

TITLE: CYCLE SEAT**Field of the Invention**

This invention relates to cycle seats. In particular, it is directed to a cycle seat which provides a higher
5 degree of rider comfort while accommodating various styles of riding.

Background Art

The function of a cycle seat is to support the mass of the rider while facilitating pedalling of the cycle.
10 Conventional cycle seats generally comprise a narrow front portion known as the pommel which, when in use, is positioned between, and in contact with, the inner thighs of the rider. The function of the pommel is to restrain lateral movement of the rider's pelvis during pedalling
15 which minimises grinding of the skin against the surface of the seat. Such cycle seats broaden into a rear portion which is adapted to contact the rider's buttocks. The rear portion may only be slightly broader than the front portion, as in "racing" seats, or may be
20 substantially broader, as in the more "traditional" seats.

Since the rear portion of a racing seat is normally only slightly broader than the pommel, the ischial tuberosities of the hip, which take most of a person's
25 body mass when sitting, are not adequately supported. Accordingly, if the rider adopts an "upright position" wherein the upper torso of a rider is substantially upright when pedalling, most of the rider's mass is supported by the coccyx of the rider. As a consequence,
30 a large pressure is applied to the tissues between the coccyx and seat which may in turn cause discomfort and bruising.



On the other hand, if the upper torso of the rider is angled substantially forward during pedalling, as for example when the rider adopts a "racing position", the pelvis of the rider also rotates forward which raises the coccyx above the level of the seat. With such a riding style, most of the rider's mass is supported substantially by the pommel. Consequently, most of this mass is borne principally by the pubic bones which places considerable pressure on the perineal and genital areas of the rider in contact with the pommel. This pressure can produce discomfort and bruising and, in severe cases, even numbness and disfunction of the genitals.

Extra skeletal support is provided by employing more traditional seats wherein the rear portion of the seat is substantially broader than the pommel. In comparison to the racing seat, the broad rear portion of a traditional seat provides support for the ischial tuberosities of the rider which allows the rider's mass to be distributed over a larger area of tissue.

The maximum benefit of this extra support is afforded only if a rider employs an upright position when pedalling because most of the rider's mass would be borne primarily by the ischial tuberosities of the rider. However, if the rider employs a riding style wherein the upper torso is forwardly inclined, the distribution of the rider's mass on the skeletal system changes whereby most of this mass is borne by the pubic bones as well as the ischial tuberosities. This change in skeletal distribution of the rider's mass results in considerable pressure being applied to the perineal and genital areas in contact with the pommel.

Furthermore, with traditional seats, the transitional section between the rear portion and the pommel is also broader which impedes the rider's legs from pedalling in



a substantially vertical axis. There is therefore a tendency for the rider to abrade the legs during pedalling. This type of movement of the lower limbs is unnatural and inefficient mechanically which may cause undue pressure on, and possibly injury to, the rider's lower torso.

The problem with prior attempts at improving the structural design of the cycle seat is that, while recognising that in order to maximise the comfort of the seat it is desirable to uniformly distribute the mass of the rider over a large surface area, such seats do not provide the rider with a degree of comfort which is needed and desired while being adaptable to different styles of riding.

Many attempts have been made in the past to improve the structural design of the cycle seat by making various changes to the size and shape of conventional seats and also to include various types of pads or springs. For example, reference may be made to International Patent Application No. PCT/GB94/01927 which discloses a cycle seat of generally circular shape and comprising an upper seating surface having an upwardly inclined pommel which is substantially wider than conventional pommels, a pair of thigh support surfaces disposed on either side of the pommel and a broad rear support surface. This rear support surface, in use, supports the ischial tuberosities of a rider and in comparison to traditional seats, provides a broader surface for supporting the buttocks of the rider. In addition, the thigh support surfaces either side of the pommel, in use, provide support for the upper thighs. Accordingly, if the rider adopts an upright position when pedalling, there is a large supportive area provided which, in use, distributes the mass of the rider over a larger tissue area compared to conventional seats.



However, if the rider adopts a racing position with this seat wherein the pelvis is angled forward during pedalling, most of the rider's mass would be supported primarily by the upwardly inclined pommel. As a
5 consequence, this mass would be borne principally by the pubic bones which would result in considerable pressure being applied to the perineal and genital areas of the rider.

Due to the generally circular shape of the seat, it is
10 considered that the thigh support surfaces, in use, would hinder the rider's legs from pedalling in a substantially vertical axis and may therefore induce the rider to abrade the legs during pedalling.

Reference also may be made to United States Patent No.
15 4773705 which discloses a cycle seat comprising a pair of concave portions which are inclined downwardly and forwardly. Intermediate the concave portions there is also provided a centre portion extending from the rear to the front of the seat which centre portion comprises a
20 longitudinal concavity towards the front portion thereof where the centre portion is formed with two peripheral ridge-like members having a concavity therebetween. There is also provided a raised peripheral edge portion extending along the sides and rear of the seat.

25 Although this seat provides improvement in accommodating different styles of riding, there are a number of disadvantages. These disadvantages are exemplified by an analysis of the skeletal contacts that a rider makes with the seat when the rider adopts different riding styles.
30 For example, if the rider adopts a riding style wherein the upper torso is substantially upright when pedalling, the rider's ischial tuberosities would be supported by the concave portions of the seat. Consistent with



adopting such a riding style is that the coccyx would be located above the plane of the pair of ischial tuberosities. However, because the depth of the concave portion below the centre portion is not substantial, the 5 coccyx would not be supported adequately by the seat.

In addition, this seat does not provide adequate support if the rider adopts a riding style wherein the upper torso of the rider is angled substantially forward during pedalling. In adopting such a riding style, as with 10 other prior art seats, most of the rider's mass would be largely supported by the pubic bones and the ischial tuberosities. However, since this seat comprises the peripheral ridge-like members at the front of the seat, it appears that a substantial amount of the rider's mass 15 would be largely supported on these members. As a consequence, a considerable pressure would be applied primarily to two small loci in the perineal and/or genital areas in contact with the ridge-like members.

These small loci are adjacent to the perineal arteries 20 and the perineal branches of the spinal nerves. Consequently, if pressure is applied to these loci, there is a strong possibility that this may interfere with arterial blood flow as well as causing severe numbness to the region.

25 Object of the Invention

It is a general object of the present invention to overcome, or at least ameliorate, one or more of the above disadvantages to provide a cycle seat with improved comfort to a rider while accommodating different styles 30 of use by that rider.

Summary of the Invention

According to the present invention, there is provided a cycle seat comprising a central ridge-like member



intermediate of two support surfaces, each of said support surfaces adapted to support respective ischial tuberosities of a rider, said central ridge-like member being adapted to support the coccyx and the pubic bones 5 of said rider when the upper torso of said rider is substantially upright, said central ridge-like member also being capable of supporting said pubic bones when the pelvis of said rider is angled substantially forward.

As used throughout this specification, the term "public 10 bones" refers to the right and left inferior rami of the pubic bones.

Preferably, the lateral dimension of the seat is significantly greater than its longitudinal dimension.

In one embodiment of the present invention, preferably:

- 15 a dish-like recess is present in each of said two support surfaces; more preferably, each said dish-like recess includes a substantially planar portion; most preferably, each said dish-like recess is positioned towards the front of the seat allowing 20 support of the buttocks of the rider but without interfering with the thighs of the rider during pedalling;

the central ridge-like member is substantially convex in transverse cross section;

- 25 the central ridge-like member is inclined downwardly towards the front of the seat;

- the central ridge-like member is inclined upwardly towards the rear of the seat; more preferably, the central ridge-like member is also inclined outwardly 30 at the rear of the seat;



a raised edge portion extends at or near the periphery of the rear and side of the seat.

