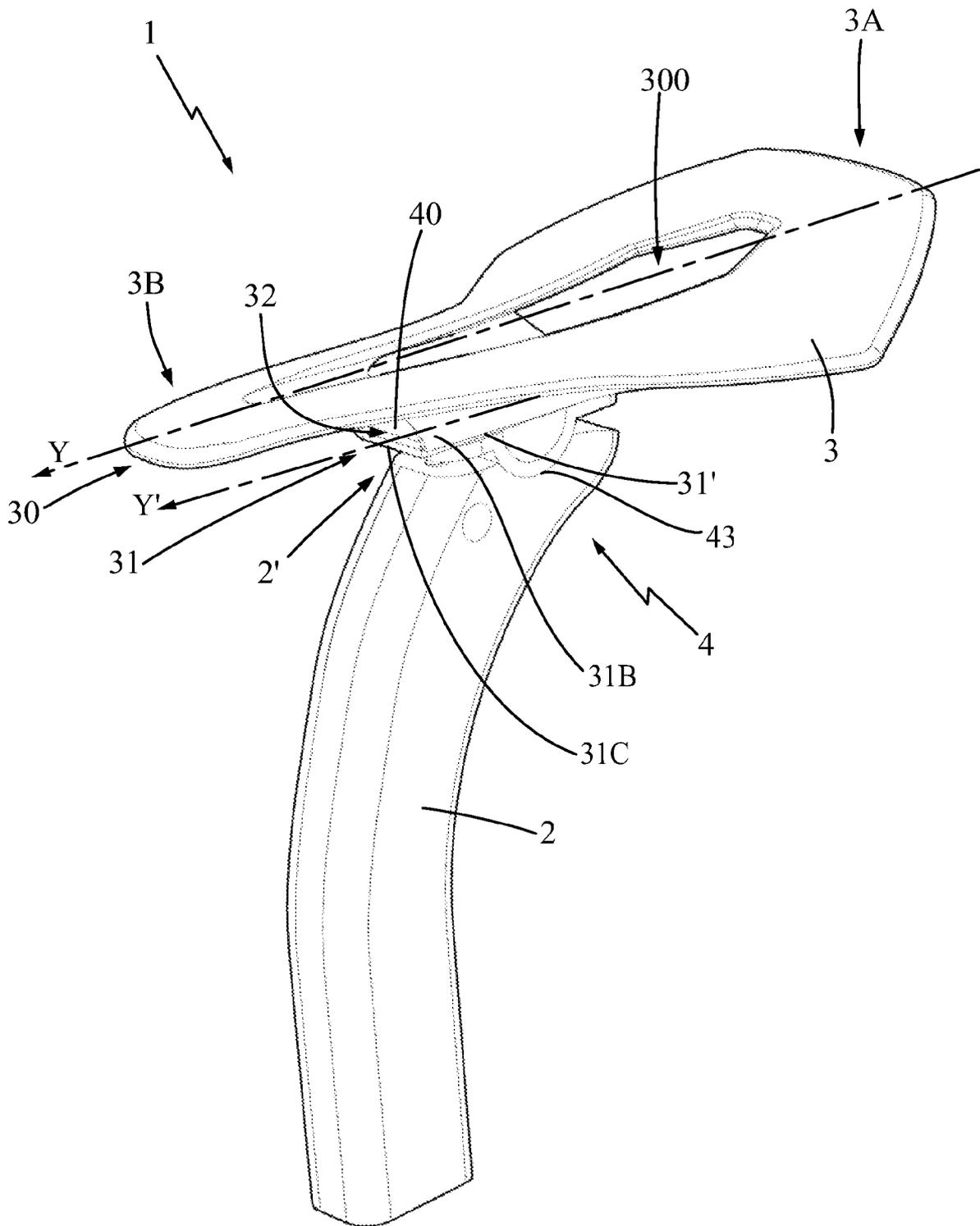


Fig. 1

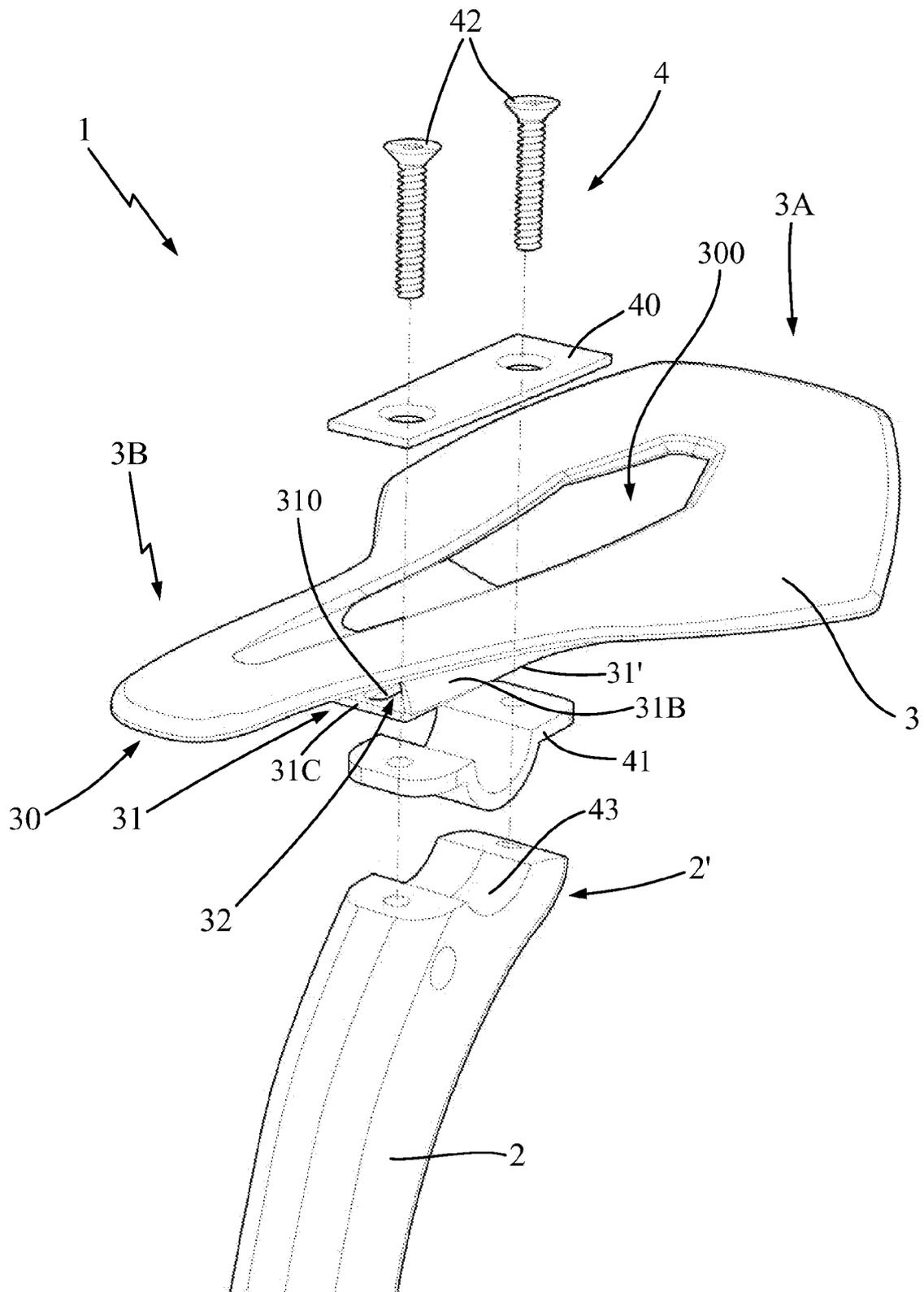
