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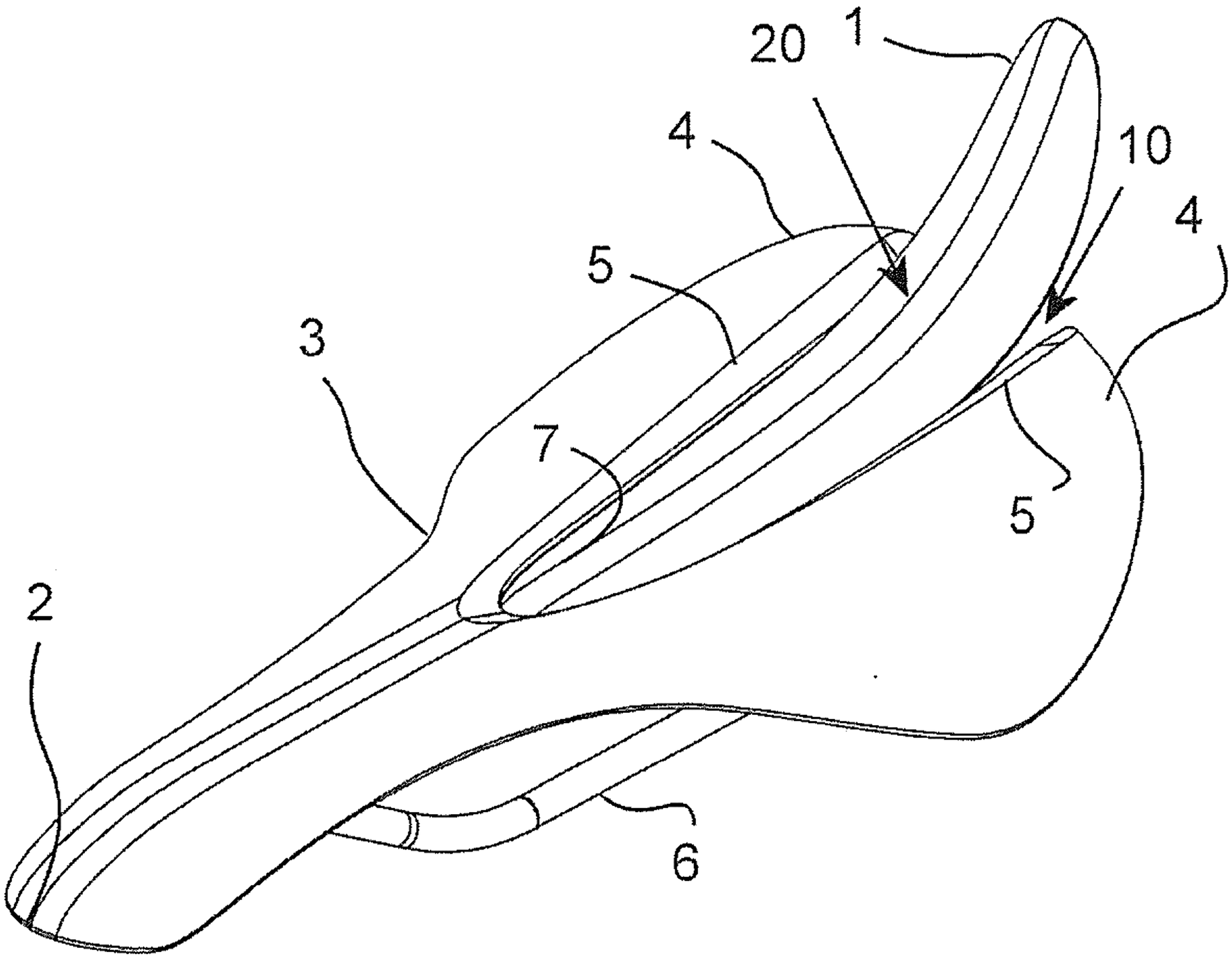