In another embodiment of the present invention, preferably:

- 5 each of said two support surfaces is adapted such that a rear boundary thereof, in use, is adjacent the dorsal side of one of the ischial tuberosities of the rider and a front boundary is adjacent the gluteal folds of the rider;
- 10 each of said two support surfaces, in use, is inclined at an angle forwardly and downwardly relative to a ground surface; more preferably, said angle is between 10 degrees and 60 degrees relative to said ground surface;
- 15 is between 20 degrees and 40 degrees relative to said ground surface.
- each of said support surfaces are contoured; more preferably, each of said support surfaces are substantially concave in cross section parallel to
- 20 the transverse axis of the cycle seat;
- each of said support surfaces are substantially concave in cross section parallel to the longitudinal axis of the cycle seat;
- the front boundary of each of said support surfaces
- 25 is inclined downwardly;
- the central ridge-like member extends forward of the front of said two support surfaces;



the central ridge-like member is adapted to restrain lateral motion of the rider's pelvis during pedalling;

5 the central ridge-like member, in use, does not interfere with the urogenital region of the rider;

the central ridge-like member, in use, terminates adjacent the perineal region of the rider;

10 the central ridge-like member is of substantially linear, concave or convex longitudinal cross section;

the central ridge-like member is of substantially convex transverse cross section;

a raised upper boundary surface extends along at or near the rear extremity of the seat;

15 a raised upper boundary surface extends along at or near the lateral extremities of the seat;

In the present invention, the lower surface of the cycle seat, in all its embodiments, will usually include a mounting means adapted to releasably mount the seat onto
20 a cycle frame by any convenient means known in the art.

Although not limiting, the cycle seat is preferably formed of a substantially rigid material, for example, a thermoplastic material. Suitable thermoplastic materials include nylon and polypropylene. Of course, the cycle
25 seat may be formed of other materials such as wood, metal and combinations thereof.

The cycle seat may also be provided with a pad or cover means which preferably includes (a) an inner layer formed



of a resilient material such as, for example, polyurethane, (b) a plastics foam or sponge rubber material and (c) an outer protective cover which can be suitably formed of leather or a plastics material such as, for example, polyurethane or polyvinyl chloride.

Brief Description of the Drawings

In order that the invention may be readily understood and put into practical effect, preferred embodiments will now be described with reference to the accompanying drawings 10 in which:

FIG. 1 is a perspective view of one embodiment of the cycle seat in accordance with the present invention showing the upper seating surface of the cycle seat;

15 FIG. 2 is a top plan view of the cycle seat of FIG. 1 showing contour lines of the seat;

FIG. 3 is a transverse cross sectional view of the cycle seat of FIG. 1 showing the position of skeletal bones of a rider when the rider is supported by the seat;

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FIG. 4 is a longitudinal cross sectional view of the cycle seat of FIG. 1 showing the position of skeletal bones of a rider when the rider is supported by the seat;

25 FIG. 5 is a perspective view of an alternative embodiment of the cycle seat in accordance with the present invention showing the upper seating surface of the cycle seat;

FIG. 6 is a perspective view of the cycle seat of FIG. 5 showing the bottom surface of the cycle seat;

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FIG. 7 is a top plan view of the cycle seat of FIG. 5;

FIG. 8 is a front elevational view of the cycle seat of FIG. 5; and

5 FIG. 9 is a bottom plan view of the cycle seat of FIG. 5.

Specific Examples

Referring now to the drawings and more particularly to FIG. 1, the cycle seat 10 comprises two dish-like
10 recesses 11, 12 each of which has a substantially planar portion 13, 14.

Intermediate the concave portions 11, 12 there is provided a central ridge-like member 15 extending from a rear portion 16 to a front portion 17 of the seat 10.
15 The ridge-like member 15 has a substantially convex transverse cross section comprising a forward section 18 which is inclined forwardly and downwardly. The ridge-like member 15 has a concavity 19 extending parallel to the longitudinal axis of the seat 10 and intermediate the
20 rear and front portions 16, 17 of the seat 10. From the concavity 19, the ridge-like member 15 extends rearwardly and upwardly in an outward manner.

There is also included a raised peripheral edge portion
20 extending along side portions 21, 22 and rear portion
25 16 of the seat 10.

In FIG. 2, there is shown a contour map of the seat of FIG. 1. The dish-like recesses 11 and 12 is use support the ischial tuberosities of a rider generally along the line T-T when the upper torso of the rider is
30 substantially upright and when the upper torso of the



rider is angled substantially forwards during pedalling. The ridge-like member 15 is adapted to support the coccyx of the rider generally along the line C-C when the upper torso of the rider is substantially upright during 5 pedalling.

Referring now to FIGS. 3 and 4, there are illustrated respectively transverse and longitudinal cross sectional views of the cycle seat of FIG. 1 showing the relative positions of the pelvic bones of the rider when the rider 10 adopts an upright position during pedalling.

The raised peripheral edge portion 20 extending along side portions 21, 22 and rear portion 16 of the seat 10 acts to restrain rearward and sideways motion of the pelvis 23 of the rider during pedalling.

15 The planer portions 13, 14 of the respective dish-like recesses 11, 12 in use support the ischial tuberosities 24, 25 of the rider. The dish-like recesses 11, 12 are broad enough to support a substantial portion of the width of the buttocks 26.

20 It should be noted that there is a substantial difference in height between the dish-like recesses 11, 12 and the ridge-like member 15. This height difference is important because it facilitates support for the coccyx 27 of the rider when the upper torso of the rider is 25 substantially upright. The coccyx 27 of the rider is supported at a rearward portion 28 of the ridge-like member 15. Member 15 also acts to restrain sideways movement of the pelvis 23 during pedalling.

In addition, the cross sectional shape of member 15 is 30 complementary to that of the arched region of the pubic bones and is adapted to support the pubic bones 29 when



the upper torso of the rider is substantially upright during pedalling.

Thus, if the rider adopts an upright position when pedalling, there is provided substantially maximum skeletal support spread between the ischial tuberosities 24, 25 the coccyx 27 and the pubic bones 29. This facilitates maximum distribution of the mass of the rider which substantially minimises pressure applied to the tissues in contact with the seat.

10 If the pelvis 23 of the rider is angled forwards during pedalling, as for example in a racing position, the coccyx 27 would be raised above the level of the rearward portion 28 of member 15 and the pubic bones 29 would be rotated forwardly and downwardly pivoting on ischial
15 tuberosities 24, 25. As a consequence, most of the rider's mass is borne by the ischial tuberosities 24, 25 and public bones 29 of the rider. However, since the forward section 18 of member 15 is inclined forwardly and downwardly and has a cross sectional shape complementary
20 to that of the arched region of the pubic bones 29, this minimizes the pressure exerted on the perineal and urogenital areas 30 of the rider in contact with the forward section 18.

The dish-like recesses are recessed at the front portion
25 of the seat which, in use, support the buttocks of the rider but do not interfere with the thighs of the rider during pedalling, thus allowing the legs of the rider to be angled downward to meet the pedals of the cycle with substantially minimal obstruction.

30 Referring now to FIGS 5-9, there is illustrated an alternative embodiment of the cycle seat in accordance with the present invention. The cycle seat generally at
100 comprises a support surface having two substantially



planar lateral portions 101, 102 which, in use, support the ischial tuberosities of a rider.

The lateral portions 101, 102 are substantially concave in cross section parallel to the longitudinal axis of the 5 cycle seat 100 and, in use, are inclined forwardly and downwardly at an angle 20 degrees relative to the ground surface.

Each of the lateral portions 101, 102 extends between a rear boundary 104 and a front boundary 105 thereof. In 10 use, the rear boundary 104 is adjacent the dorsal side of one of the ischial tuberosities of the rider. The front boundary 105, in use, is adjacent the gluteal folds of the rider. This configuration of the lateral portions, in use, supports a portion of rider's gluteal tissue but 15 does not interfere with the thighs of the rider during pedalling. This allows the legs of the rider to be angled downward to meet the pedals of the cycle with substantially minimal obstruction.

A downwardly-inclined upper boundary surface 103 is also 20 provided at the front boundary of each lateral portion 101, 102. In use, this upper boundary surface 103 provides extra support for restraining rearward motion of the rider's pelvis during pedalling.