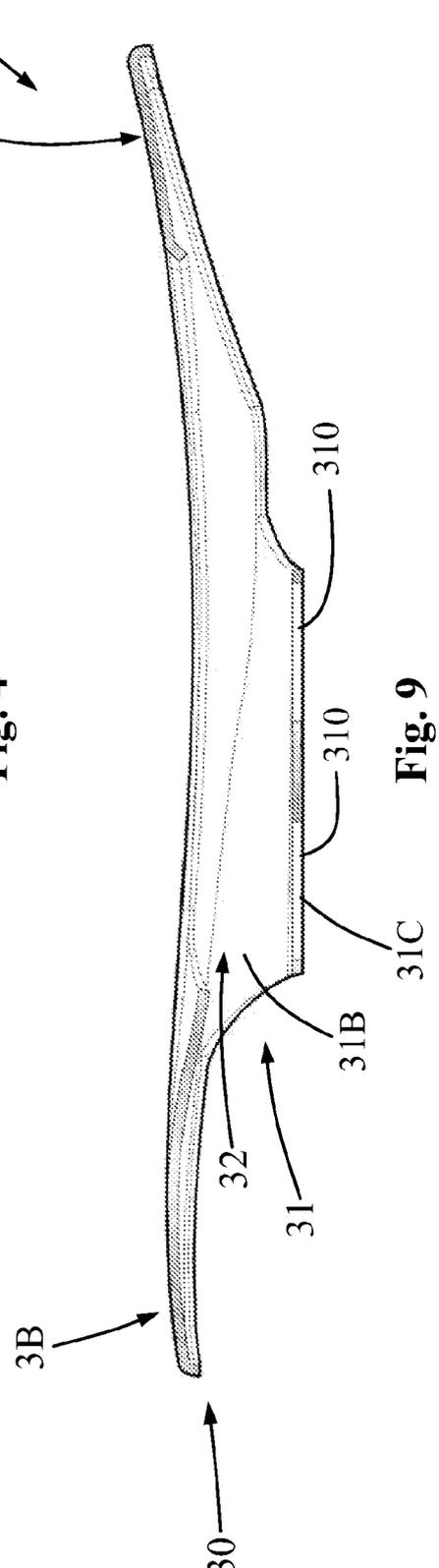
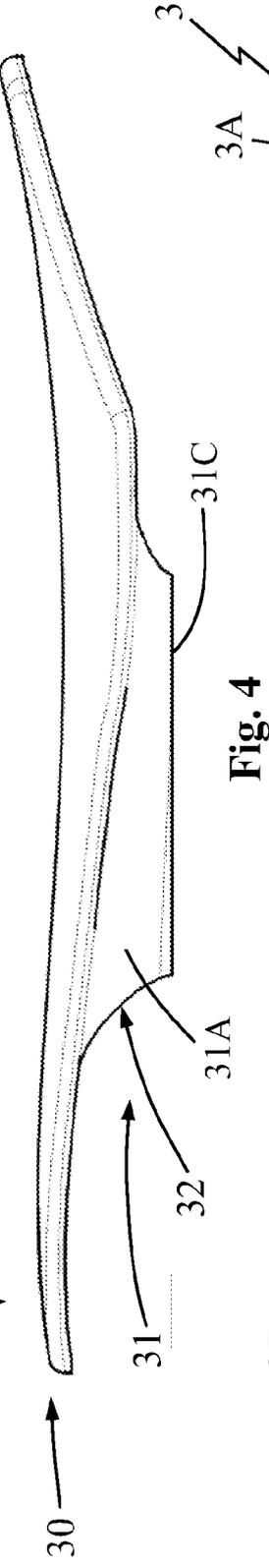
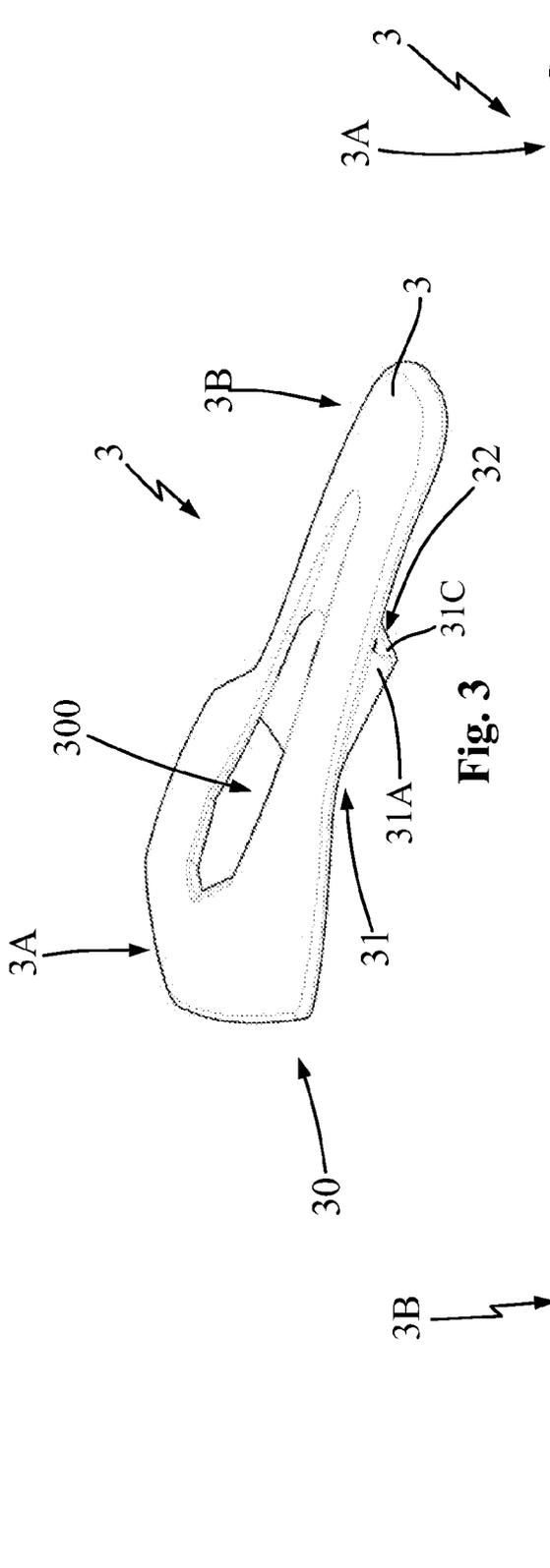