fig.1

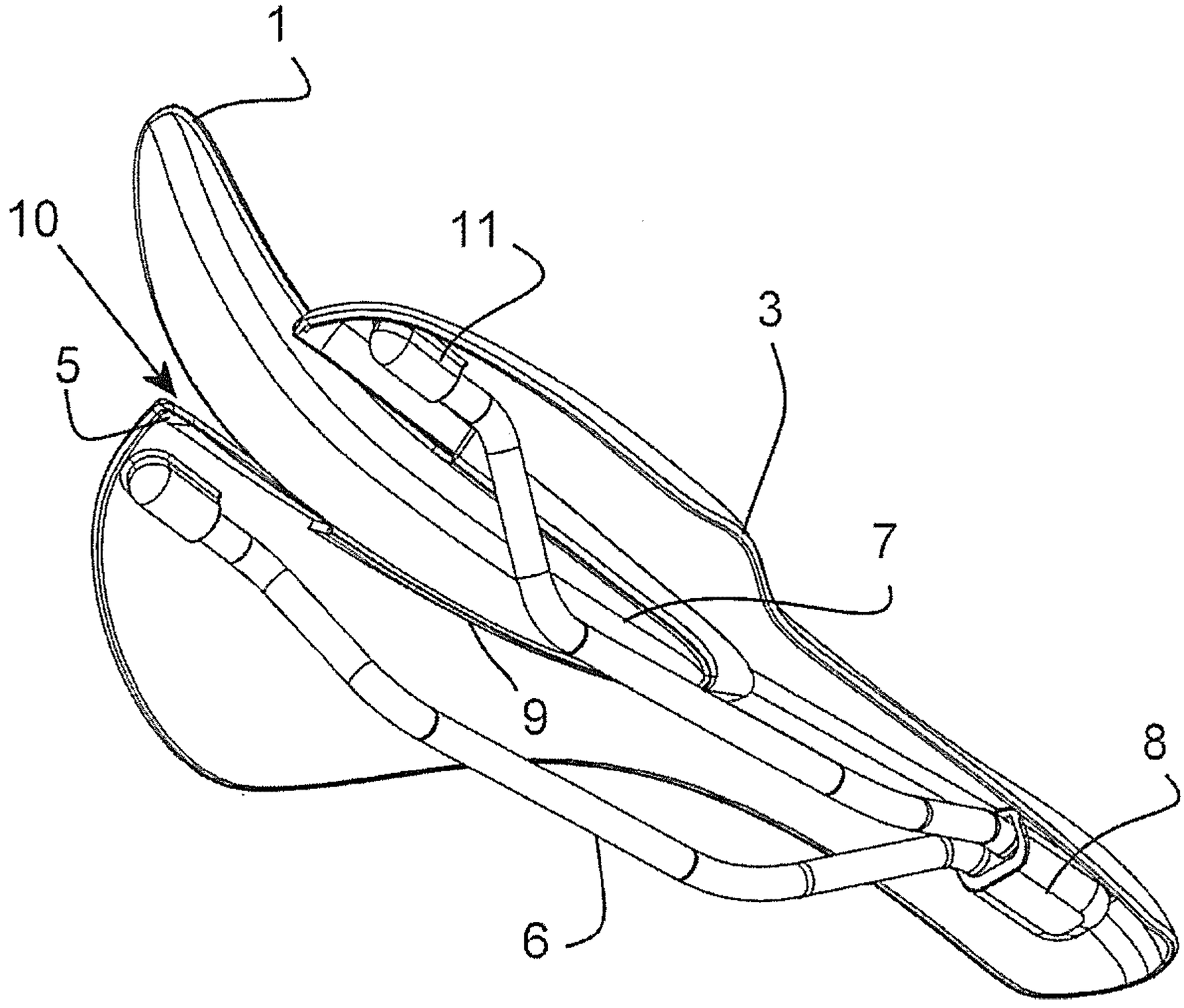


fig. 2

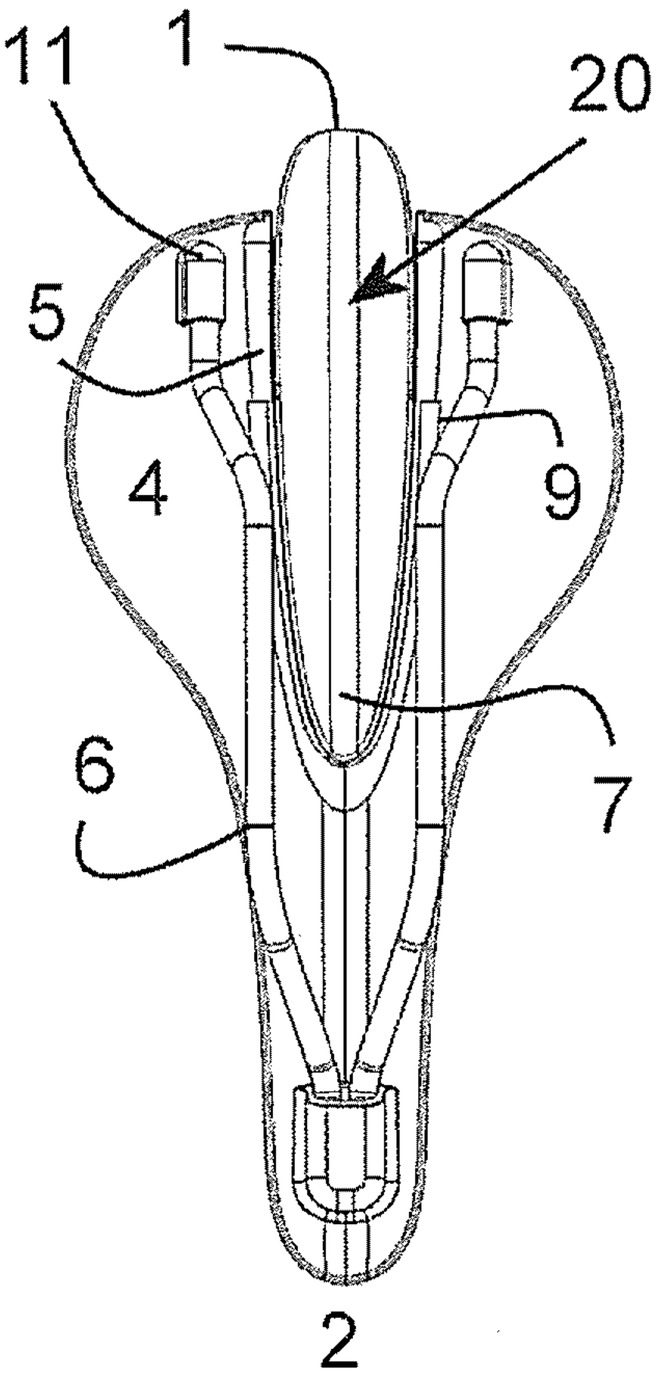


fig. 3a

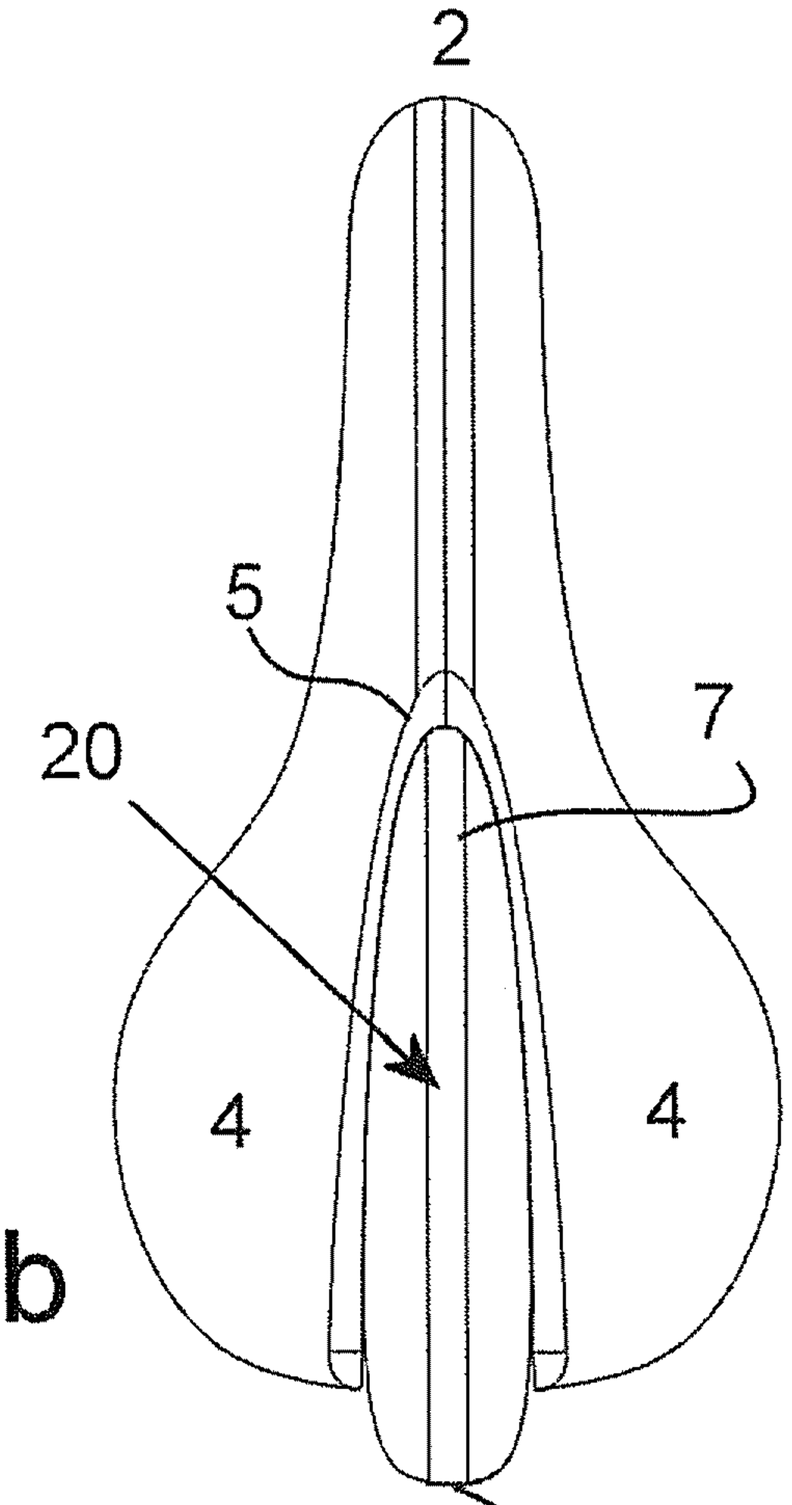