Intermediate the lateral portions 101, 102, there is 25 provided a central ridge-like member 106 extending from a rear portion 107 to a front portion 108 of the seat 100. The ridge-like member 106 has a slight concavity 109 extending parallel to the longitudinal axis of the seat 100 and has a substantially convex transverse cross 30 section.

The ridge-like member 106 terminates at an anterior boundary 110 thereof which, in use, is adjacent the



perineal region of the rider. The position at which anterior boundary 110 terminates is important because in use, the urogenital region of the rider is not interfered with by the ridge-like member 106. Thus, there is 5 substantially minimal pressure exerted on the urogenital region during pedalling.

It should be noted that there is a substantial difference in height between the lateral portions 101, 102 and the ridge-like member 106. This height difference is 10 important because it facilitates support for the coccyx of the rider when the upper torso of the rider is substantially upright. The coccyx of the rider is supported at a rearward portion 111 of the ridge-like member 106.

15 There is also included a raised upper boundary surface 112 extending along lateral extremities 113, 114 and rear portion 115 of the seat 100. This raised upper boundary surface 112 acts to restrain rearward and sideways motion of the pelvis of the rider during pedalling.

20 The bottom surface 116 of the cycle seat comprises a mounting means 117 adapted to releasably mount the cycle seat 100 on a cycle frame. The mounting means 117 comprises substantially U-shaped rod members 118, 119, which are preferably formed integrally. Each of the rod 25 member 118, 119 extends from a rearward portion 120 to a forward portion 121 of the bottom surface 116 as shown. The rod members 118, 119 are fixed in place by anchoring means 122, 123, 124.

The cycle seat of the present invention is adaptable to 30 various styles of riding while providing substantially minimal pressure on the urogenital area of the rider during pedalling. Furthermore, in use, the lateral portions thereof do not interfere with the thighs of the



rider during pedalling. This allows the legs of the rider to be angled downward to meet the pedals of the cycle with substantially minimal obstruction.

It will be appreciated that the above examples are 5 illustrative only of the present invention and that modifications and alterations can be made thereto without departing from the inventive concept as defined in the following claims.

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Claims

1. A cycle seat comprising a central ridge-like member intermediate of two support surfaces, each of said support surfaces adapted to support respective
5 ischial tuberosities of a rider, said central ridge-like member being adapted to support the coccyx and the pubic bones of said rider when the upper torso of said rider is substantially upright, said central ridge-like member also being capable of supporting
10 said pubic bones when the pelvis of said rider is angled substantially forward.
2. A cycle seat as defined in claim 1, wherein said central ridge-like member is adapted to restrain lateral motion of the pelvis of said rider during
15 pedalling.
3. A cycle seat as defined in claim 1 or claim 2, wherein said central ridge-like member, in use, does not interfere with the urogenital region of said rider.
- 20 4. A cycle seat as defined in any one of claims 1 to 3, wherein said seat allows support of the buttocks of said rider but without interfering with the thighs of said rider during pedalling.
- 25 5. A cycle seat as defined in any one of claims 1 to 4, wherein the lateral dimension of said seat is significantly greater than its longitudinal dimension.
- 30 6. A cycle seat as defined in any one of claims 1 to 5, wherein each of said two support surfaces is adapted such that a rear boundary thereof, in use, is adjacent the dorsal side of one of the ischial





tuberosities of said rider and a front boundary is adjacent the gluteal folds of said rider.

7. A cycle seat as defined in claim 6, wherein each of said two support surfaces, in use, is inclined at an angle forwardly and downwardly relative to a ground surface
8. A cycle seat as defined in claim 7, wherein said angle is between 10 degrees and 60 degrees relative to said ground surface.
9. A cycle seat as defined in claim 8, wherein said angle is between 20 degrees and 40 degrees relative to said ground surface.
10. A cycle seat as defined in any one of claims 6 to 9, wherein each of said support surfaces are contoured.
11. A cycle seat as defined in claim 10, wherein each of said support surfaces are substantially concave in cross section parallel to the transverse axis of said seat.
12. A cycle seat as defined in claim 10 or claim 11, wherein each of said support surfaces are substantially concave in cross section parallel to the longitudinal axis of said seat.
13. A cycle seat as defined in any one of claims 6 to 12, wherein the front boundary of each of said support surfaces is inclined downwardly.
14. A cycle seat as defined in any one of claims 6 to 13, wherein said central ridge-like member extends forward of the front of said two support surfaces.

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15. A cycle seat as defined in any one of claims 6 to 14, wherein said central ridge-like member, in use, terminates adjacent the perineal region of the rider.
- 5 16. A cycle seat as defined in any one of claims 6 to 15, wherein said central ridge-like member is of substantially linear, concave or convex longitudinal cross section.
- 10 17. A cycle seat as defined in claim 16, wherein said central ridge-like member is of substantially convex transverse cross section.
18. A cycle seat as defined in any one of claims 6 to 17, wherein a raised upper boundary surface extends along at or near the rear extremity of said seat.
- 15 19. A cycle seat as defined in any one of claims 6 to 18, wherein a raised upper boundary surface extends along at or near the lateral extremities of said seat.
- 20 20. A cycle seat as defined in any one of claims 1 to 5, wherein a dish-like recess is present in each of said two support surfaces.
21. A cycle seat as defined in claim 20, wherein each said dish-like recess includes a substantially planar portion.
- 25 22. A cycle seat as defined in claim 20 or claim 21, wherein each said dish-like recess is positioned towards the front of said seat allowing support of the buttocks of said rider but without interfering with the thighs of said rider during pedalling.





23. A cycle seat as defined in any one of claims 20 to 22, wherein said central ridge-like member is substantially convex in transverse cross section.
24. A cycle seat as defined in any one of claims 20 to 5 23, wherein said central ridge-like member is inclined downwardly towards the front of said seat.
25. A cycle seat as defined in any one of claims 20 to 24, wherein said central ridge-like member is inclined upwardly towards the rear of said seat
- 10 26. A cycle seat as defined in claim 25, wherein said central ridge-like member is also inclined outwardly at said rear of said seat.
27. A cycle seat as defined in any one of claims 20 to 15 26, wherein a raised edge portion extends at or near the periphery of the rear and side of said seat.
28. A cycle seat as defined in any one of claims 1 to 27, wherein on a lower surface of said seat there is provided a mounting means adapted to releasably mount said seat onto a cycle frame.
- 20 29. A cycle seat as defined in any one of claims 1 to 28 which is formed of a substantially rigid material selected from the group comprising thermoplastic material, wood, metal and combinations thereof.
30. A cycle seat as defined in claim 29, wherein said 25 rigid material is nylon.
31. A cycle seat as defined in any one of claims 1 to 30, wherein a pad or cover means is provided for said seat, said pad or cover means comprising (a) an inner layer formed of a resilient material, (b) a





plastics foam or sponge rubber material and (c) an outer protective cover.