Fig. 2



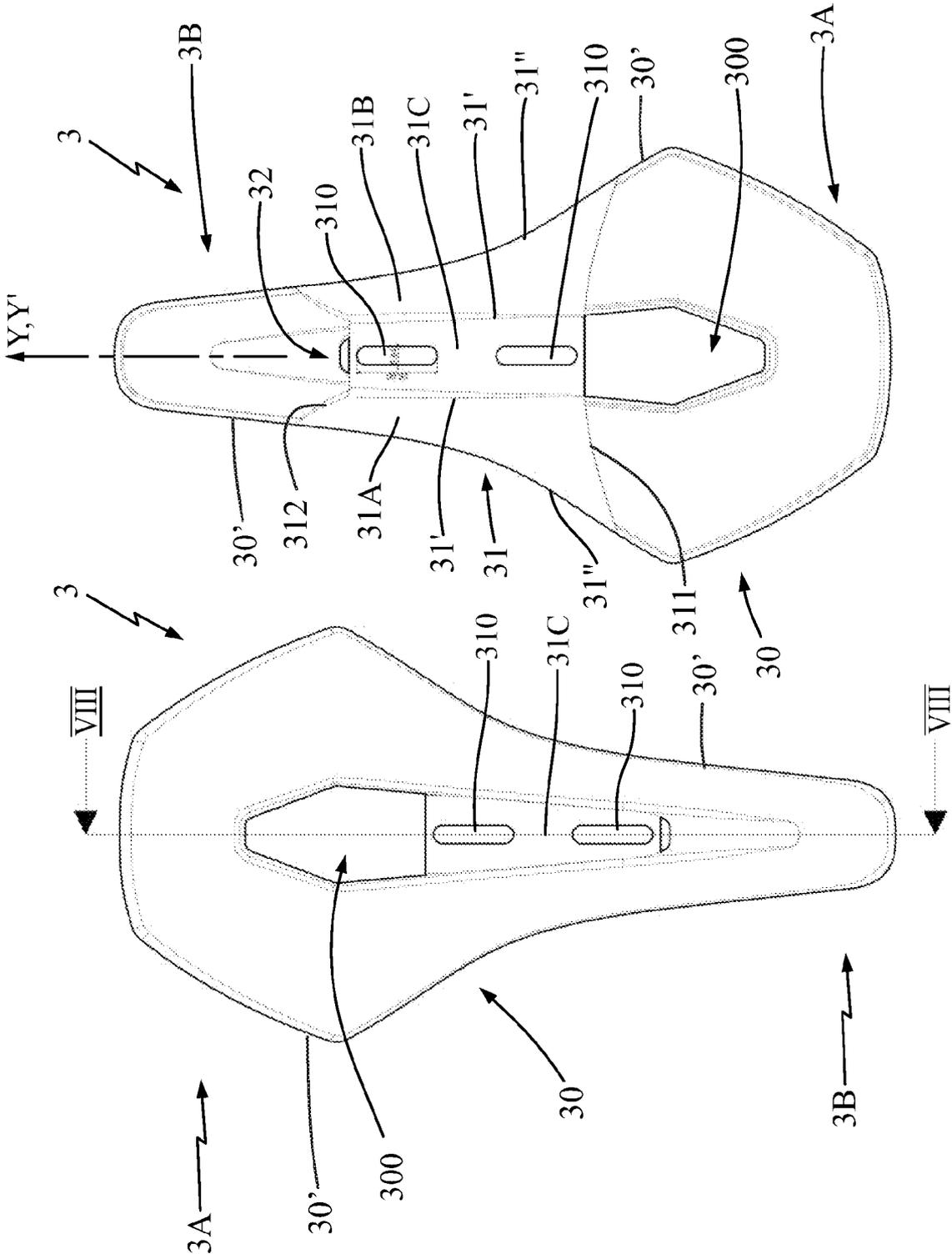