fig. 3b

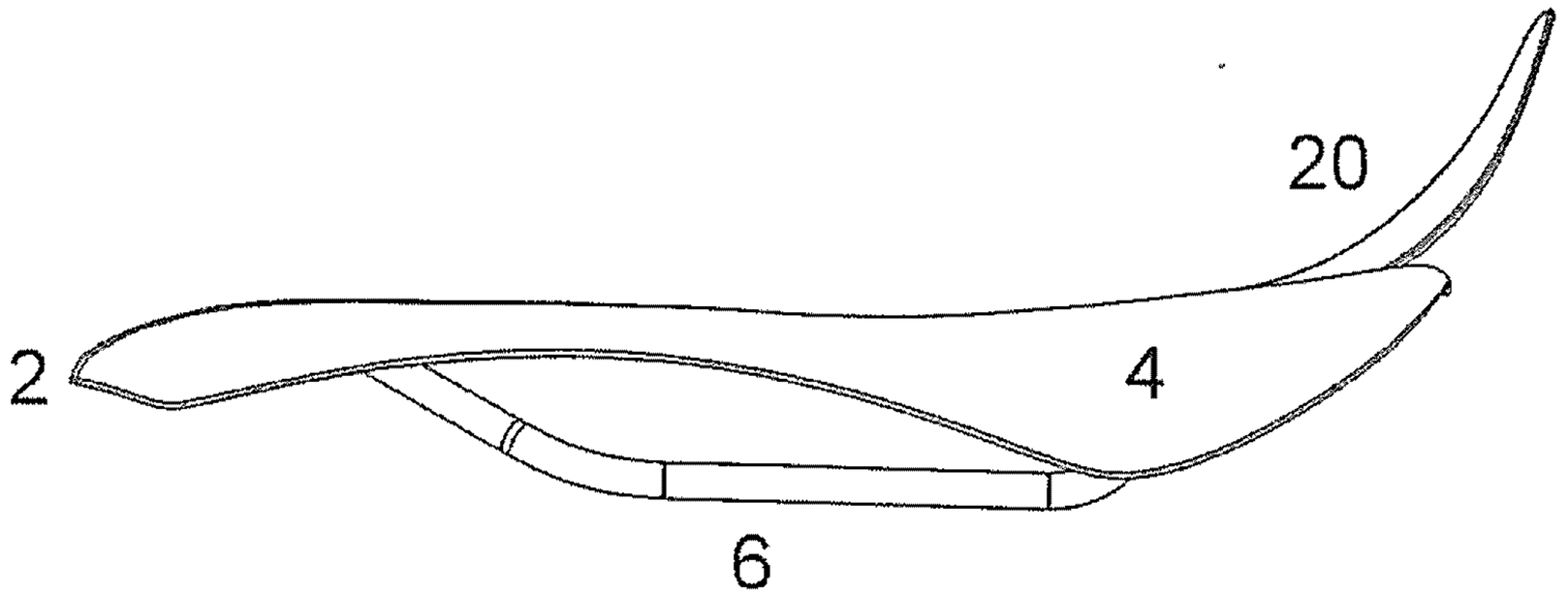


fig.4

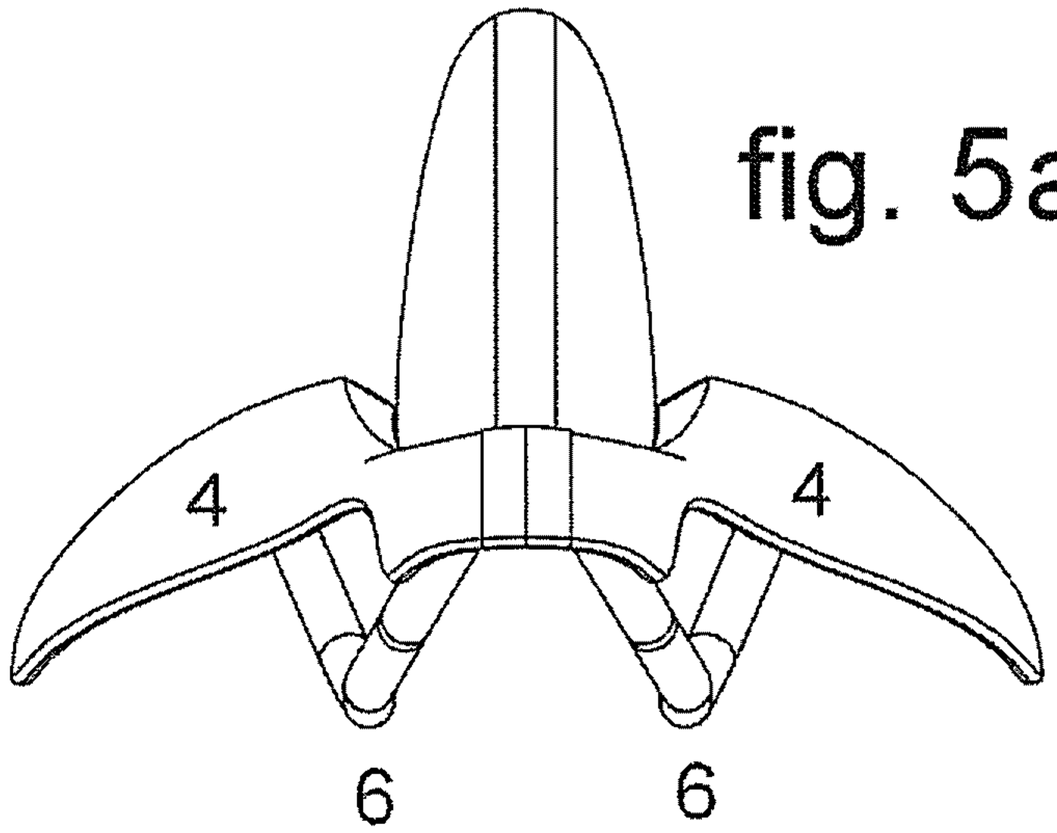


fig. 5a