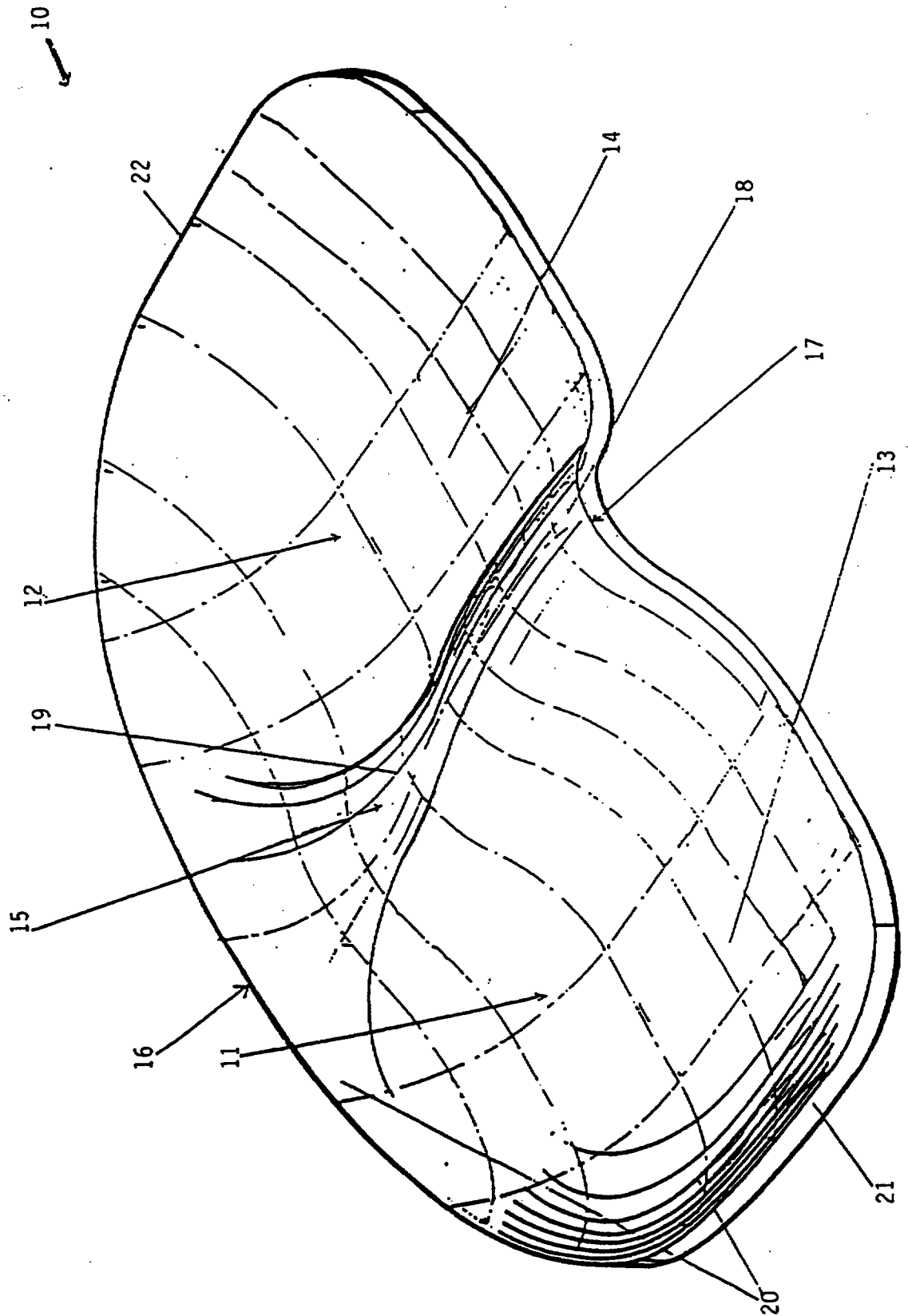
32. A cycle seat as defined in claim 31, wherein said resilient material is polyurethane.

5 33. A cycle seat as defined in claim 31 or claim 32, wherein said outer protective cover is formed of leather or a plastics material.