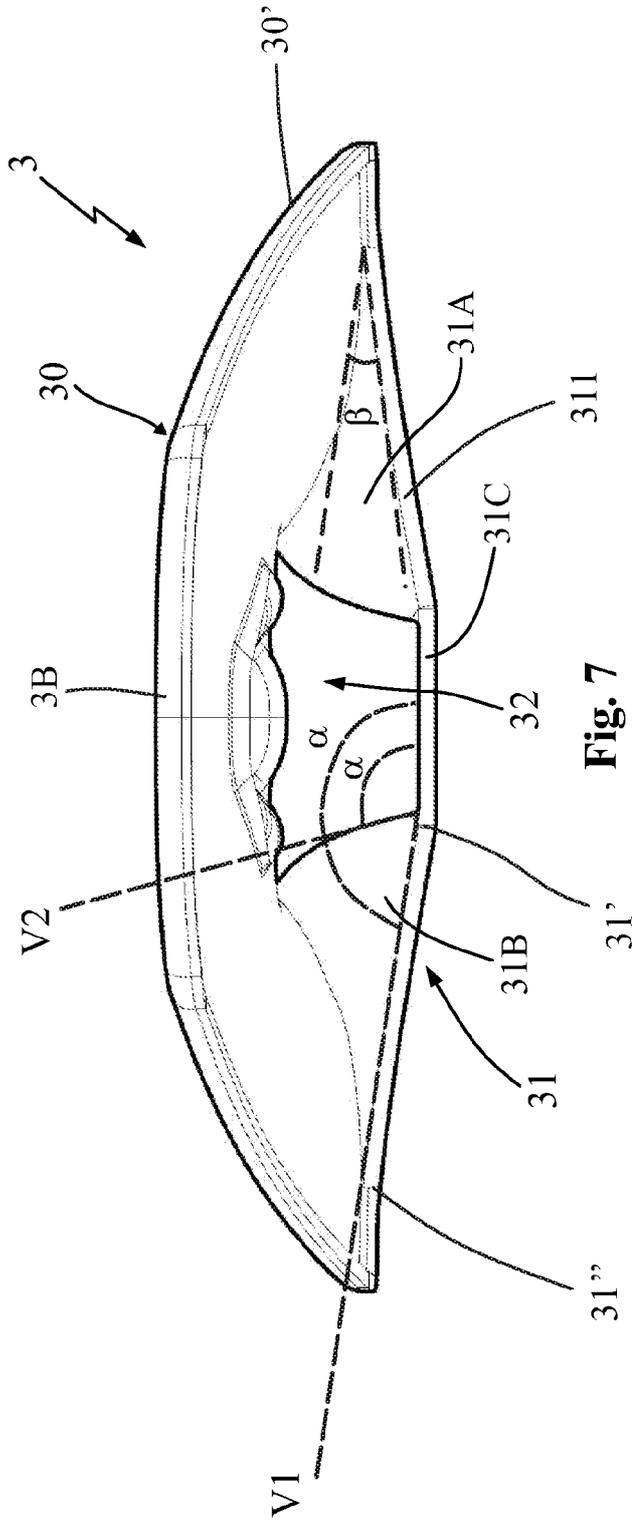
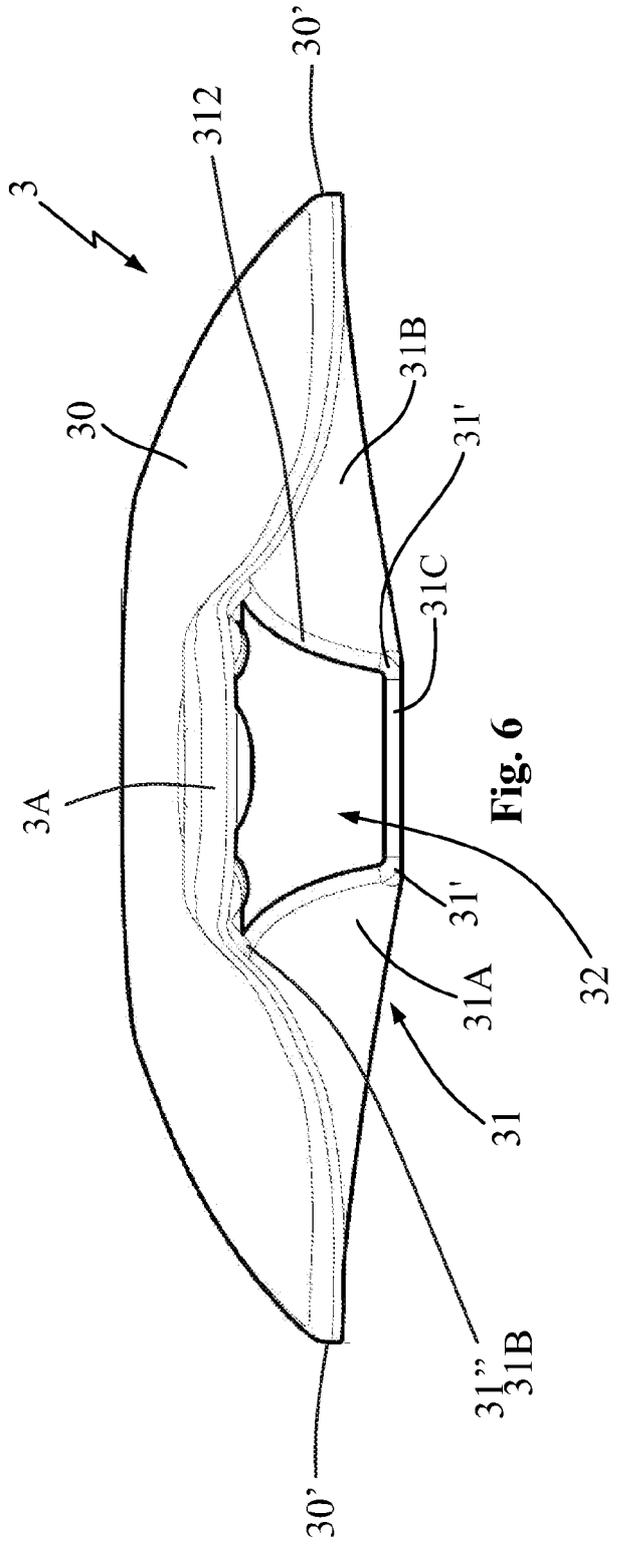