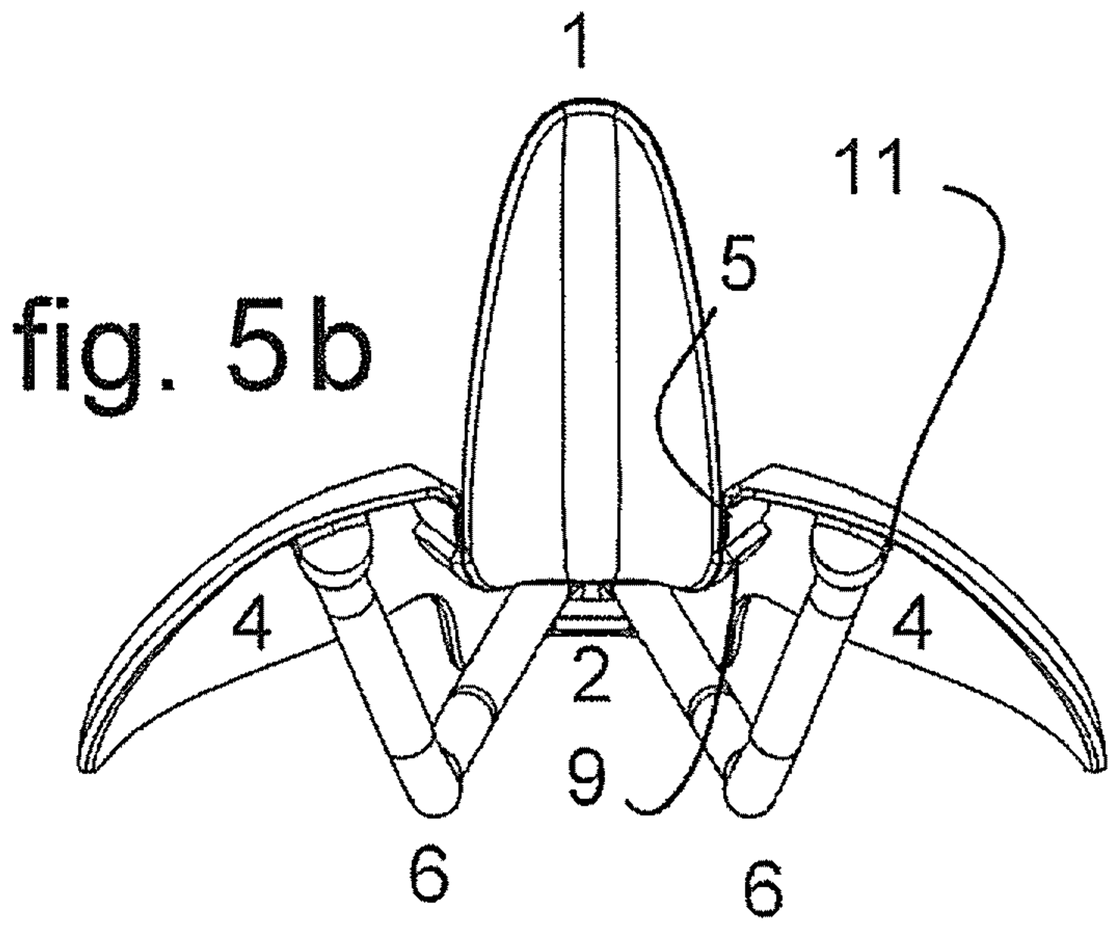


fig. 5b

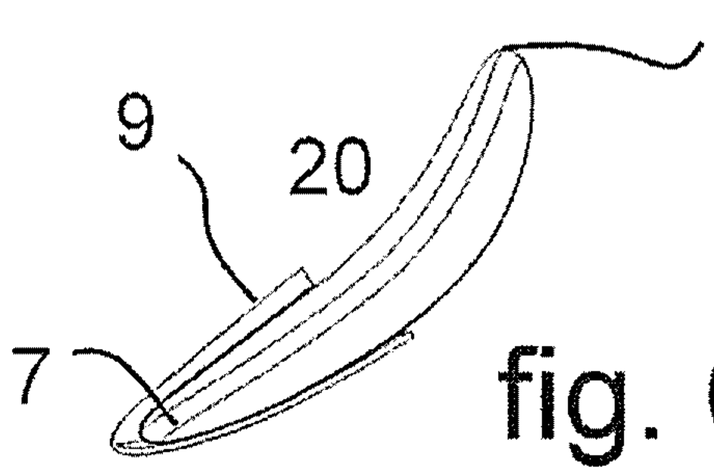
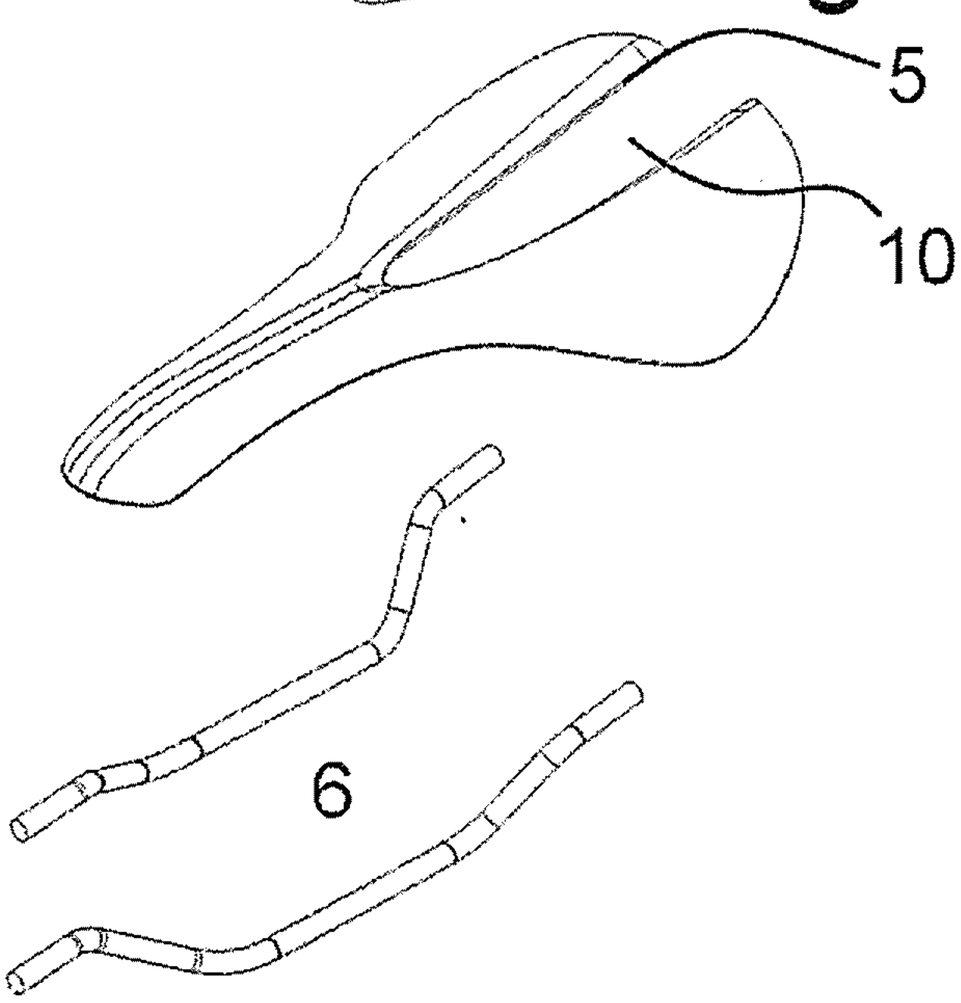