34. A cycle seat as defined in claim 33, wherein said plastics material is polyurethane or polyvinyl
10 chloride.



FIG. 1

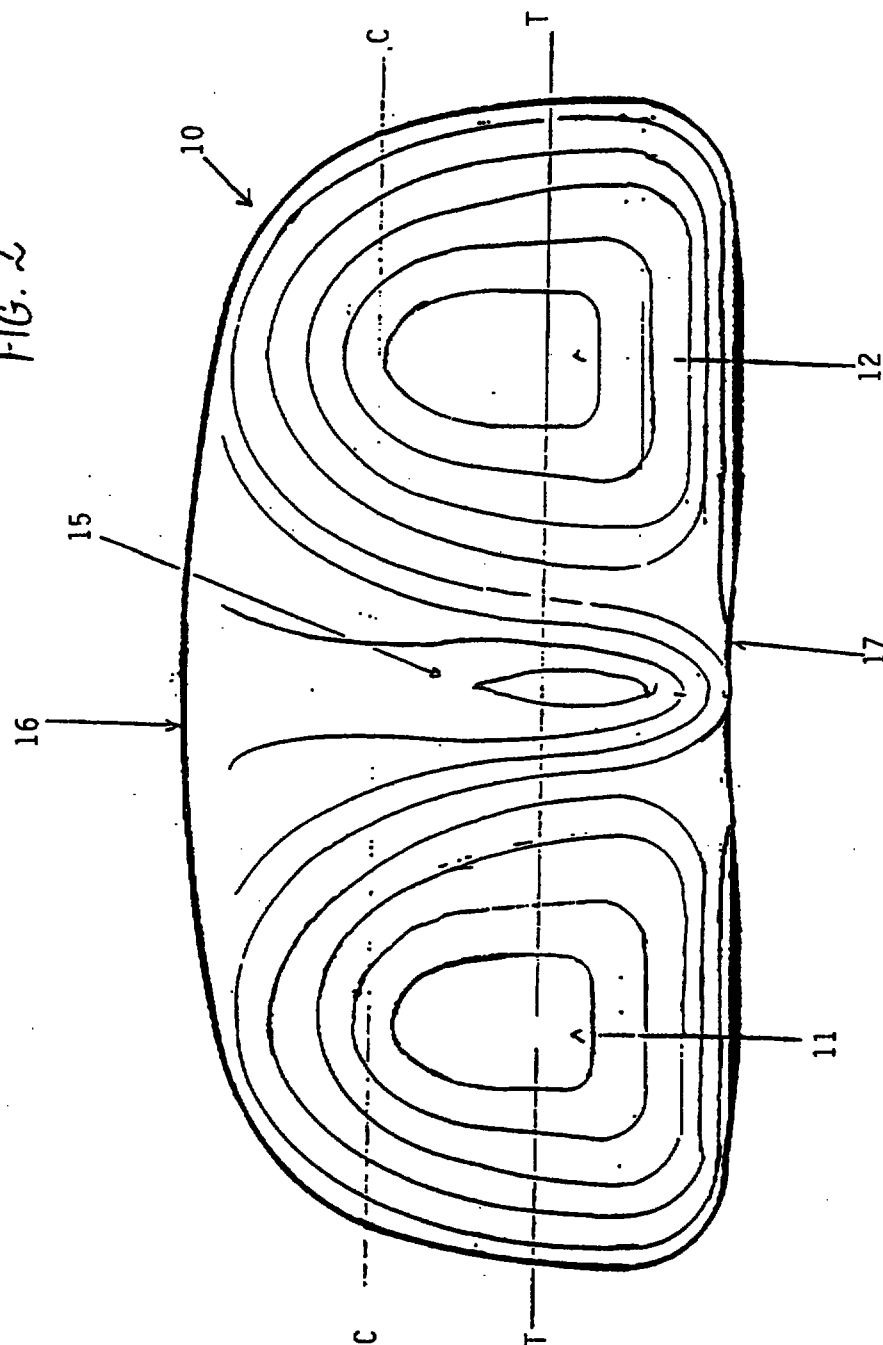


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FIG. 2

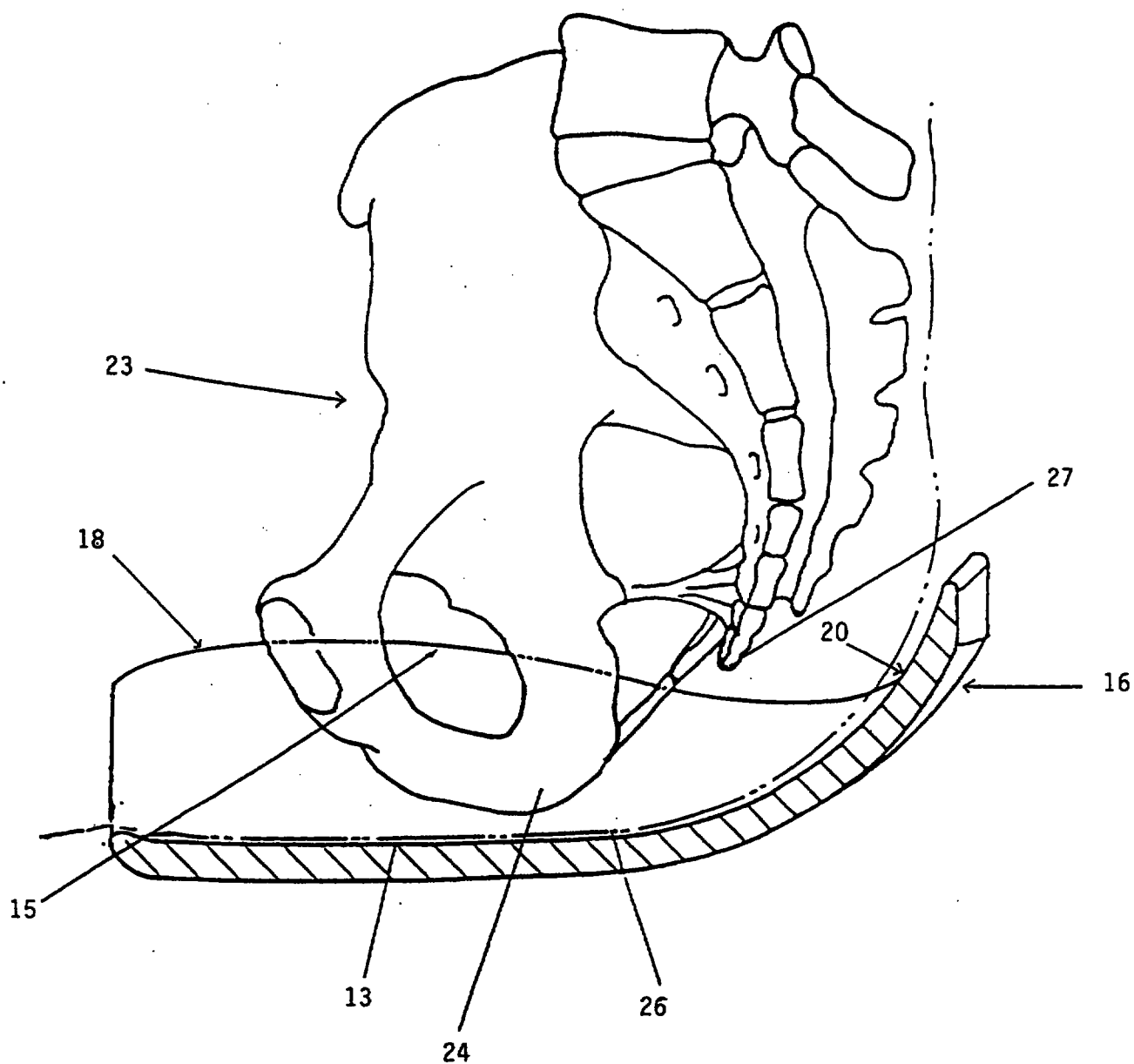