Fig. 5

Fig. 8



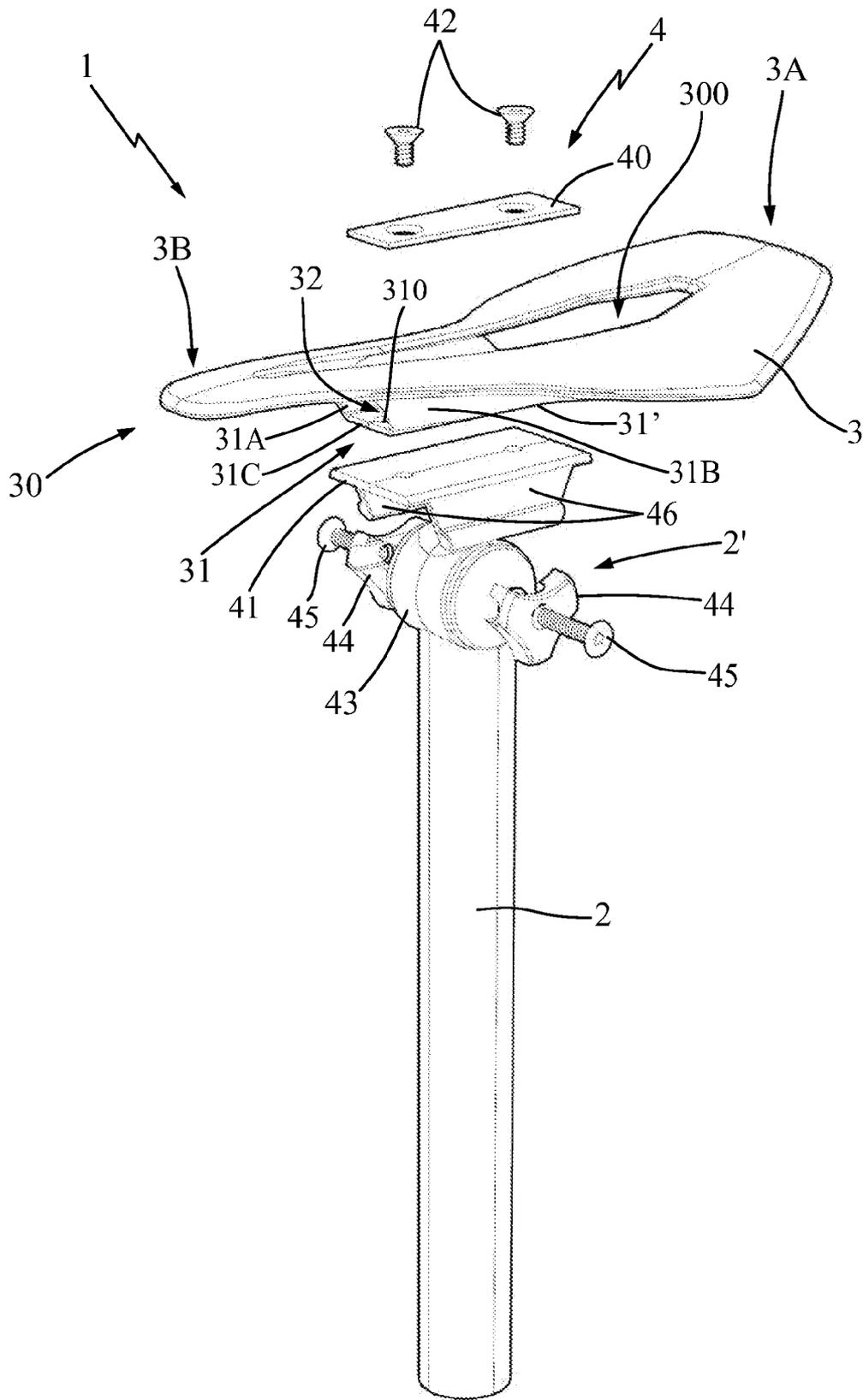


Fig. 11

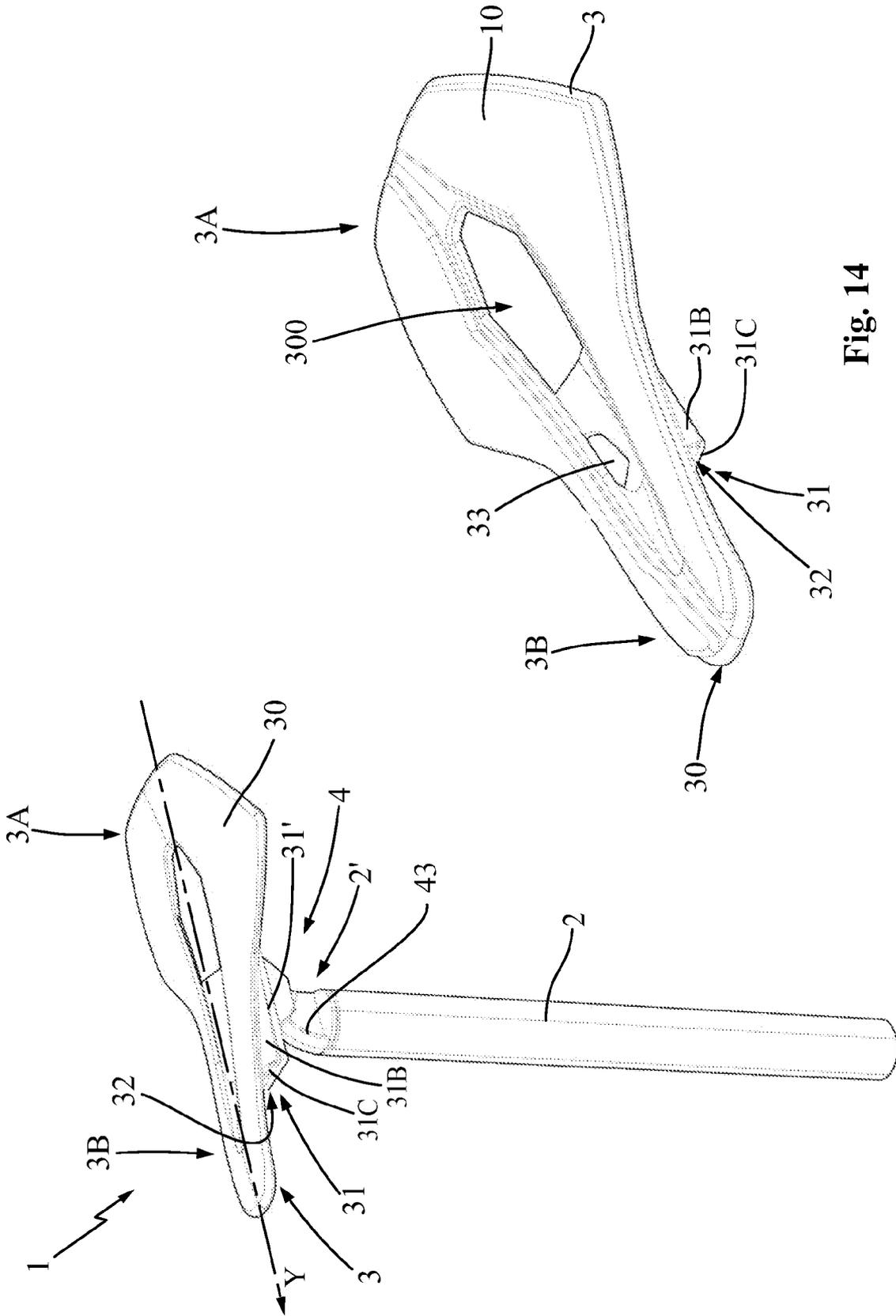


Fig. 14

Fig. 12