fig. 6a



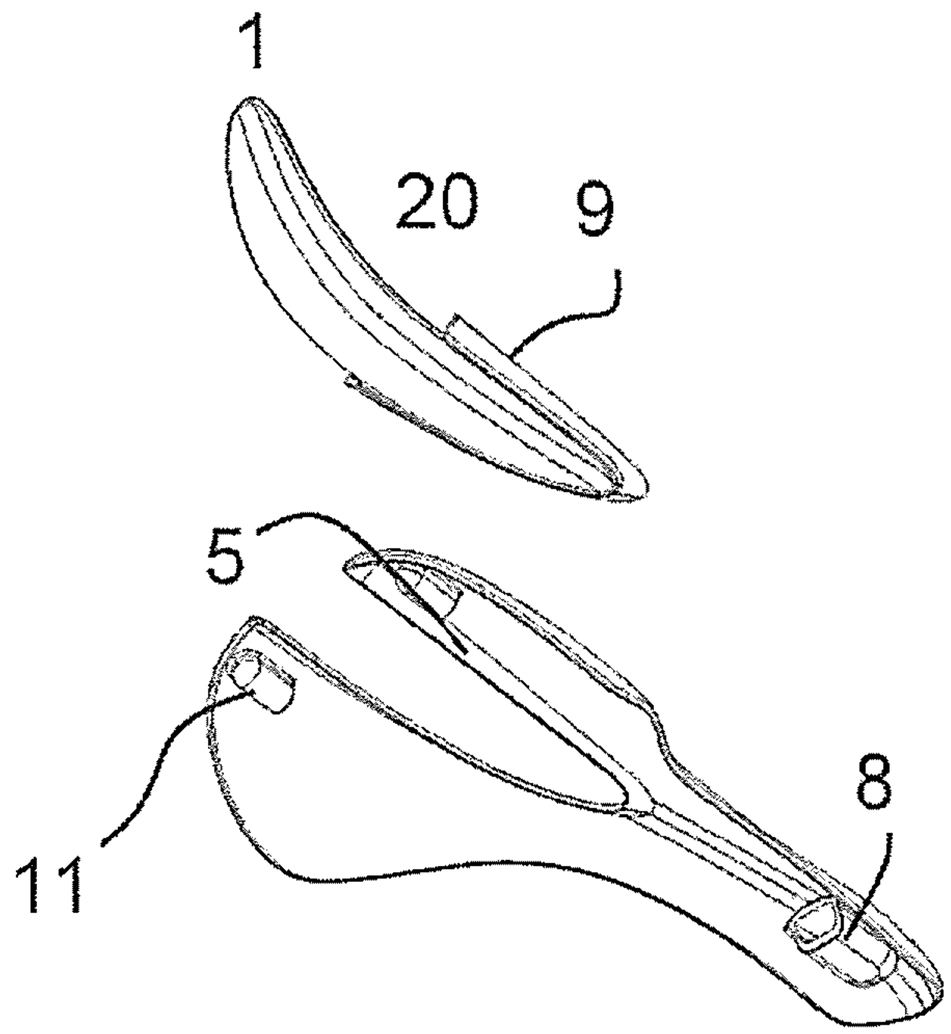


fig. 6b

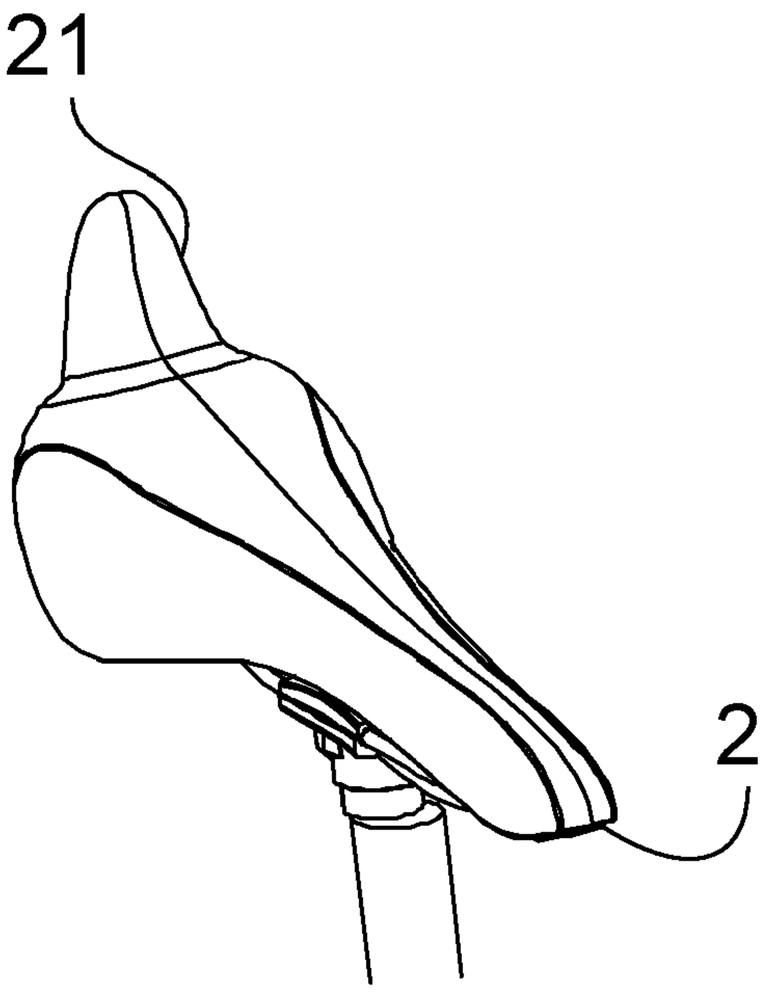


fig. 7a

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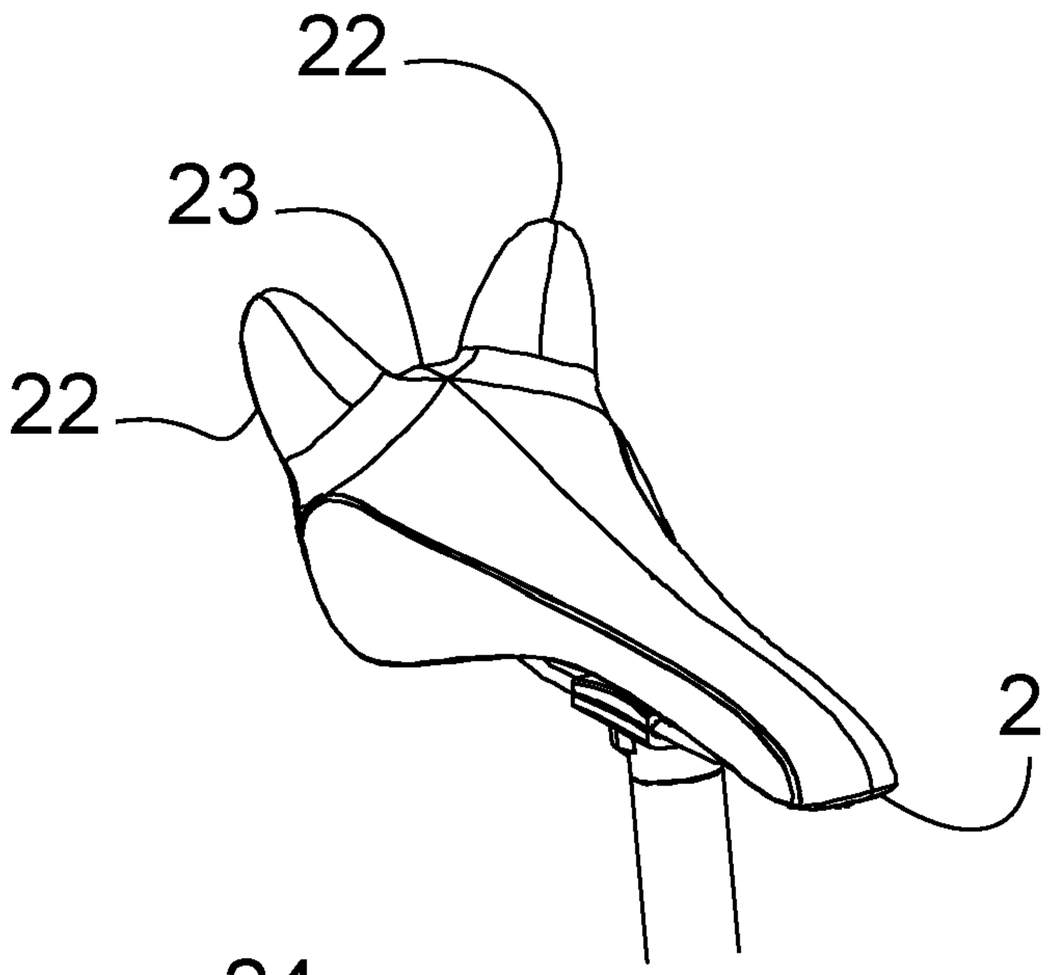


fig. 7b

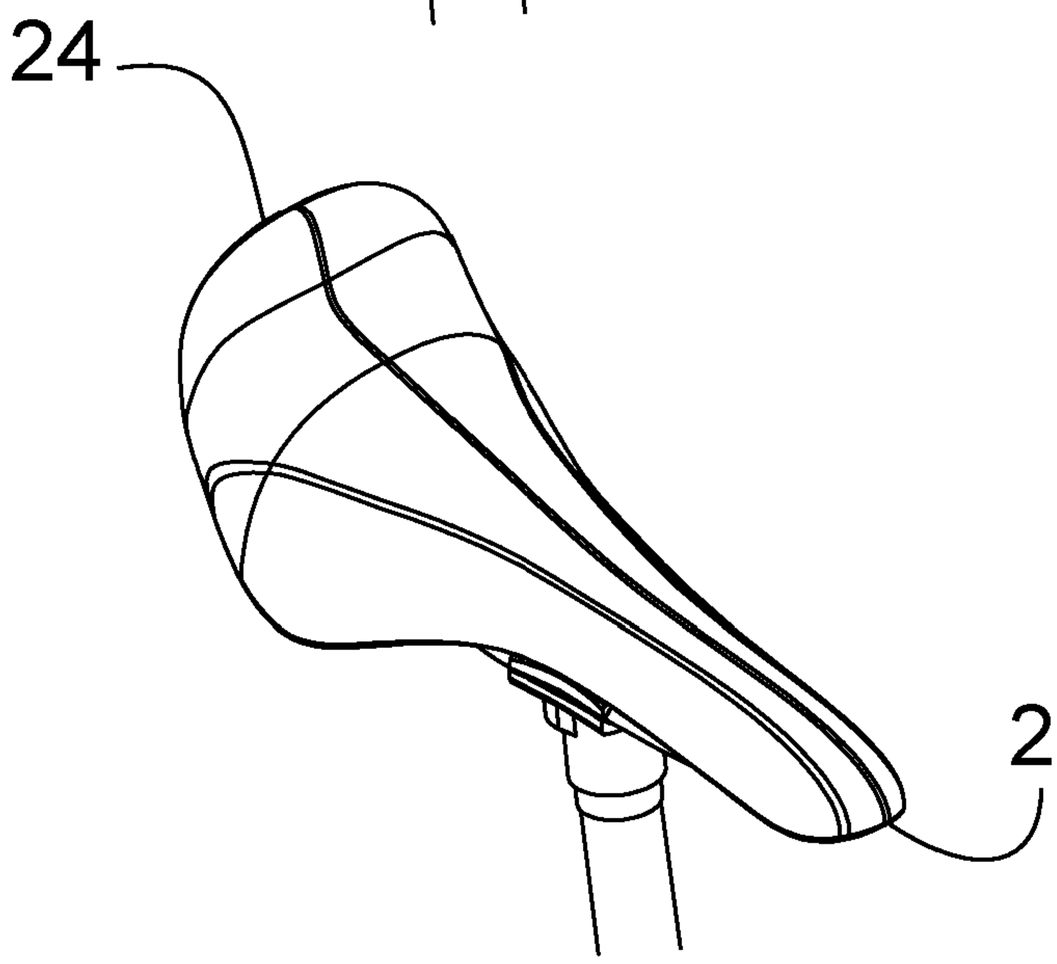


fig. 7c

A CYCLE SEAT

Field of the Invention

The present invention relates to a cycle seat.

Background

Increasing numbers of users or cyclists are taking to the highways in an attempt to get fit, save money or avoid stress.

Many users of cycles, in particular purely pedal-driven cycles, may find it difficult to scale hills or otherwise pedal the cycle at some times.

In particular when seated pedalling can be a strain on the user's back, and upper body and arms, wherein the user must pull against the thrust generated by the pedalling leg action.

Prior Art

Accordingly a number of patent applications have been filed in an attempt to resolve the problem or similar, including the following:

Chinese utility model CN 201 321 105 (RENFA) discloses a bicycle saddle with a shock-absorption backrest, which comprises a saddle pipe, two seat beams and a saddle seat cushion.

Granted United States patent US 8 011 725 (ANDREWS) discloses a bicycle rider seat brace for maintaining the buttocks of a bicycle rider in a stationary position on a racing bicycle seat during seated pedalling.