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FIG. 3

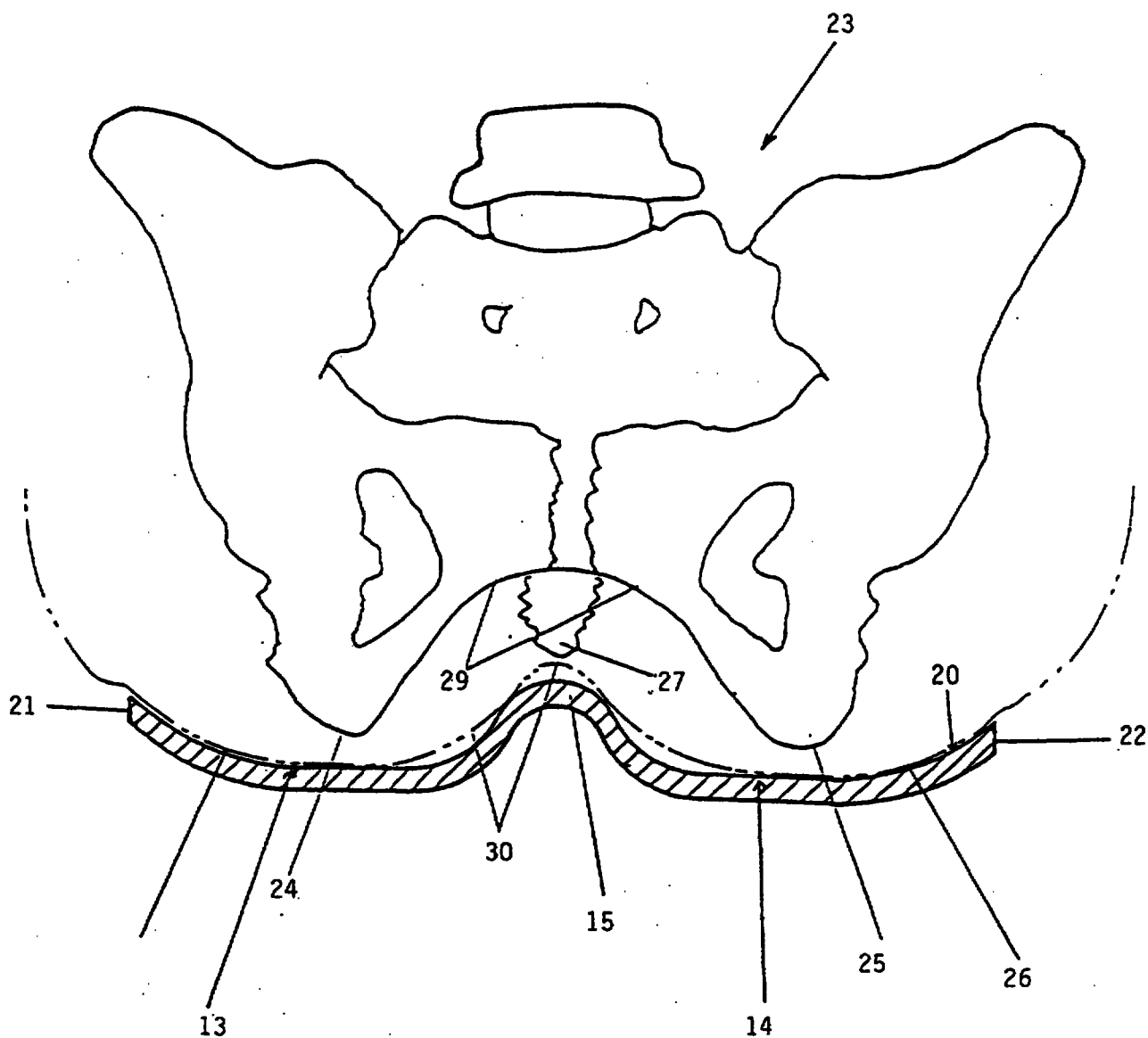


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FIG. 4

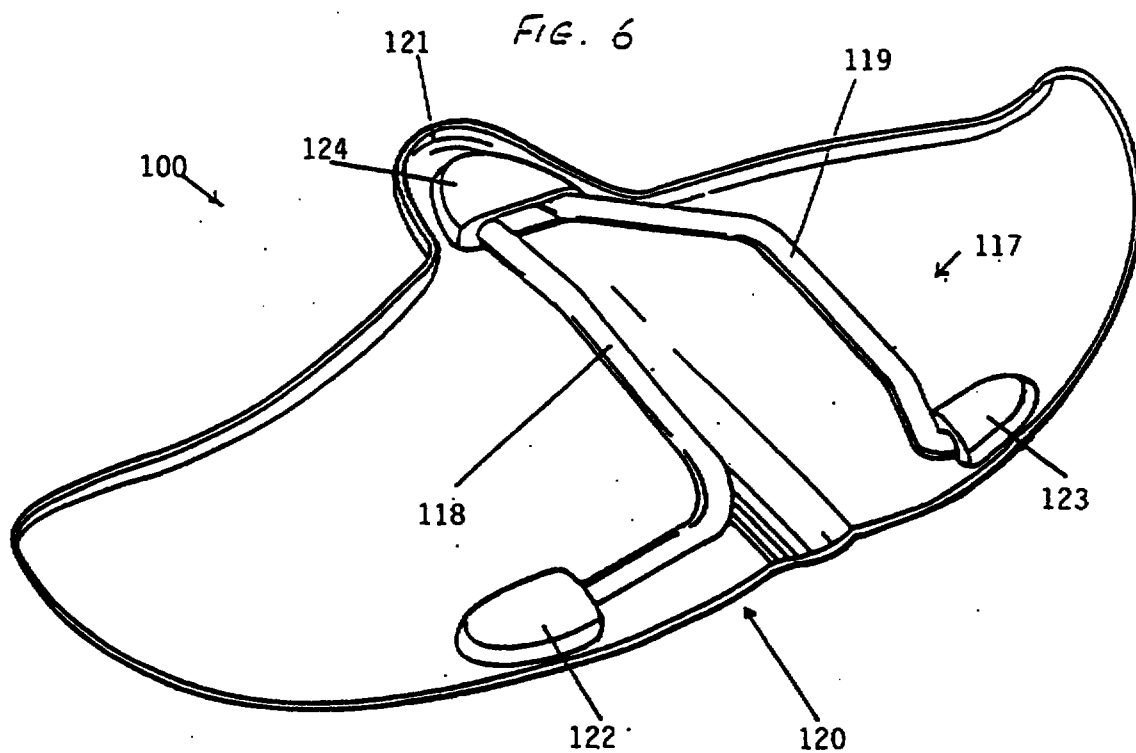
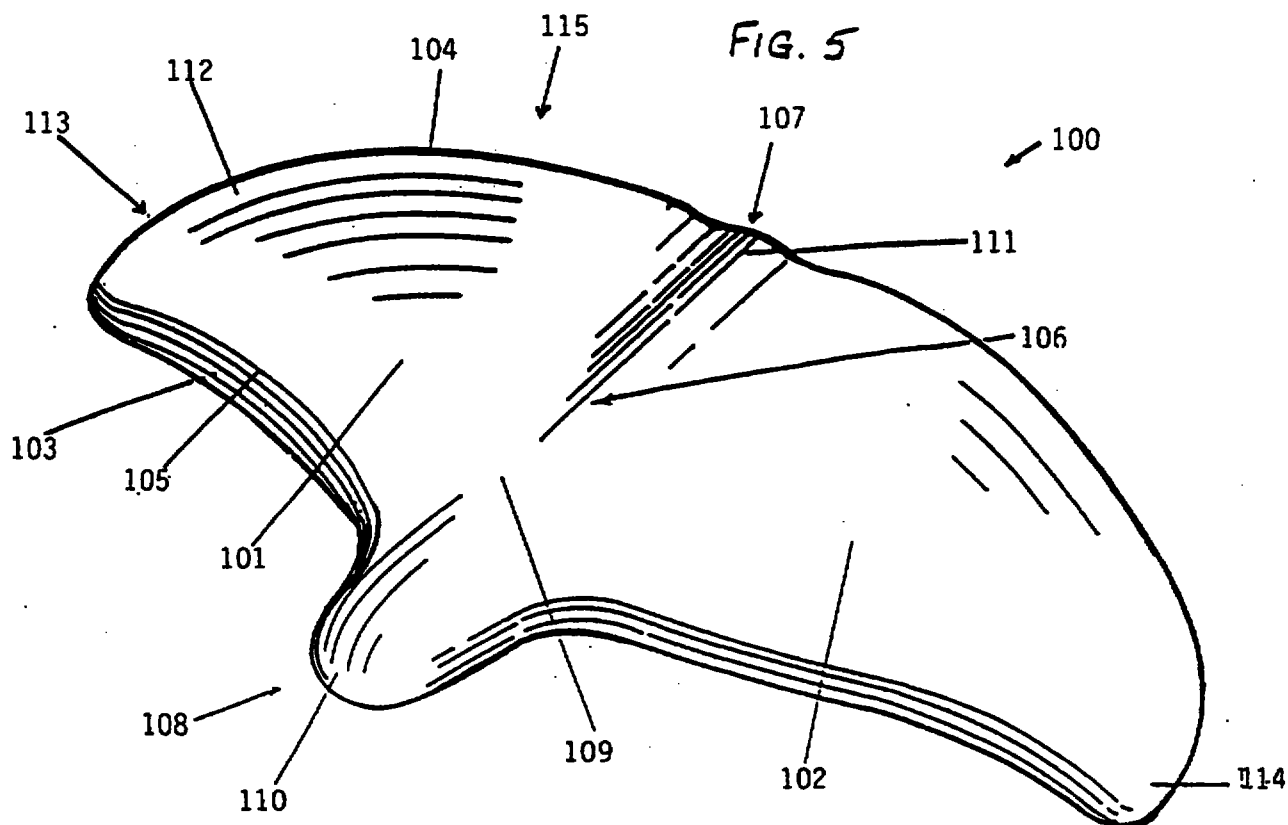