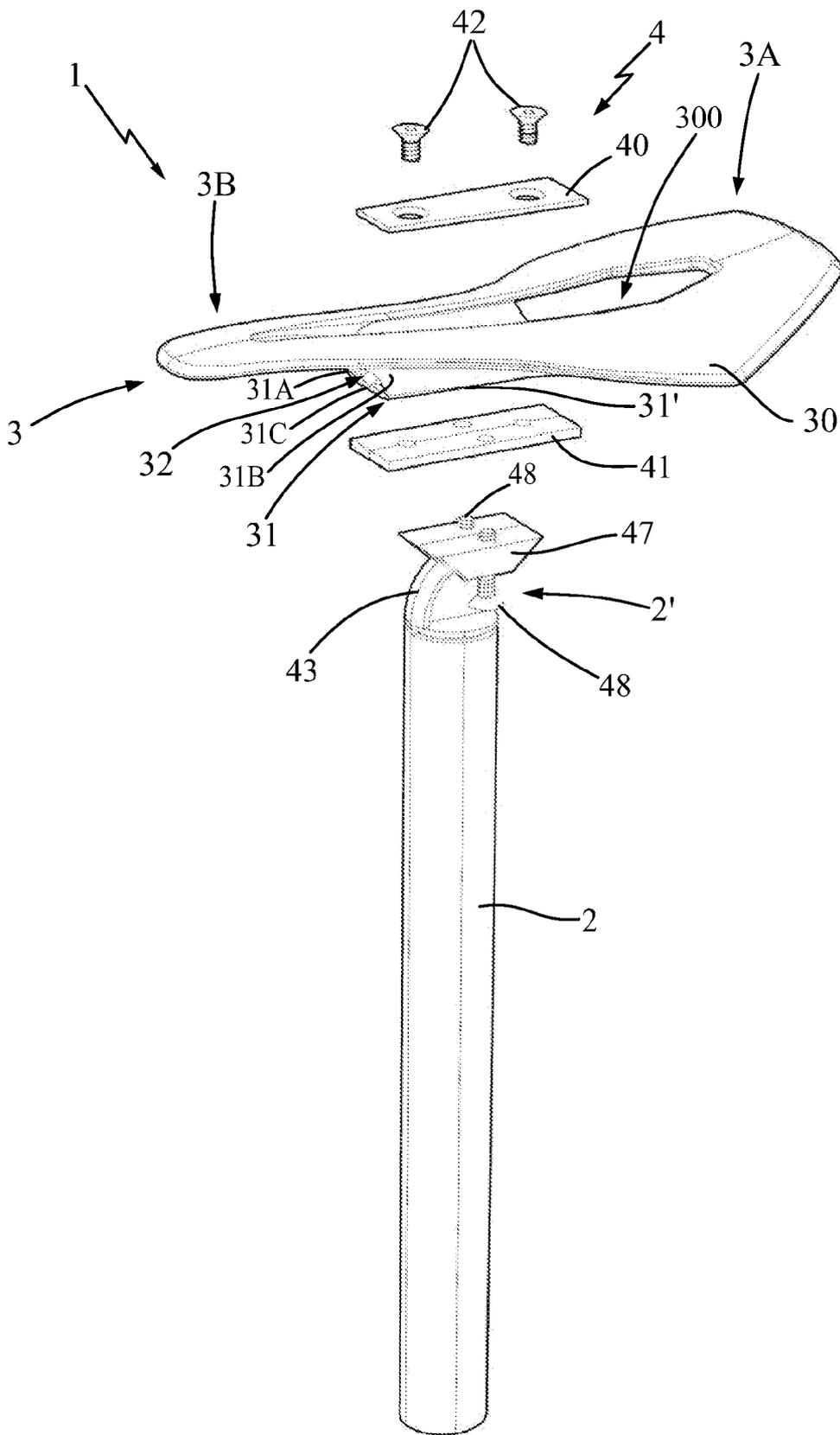
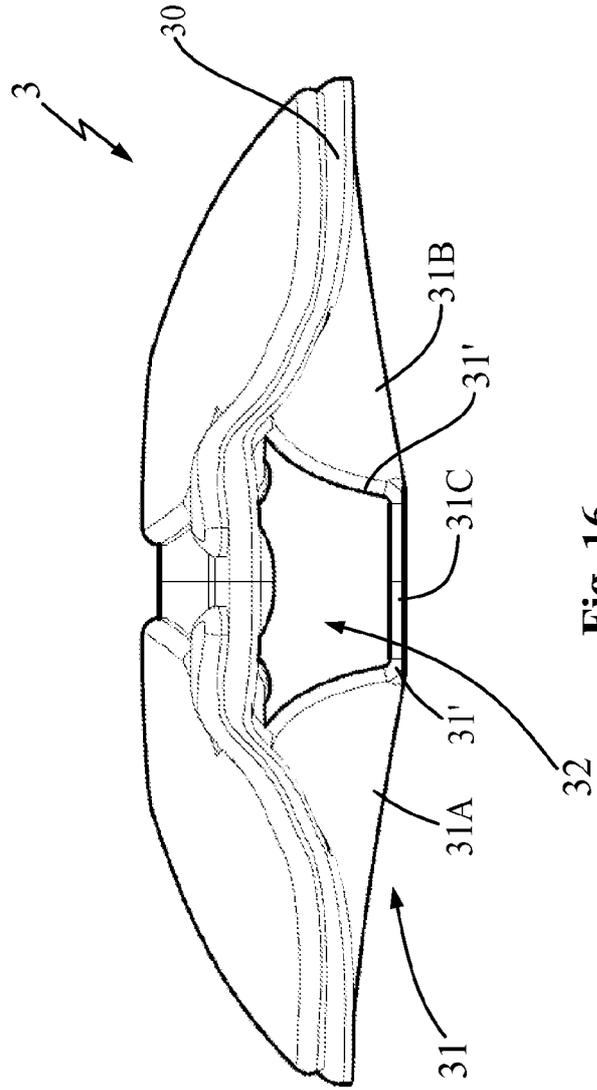
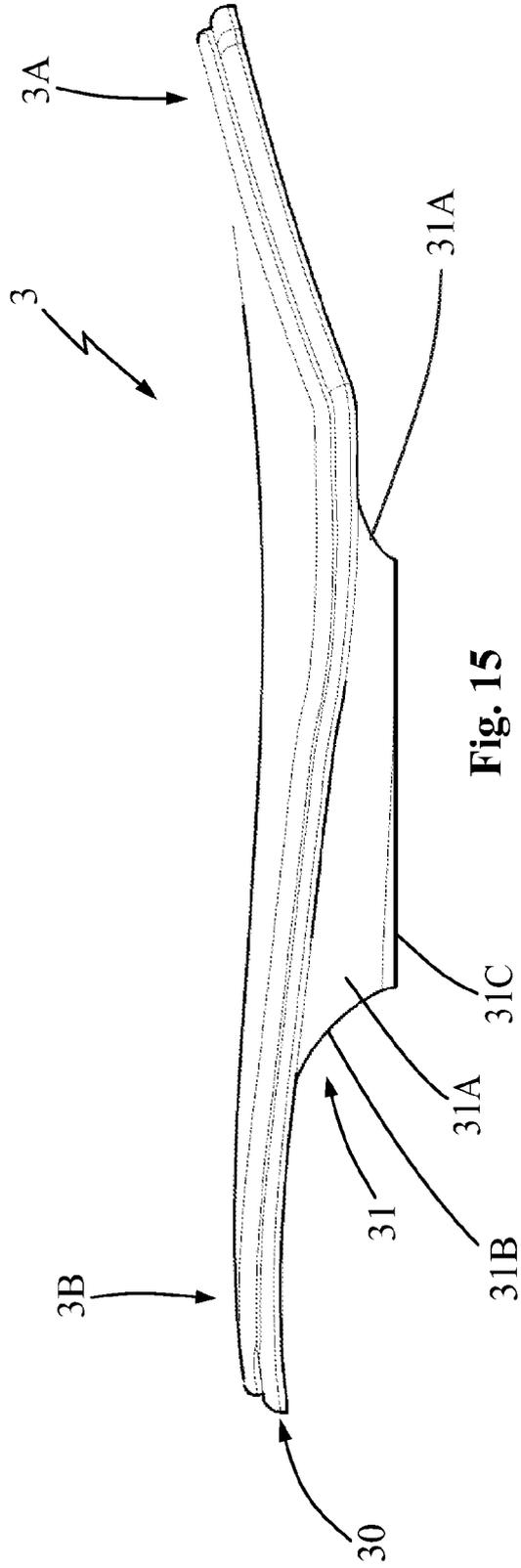