United States patent application US 4 363 516 (BRALY et al) discloses a thrust support for attachment to a conventional cycle seat comprising: a U-shaped member having a pair of spaced legs interconnected at one end by a bight.

Summary of the Invention

According to the present invention there is provided a cycle seat device comprising: a crotch area which is arranged between a user's legs in use; a seat section which is arranged to support the user's backside in use; and at least one rear support portion which extends substantially vertically and restricts rearwards movement of the user with respect to the seat section.

The cycle seat advantageously prevents a cyclist from sliding backwards from ideal positions on the cycling seat and reduces strain on the user by providing a counterforce against their backside which helps the cyclist maintain their position and posture.

During conventional cycling, a cyclist exerts greatest force on the pedals when pushing them downwards and forwards from the uppermost point of their circular revolution. This pedalling motion exerts a rearward force on the user, acting to push them back in their seat. When the user presses backwards against the rear support portion, the support portion provides a counterforce to hold the user in a suitable position on the cycle seat.

The rear support portion may extend in line with the coccyx of a person sitting on the cycle seat. Therefore the rear support portion may extend in line with the coccyx in use.

In this way the pedal thrusts of the user are countered by resistance from the rear support portion, wherein the user is pushed into the support portion during thrusting.

The crotch area may extend substantially horizontally from the front of the seat section such that the crotch area and seat section adopt a conventional bicycle seat shape.

The rear support portion may extend substantially vertically from the rear of the seat section. Therefore, when a user sits on the seat with their backside on the seat section and the crotch area between their legs, the rear support portion extends upwards behind their backside and supports the user.

The cycle seat may be a seat for a bicycle, a unicycle, a tricycle or a quadracycle.

Preferably the cycle seat is a bicycle seat.

In some embodiments the rear support portion is displaceable.

The rear support portion may be displaceable in part, or the rear support portion may be displaceable in its entirety.

For example, the support portion may be able to flex such that in use the uppermost end of the support portion is displaced backwards under pressure, but the point at which the support portion is connected to the seat section remains rigidly located.

In some further embodiments the rear support portion is arranged to move in response to pressure from the coccyx.

For example, when a user slides or leans back in the cycle seat such that part of the user's body, such as their buttocks or their coccyx region exerts a force on the rear support portion, the support portion may be displaced backwards.

The support portion may be displaced directly away from the coccyx, may slide along some fixed path, or may pivot about some fixed point. The distance or range of angles through which the support portion is displaceable may be limited, such that after pressure from the coccyx has displaced the support portion some initial distance, the pressure will displace the support portion no further. In some further embodiments, when the pressure from the coccyx is removed, the support portion may elastically return to its position before the pressure was applied.

The support portion may be resist displacement, such that the force exerted on the support portion must exceed some magnitude in order to displace the support portion. The resistance of the support portion to displacement may increase as the support portion is displaced further from its rest position. In such an embodiment, backwards forces that act on the user are countered by resistance to the displacement of the rear support portion.

The displacement of the rear support portion may be controlled by a dashpot which acts to reduce the transmission of shocks or vibrations from a cycle to the user's coccyx.

The support portion may be resiliently displaceable such that when the pressure against the user's body and in particular the coccyx is removed, the support portion returns to its original position or arrangement.

The resilient displacement of the rear support portion may be cushioned, for example, by springs or by resiliently deformable bushings.

Alternatively, or additionally, the rear support portion may be manually displaceable by a user so as to vary the shape of the cycle seat. For example, the height of the rear support may be variable such that it conforms to the coccyges of users of different heights, such a support portion may also be displaceable horizontally in response to pressure from the coccyges.

In some embodiments the rear support portion may therefore be displaceable in relation to the seat section, at least in part.

The entirety of the rear support portion may be displaceable with respect to the seat section, or only some part of the support portion may be displaceable with respect to the seat section. In some embodiments as some initial low pressure is applied to the support section by a user's body, a part of the support portion may be displaced, and if the pressure exceeds some threshold level the other parts, or the entirety of the support portion may be displaced.

In some embodiments the rear support portion may comprise a resiliently deformable part. In some embodiments said resiliently deformable part may be anchored to the section at an anchor.

A resiliently deformable part may deform under pressure from the user's body and may return to its original form or arrangement when the pressure is removed.

A resiliently displaceable or resiliently deformable support portion may act to provide cushioning to a user's body, thereby reducing the impact from shocks or vibration

A resiliently deformable support portion thereby allows the user greater comfort in using the portion and device. The deformation may be after the anchor, and/or at the anchor. The resilient deformable support portion may comprise padding.

In some embodiments the support portion is substantially formed of a resiliently deformable material. Therefore, when a user's body is in contact with and applies pressure to the support portion, the support portion will flex backwards, thereby allowing the user to move backwards on the seat some distance. In some embodiments the support portion is resiliently deformable.

In some embodiments the device comprises a resiliently deformable layer, for example a padding layer. Such padding may be included in the seat section and/or the rear support portion.

In some embodiments the device may be shaped with reference to body parts of the user. For example, in some embodiments the crotch area comprises sloped or inclined sides falling away from a central high point, which extends longitudinally and narrowly. The seat section may extend rearwards, flaring out to provide two opposing saddle sections, inclined downwards so as to allow for the user's buttocks to move comfortably while pedalling.

The rear support portion may comprise an arcuate or upwardly curved form, so as to mirror and conform to the shape of the user's back.

In some embodiments the rear support portion at rest may extend above the seat section, such that when the user sits on the seat, the support portion is displaced backwards from its rest position. This ensures that a resiliently displaceable support portion always provides supporting pressure to the user's body in use.

In some embodiments the anchor comprises the seat section. In some embodiments the rear support portion may be directly secured to the seat section or may be integral with the seat section. In this way the support portion may comprise an extending substantially unsupported part of the seat section. The seat section and the support portion may be formed from a single body.

In some embodiments the rear support portion may comprise an extension of the seat section, whereas in others the support portion and the seat section may be discrete parts of the cycle seat.

In some embodiments the rear support portion may be connected to the seat section by a hinge.

The rear support portion may be a separate body which is bonded to the seat section at an anchor. Such an anchor may comprise overlapping surfaces of the seat section and the rear support portion where a binding material is located. Alternatively, the support portion may be bonded to the crotch area at an anchor.

The anchor may extend along only a part of the support portion so as to leave part of the support portion unsupported. This may allow the unsupported part of the support portion to deform or flex so as to allow a user's coccyx to move.

In some embodiments the rear support portion comprises a body with wings extending from a portion of the circumference of body, wherein the wings are bonded to an area of the seat section. This may leave a part of the support portion relatively unsupported, this part may be the part of the support portion which extends substantially vertically and may be a part which is displaceable when under pressure by a part of the user's body that contacts the support portion. In these embodiments the support portion may be formed of a resiliently deformable material such that the unsupported portion is able to flex.

In some embodiments the displacement of the rear support portion may be sprung-biased. In some embodiments said bias may be provided by one or more springs. Said spring may act at a hinge which connects the support portion to the seat section.