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FIG. 7

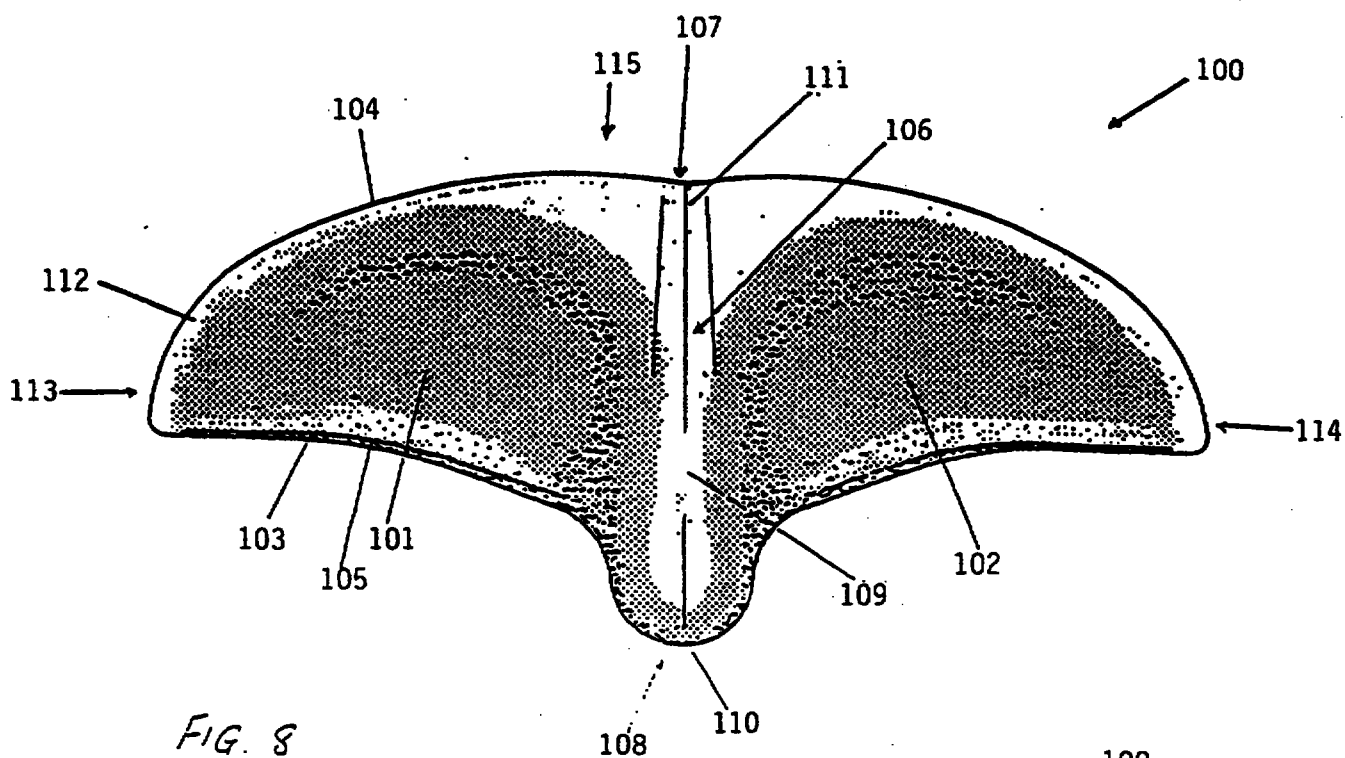


FIG. 8

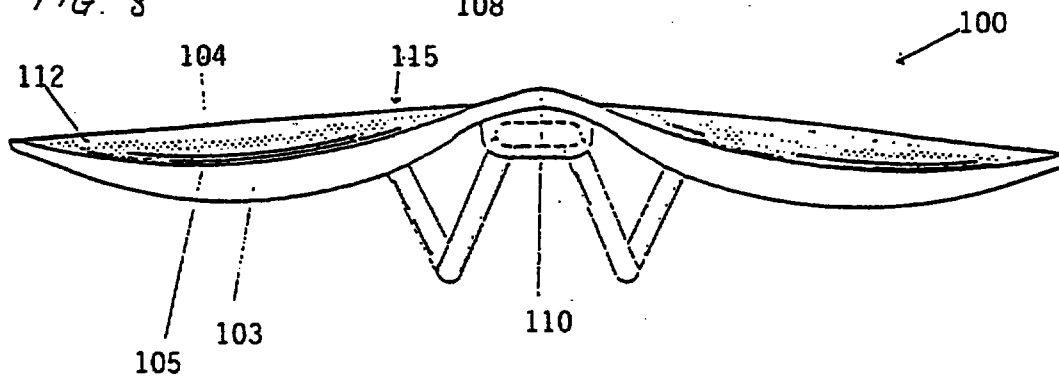
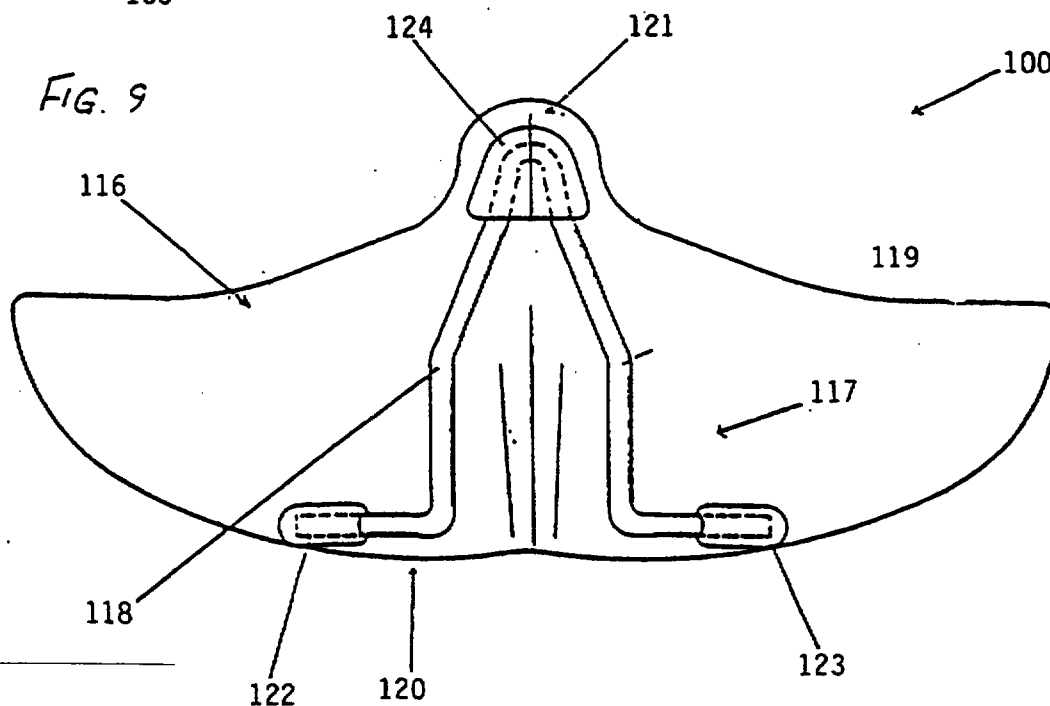


FIG. 9



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CYCLE SEAT

This invention relates to cycle seats.

- 5 Cycle seats are often referred to as saddles and the terms cycle seat and saddles shall be used interchangeably in this specification. In addition throughout the specification, the term "pubic bones" refers to the left and right inferior rami of the pubic bones.
- 10 Broadly a cycle seat comprises a member having a rider support surface which supports the posterior of a rider and a downwardly facing seat mounting surface. In general terms the aim of the design of a cycle seat is to provide a rider support surface which stabilises the posterior of a rider while providing a relatively high level of rider comfort and also provides a low level of interference with the legs of
- 15 a rider during pedalling.

Many attempts have been made to provide a cycle seat meeting these requirements but none has proved totally satisfactory. Naturally it would be advantageous if a cycle seat could be devised which was able to stabilise the lateral position of a

20 rider's posterior while at the same time permitting the riders legs the freedom to vigorously pedal the cycle.

According to an aspect of this invention there is provided a cycle seat including:

25 a member having a rider support surface and an opposed seat mounting surface, the rider support surface being substantially horizontally extending with a pronounced centrally positioned longitudinally extending ridge formation, and support formations disposed on either side of the ridge

formation recessed below the ridge formation, the support formations providing support for the ischial tuberosities and surrounding soft tissue of a rider, wherein the ridge formation extends substantially the full length of the support formations and up to the perineal region of a rider, and the rider support surface curves upwardly from the support formations to the apex of the ridge formation.

Typically the rider support surface has a leading edge spaced a short distance forwardly of the support formations supporting the ischial tuberosities so as not to interfere unduly with the movement of the thighs of a rider during pedalling.

Preferably the apex of the ridge formation is rounded and the leading edge of the member tapers downwardly forwardly from the rider support surface.

Advantageously the member further includes a truncated pommel portion projecting forwardly outwardly from the leading edge of the member in axial alignment with the ridge formation. Typically the pommel portion slopes downwardly towards its leading edge.

Preferably the support formations on either side of the ridge formation slope generally downwardly from the rear of the member towards the leading edge of the member, eg at an angle of 10 degrees to 20 degrees.

Preferably the rear of the member is closely spaced from the rear of the support formations for supporting the ischial tuberosities of a rider.

In a particularly preferred form the member has a lateral extent extending laterally

outwardly beyond the support formations for supporting the ischial tuberosities of a user and the lateral extent of the member is substantially greater than the axial or longitudinal extent of the member. Advantageously the lateral extent of the member is more than twice as great as the axial or longitudinal extent of the member from
5 the rear of the member to the front of the pommel portion.

Preferably the member is formed from a substantially rigid material which is covered by a layer of resilient material. Typically the member is formed from a thermoplastic material such as nylon and polypropylene.

10

Naturally the seat mounting surface of the cycle seat will typically include mounting means, eg in the form of a bracket, for mounting the seat onto a cycle frame.

A cycle seat in accordance with this invention may manifest itself in a variety of
15 forms. It will be convenient to hereinafter describe in detail two preferred embodiments of the invention with reference to the accompanying drawings. This will enable persons having an interest in the subject matter of the invention to readily put the invention into practical effect. It is to be clearly understood however that the specific nature of these descriptions does not supersede the generality of the
20 preceding broad description. In the drawings:

FIG. 1 is a three dimensional view of a cycle seat in accordance with one embodiment of the invention;

FIG. 2 is a top plan view of the cycle seat of FIG. 1 with contour lines
25 marked in on the seat;

FIG. 3 is a longitudinal cross sectional view of the cycle seat of FIG. 1, section through III-III;

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FIG. 4 is a transverse sectional view of the cycle seat of FIG. 1, section through IV-IV;

FIG. 5 is an upper three dimensional view of a cycle seat in accordance with a second embodiment of the invention;

5 FIG. 6 is a lower three dimensional view of the cycle seat of FIG. 5;

FIG. 7 is a top plan view of the cycle seat of FIG. 5;

FIG. 8 is a front view of the cycle seat of FIG. 5; and

FIG. 9 is a bottom plan view of the cycle seat of FIG. 5.