Fig. 13



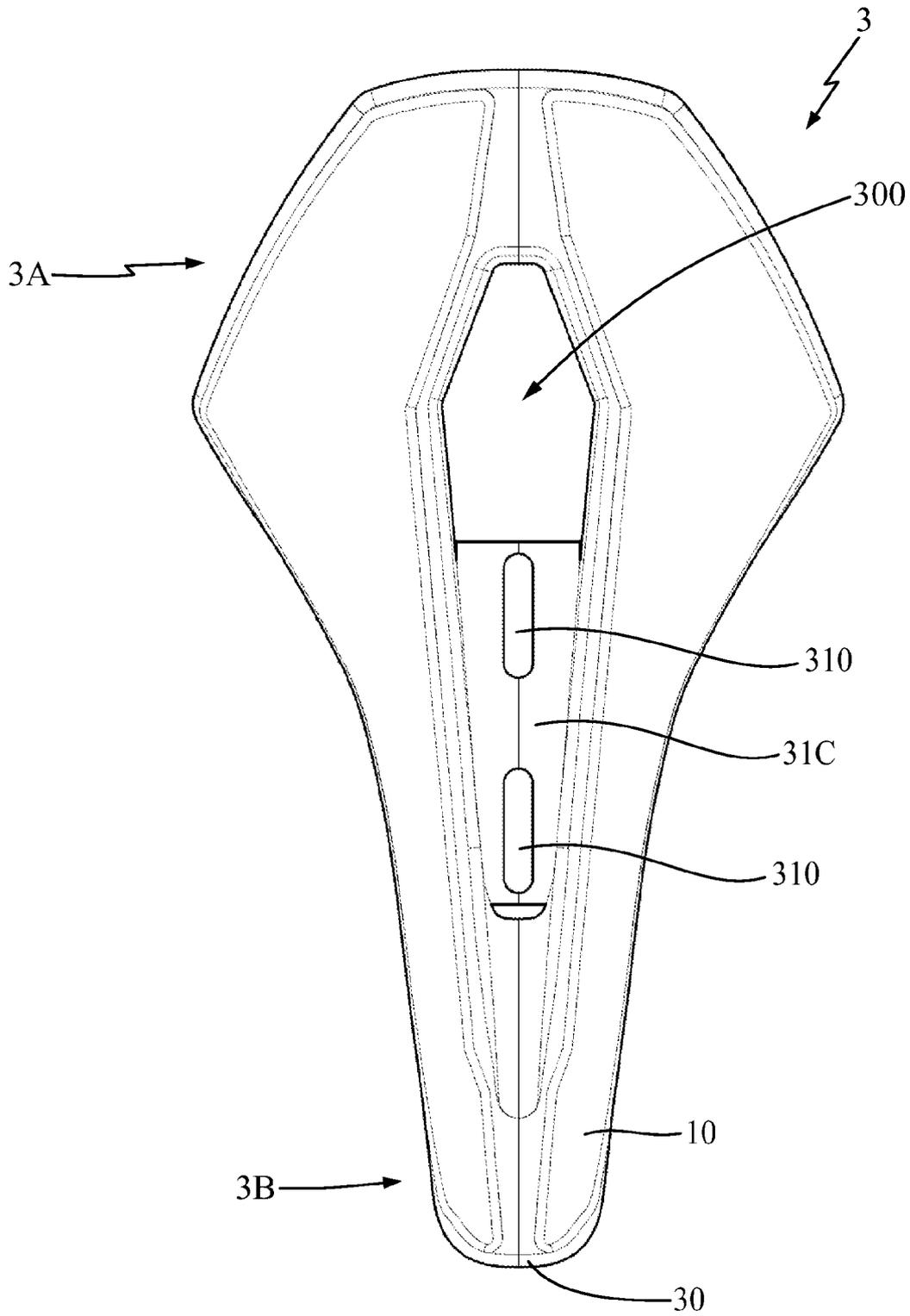


Fig. 17

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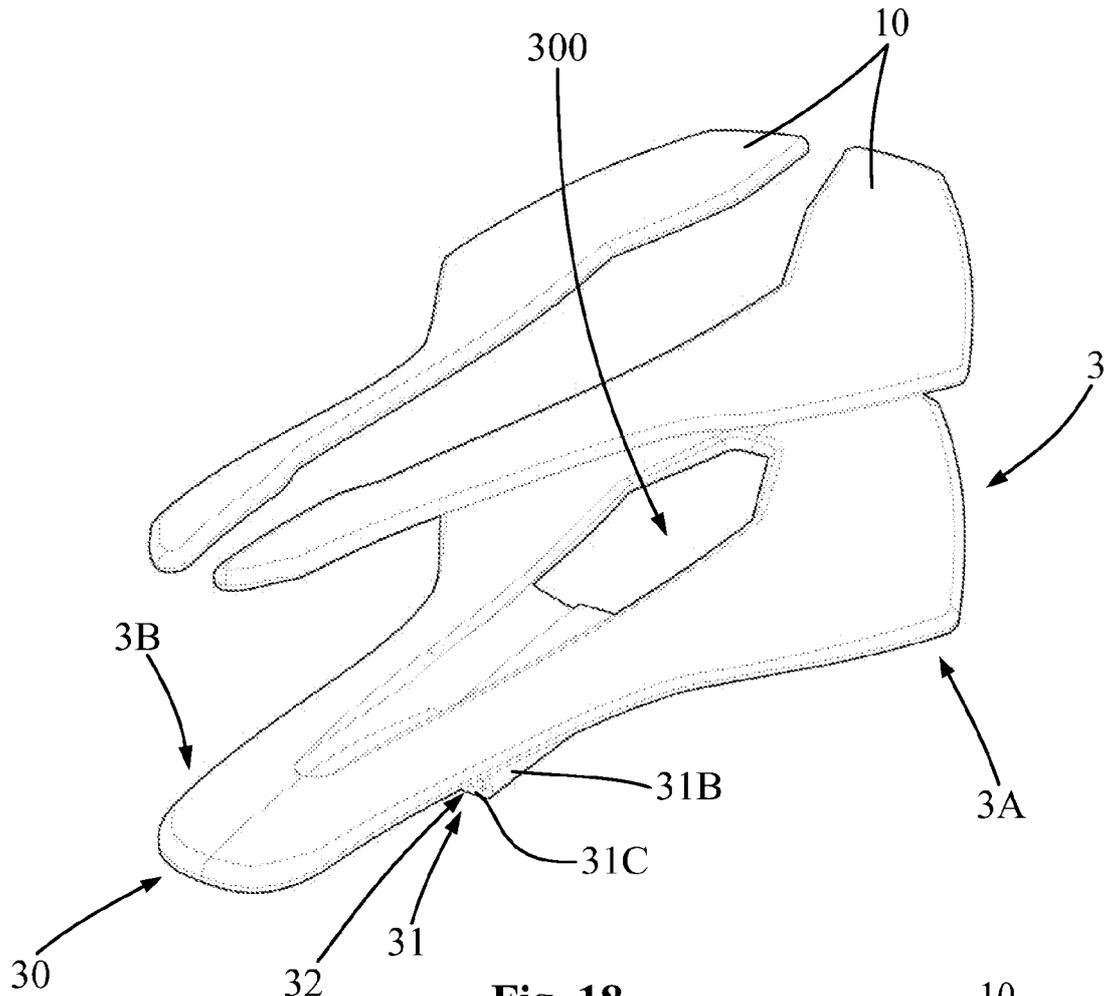