In some embodiments the portion may be arranged to move in vertical and horizontal directions while in use.

In some embodiments at least part of the rear support portion is displaceable into an opening in the seat section.

In some embodiments the cycle seat is arranged to travel in a horizontal direction in installation on a seat post, for example using a standard form of bicycle seat attachment means, wherein the device is clamped to the post on horizontal attachment bars or members according to user preference.

In some embodiments the attachment means may be horizontally displaceable in use. For example the seat may comprise a seat post with a spring biased suspension mechanism.

In some embodiments the rear support portion is arranged to surround or be adjacent the user's coccyx in use. For example, the portion may comprise a bipartite or bifurcated part, located to either side of the coccyx in use, adjacent or at the rearmost edge of the device in use. In this way the coccyx may advantageously be left free, and the user's surrounding body supported instead. Advantageously this relieves pressure on the coccyx whilst allowing the user's leg pedal thrusts to be countered.

In some embodiments the support portion is arranged to mirror the user's coccyx in use. For example, the portion may comprise an upstanding centrally located part of the device, which may be at or adjacent the centre of the width of the device's rearmost edge. Advantageously this enables the user's backside to be directly supported and prevents the user from moving rearwards undesirably.

In some embodiments the seat section may comprise a spring means, so as to allow the device to further provide comfort to the use. In some embodiments the spring means may be deformable in a vertical orientation. In some embodiments the spring means may be deformable in a horizontal direction. In such manner the section may be enabled to displace in more than one direction so as to further mitigate the impacts from the user's pedal thrusts during use.

The cycle seat may comprise an attachment means for attachment to a bicycle. In some embodiments said attachment means may comprise means for attaching the cycle seat onto or over an existing bicycle saddle.

In some embodiments the device may be incorporated in a bicycle.

Brief Description of Figures

Figure 1 shows an isometric view of a first embodiment of the device according to the present invention;

Figure 2 shows a reverse isometric view of the embodiment shown in Figure 1;

Figures 3 show plan views of the embodiment shown in Figure 1, from below and above respectively;

Figure 4 shows a side view of the embodiment shown in Figure 1;

Figures 5 show end views of the embodiment shown in Figure 1;

Figures 6 show isometric exploded views of the embodiment shown in Figure 1 with Figure 6c showing a rear support portion;

Figure 7a shows a first variant embodiment of the device according to the present invention; and

Figures 7b and 7c show further variants, not falling within the scope of the claims.

Detailed Description of Figures

With reference to Figures 1 to 7 there is shown a first embodiment of the cycle seat comprising: A crotch area, formed by a tapering elongated area extending forward from a wider seat section to a front end 2. The seat section comprises two opposing saddle sections 4, said sections stepping out from the crotch area at progressively widening hips 3.

The rear support portion 20 is formed of the same material as the device, wherein the form of the portion is an elongated ovaloid curvature, consequently enabling flexure axially, but not necessarily laterally.

The forward end 7 of the support portion 20 may be arranged in an opening between the two opposing saddle sections 4, behind the crotch area. The forward end 7 of the support portion 20 is supported by the seat section, and lies substantially in the same

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plane as the seat section and the crotch area. The rear end 1 of the support portion 20 curves upwards and is unsupported. In use the rear end 1 contacts and supports a user's coccyx.

The portion extends in a vertical curve from an unsupported rear end 1 to a supported front end 7.

The portion comprises wings 9, extending from the perimeter or side edges of the front end 7, such that they contact the opposing saddle sections 4.

The device comprises an upper, saddle pad, seat saddle,of polyethylene, polymer, acrylonitrile butadiene styrene (abs) or other appropriate thermoplastics or graphene or other materials substantially rigid in sufficient weight.

The device comprises moulded mountings for two metallic or alloy frame members 6, which members support the upper body of the cycle seat from below.

The members comprise a known attachment means, wherein a clamp is used to attach the members to a seat post at a convenient point along the members.

In some embodiments the attachment means comprises a clamp which comprises means for travel in horizontal direction, wherein the attachment means may allow for displacement in use backwards on the horizontal part of the members, and/or a spring bias acting to push or slide the device with reference to the seat post. In this way the thrust of pedalling may be further accommodated.

In some further embodiments the members may comprise an attachment means for other saddles, allowing the device to clip thereover.

The mountings comprise two rear mountings 11 at or adjacent the rear of the underside of the saddle sections 4, and a front mounting 8 at or adjacent the crotch area end, which front mounting is arranged to accept two members.

The crotch area comprises a downwardly depending end, and downwardly inclined sides, wherein the user's crotch, thighs and legs are not impeded in use, during pedal thrusts.

The saddle sections depend downwards from a high point adjacent the hips, and form a curvature echoing the user's buttocks to rear.

The section is divided centrally by an opening 10 that narrows towards the distal end, and extends to a foremost point at or adjacent the hips.

The opening comprises a chamfered perimetric edge 5, inclining towards the rear support portion 20, wherein the portion is held in the opening by adhesion or bonding between the wings 9 and the opening edge 5.

The wings 9 extend and are bonded to approximately half of the opening edge 5, such that the rear end 1 is effectively unsupported, so as to allow vertical displacement of the rear end 1, wherein flexure in the material enables horizontal displacement.

According to a second aspect of the invention there is provided a bicycle comprising a cycle seat as described above.

The invention has been described by way of examples only and it will be appreciated that variation may be made to the above-mentioned embodiments without departing from the scope of invention as defined by the claims, in particular but not solely combination of features of described embodiments.

CLAIMS:

1. A cycle seat comprising:

a crotch area for a user to straddle;

a seat section defining a support surface for supporting the user's backside in use; and

a rear support portion, including:

a proximal portion that extends substantially contiguously with the support surface in line with the crotch area; and

a distal portion that extends away from the support surface for engaging the coccyx of a user and thereby restricting rearward motion of a user when sat on the support surface;

wherein a maximum width of the rear support portion is narrower than the seat section.

2. A cycle seat according to claim 1 wherein the at least one rear support portion is permanently integrated to the seat section at an anchor.

3. A device according to claim 2 wherein the at least one rear support portion and seat section are formed from a single body.

4. A cycle seat according to claim 3 wherein the at least one rear support portion comprises one extending portion in line with the coccyx in use.

5. A cycle seat according to claim 2 wherein the at least one rear support portion is bonded to the seat section at the anchor.

6. A cycle seat according to any preceding claim wherein the at least one rear support portion is displaceable with respect to the seat section.

7. A cycle seat according to any preceding claim wherein the at least one rear support portion is resiliently deformable.

8. A cycle seat according to any preceding claim wherein the at least one rear support portion is permanently bonded to the seat section or crotch area at an anchor that extends along only part of the support portion, so as to leave part of the portion unsupported.

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9. A cycle seat according to claim 5 wherein the anchor comprises a hinge.

10. A cycle seat according to any of the preceding claims wherein at least part of the at least one rear support portion is displaceable into an opening in the seat section.

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