Fig. 18

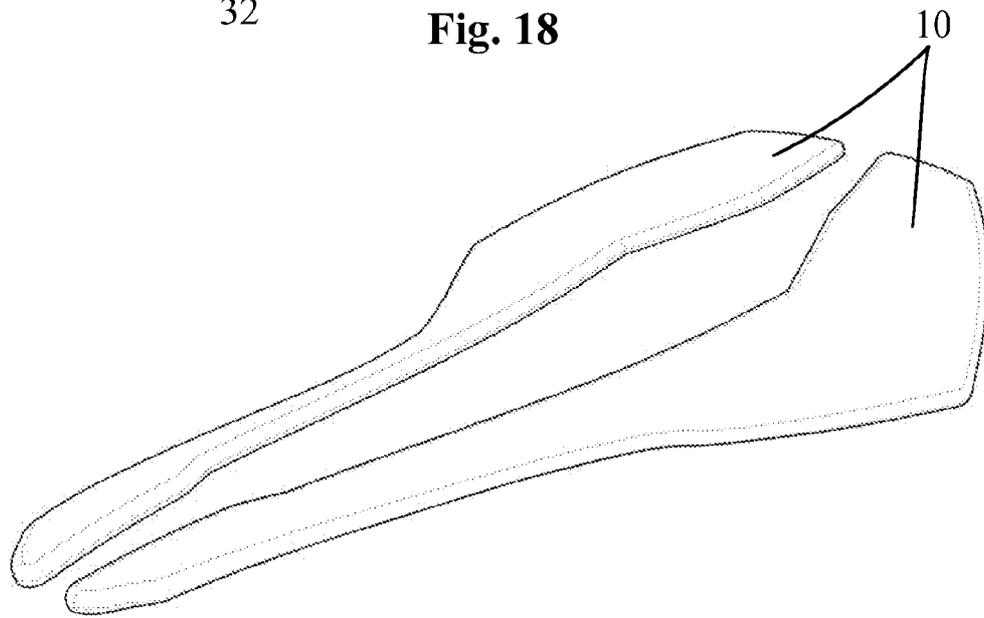
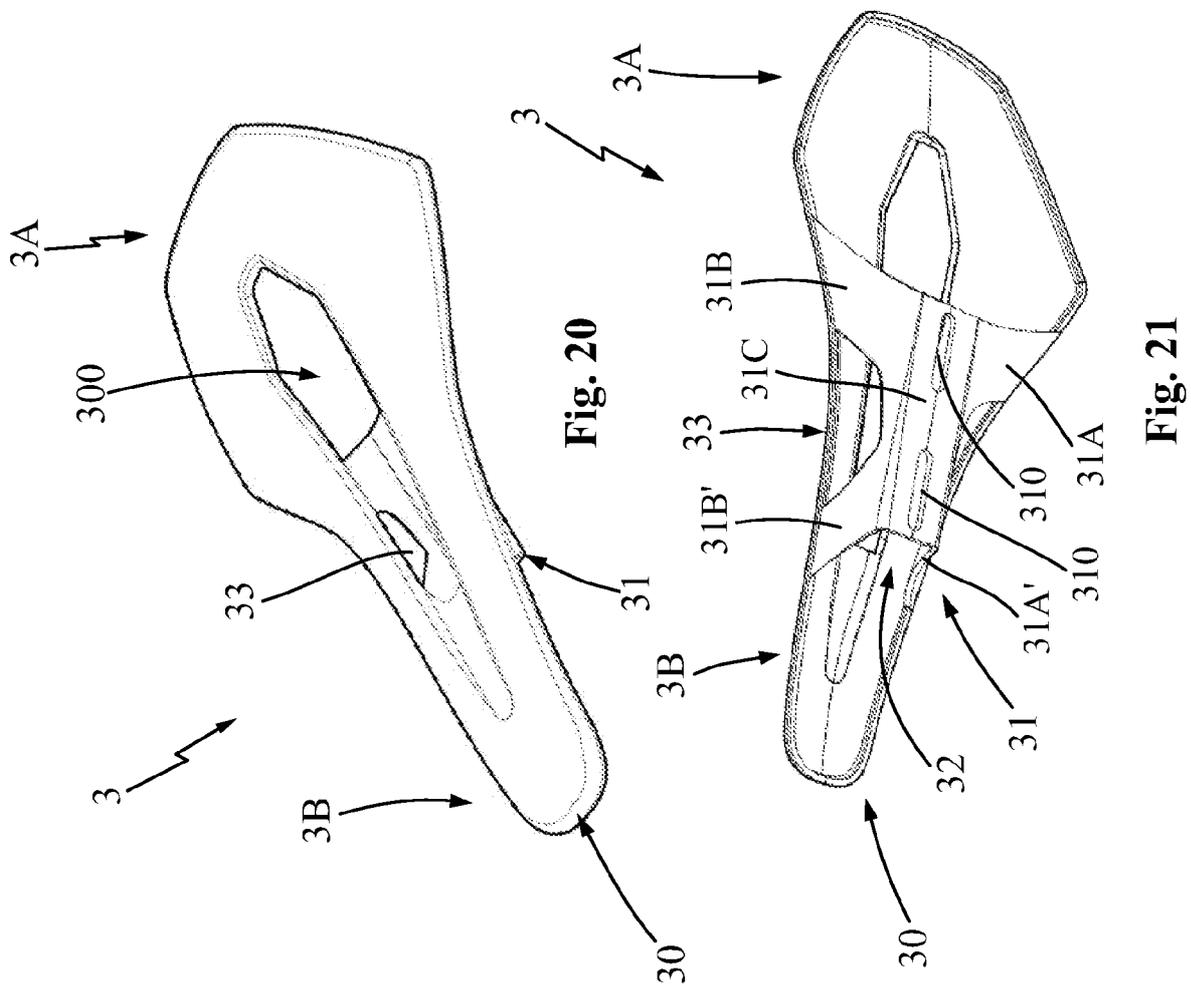


Fig. 19



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2019/060406

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B62J1/02 B62J1/00 B62J1/08
 ADD.

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)
 B62J

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)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X A	US 2007/290534 A1 (RUTHERFORD JERI [US]) 20 December 2007 (2007-12-20) the whole document -----	1-3,5,6, 10-18,20 4,7-9
A	US 2008/246245 A1 (HUNG CHUN-FU [TW]) 9 October 2008 (2008-10-09) claims 1-3; figures 1-7 -----	1-20
A	DE 200 00 745 U1 (ALLMENDINGER EUGEN [DE]) 10 August 2000 (2000-08-10) paragraphs [0006], [0007]; claims 8-11,32; figures 1-17 -----	1
A	US 2015/217824 A1 (LIAO YUANHONG [CN]) 6 August 2015 (2015-08-06) paragraphs [0004], [0005], [0019] - [0021]; figures 1-2 ----- -/--	1

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 5 March 2020	Date of mailing of the international search report 12/03/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Molina Encabo, Aitor
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2019/060406

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

International application No PCT/IB2019/060406

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