10 In FIGS. 1 to 4, reference numeral 10 refers generally to a cycle seat in accordance with the invention.

The seat 10 comprises a member which defines two support formations 11 and 12, each of which has a substantially planar portion 13 and 14 on either side of a
15 centrally positioned longitudinally extending ridge formation 15. The ridge formation 15 extends from the rear 16 to the front 17 of the seat 10.

The ridge formation 15 has a substantially convex cross section. The ridge formation 15 also has a concavity 19 on its longitudinal cross section from which
20 it extends rearwardly and upwardly. FIG. 2 which has contour lines give a detailed picture of the topography of the seat 10.

The formations 11 and 12 support the ischial tuberosities of a rider generally along the line IV-IV as shown in FIG. 2 when the upper torso of a rider is in an upright
25 position and also when the upper torso is angled downwardly forwardly over the handle bars of a bike.

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The ridge formation 15 also supports the coccyx 27 of a rider generally at point X in FIG. 2 when the upper torso of the rider is upright. The formations 11 and 12 are closely spaced from the front of the member 11 so that the member 11 does not interfere with the thighs of a rider during pedalling.

5

FIGS. 3 and 4 illustrate respectively longitudinal and transverse cross sectional views of the cycle seat of FIG. 1 showing the positions of the pelvic bones of a rider when they adopt an upright position during pedalling. The planar portions 13 and 14 of the formations 11 and 12 support the ischial tuberosities 24 and 25 of the rider.

10 The formations 11 and 12 also support a fair amount of the riders posterior surrounding the ischial tuberosities.

The seat 10 also includes a raised edge 20 extending along the rear 16 of the seat 10.

15 The raised rear edge 20 resists rearward displacement of the pelvis 23 of the rider during pedalling.

The difference in height between the support formations 11 and 12 and the ridge formation 15 facilitates support for the coccyx 27 of a rider when their torso is substantially upright. The ridge formation 15 also acts to resist sideways movement
20 of the pelvis 23 during pedalling.

The cross sectional shape of the ridge formation 15 is roughly complementary to that of the arch region of the pubic bones. Thus if the rider adopts an upright position when pedalling, the weight of the rider is spread between the ischial tuberosities 24
25 and 25, the coccyx 27 and the pubic bones 29. This provides a favourable distribution of the mass of the rider reducing point pressure.

FIGS. 5 to 9 illustrate a seat in accordance with a second embodiment of the invention. In the drawings the seat is referred to generally by the numeral 100.

5 The seat 100 comprises broadly a member 102 having a rider support surface 104 and an opposed seat mounting surface 106. The rider support surface 104 defines a longitudinally extending ridge formation 110 and support formations 112 and 114 disposed on either side of the ridge formations 110.

10 The ridge formation 110 is rounded, curving upwardly from the support formations 112 and 114 and having a rounded apex at its peak. Thus the ridge formation 110 has a substantially convex cross section. The ridge formation 110 is also centrally positioned on the rider support surface 104 and extends longitudinally from a rear edge 116 of the member 102 to a leading edge 118 thereof terminating short of the perineal region of a rider.

15

The leading edge 118 of the member 102 terminates a short distance forwardly of the support formations 112 and 114 so that the member 102 does not interfere with the thighs of a rider during pedalling. The leading edge 118 is rounded or tapered to make it ergonomically attractive.

20

The member 102 also includes a truncated pommel portion 120 projecting forwardly outwardly from the leading edge 118 of the member 102 in axial alignment with the ridge formation 110. The pommel 120 slopes downwardly towards its leading edge 118 so that it does not interfere with the genitals of a rider. It will be clearly seen
25 that this pommel 120 is substantially shorter than the typical cycle seat pommel.

The support formations 112 and 114 are typically generally circular when viewed

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in plan view and are noticeably lower than the ridge formation 110. The formations 112 and 114 are generally at least slightly recessed below the surrounding portions of the rider support surface 104. The recesses are positioned to be broadly aligned with the ischial tuberosities of a rider.

5

While the rear edge 116 of the member is raised, the rider support surface generally slopes downwardly towards the leading edge thereof, eg at 20 - 30°.

10 When viewed in plan view, the rider support surface 104 resembles somewhat a bird in flight with wings outstretched. The surface 104 has a lateral extent extending laterally outwardly beyond the support formations 112 and 114 with each side tapering to a point. In the illustrated embodiment the lateral extent or width of the rider support surface 104 is more than twice the longitudinal length of the member 102 from the rear edge 116 to the front of the pommel portion 120.

15

The seat mounting surface 106 of the member 102 is shown in FIG. 6. It includes cycle mounting means in the form of a bracket 121 for mounting the seat 100 to the frame of a cycle (not shown). In the illustrated embodiment the bracket 121 has broadly an "N" shape with lateral arms at the end of the "N" although obviously the
20 precise shape is not essential. The bracket 121 is mounted to the member 102 by means of mounting elements 122, 123 and 124.

In use, a rider's posterior is mounted on the seat 100 with the ridge formation 110 extending up into their posterior crease. The ischial tuberosities bear down on the
25 formations 112 and 114. This bunches the riders glutial posterior tissue between their ischial tuberosities and the ridge formation 110 and effectively holds the posterior in position on the seat 100. As a result the rider is not susceptible of their

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pelvis moving from left to right during pedalling of the cycle. The position of the leading edge of the member 102 relative to the formations 112 and 114 and the posterior of rider enables the riders legs to pedal freely without interference from the cycle seat.

5

An advantage of the seat described above with reference to the drawings is that it resists lateral movement of a rider's pelvis during pedalling. A further advantage is that it permits the rider the freedom to pedal vigorously while seated on the cycle seat in either an upright or a bent over pedalling position. A yet further advantage
10 of the cycle seat described above is that it is reasonably comfortable and does not interfere with the genitals of a rider.

It will of course be realised that the above has been given only by way of illustrative example of the invention and that all such modifications and variations thereto as
15 would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention as defined in the appended claims.



CLAIMS:

1. A cycle seat including:
a member having a rider support surface and an opposed seat mounting surface, the rider support surface being substantially horizontally extending with a pronounced centrally positioned longitudinally extending ridge formation, and support formations disposed on either side of the ridge formation recessed below the ridge formation, the support formations providing support for the ischial tuberosities and surrounding soft tissue of a rider, wherein the ridge formation extends substantially the full length of the rider support surface but terminates short of the genital region of a rider so as not to interfere therewith, and the rider support surface curves upwardly from the support formations to the apex of the ridge formation.
2. A cycle seat according to claim 1, wherein the member has a leading edge spaced a short distance forwardly of the support formations supporting the ischial tuberosities so as not to interfere unduly with the movement of thighs of a rider during pedalling.
3. A cycle seat according to claim 2, wherein the apex of the ridge formation is rounded and the leading edge of the member tapers downwardly forwardly from the rider support surface.
4. A cycle seat according to any one of claims 1 to 3, wherein the member further includes a truncated pommel portion projecting forwardly outwardly from the leading edge of the member in axial alignment with the ridge formation.
5. A cycle seat according to 4, wherein the pommel portion slopes downwardly towards its leading edge.



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6. A cycle seat according to any one of claims 1 to 5, wherein the support formations on either side of the ridge formation slope generally downwardly from the rear of the member towards the leading edge of the member.
- 5 7. A cycle seat according to claim 6, wherein the support formations slope downwardly at an angle of 10 degrees to 20 degrees.
8. A cycle seat according to any one of claims 1 to 7, wherein the rear of the member is closely spaced from the rear of the support formations for supporting the
- 10 ischial tuberosities of a rider.
9. A cycle seat according to any one of claims 1 to 8, wherein the rider support surface has a lateral extent extending laterally outwardly beyond the support formations for supporting the ischial tuberosities of a user.
- 15 10. A cycle seat according to claim 9, wherein the lateral extent of the member is substantially greater than the axial or longitudinal extent of the member.
11. A cycle seat according to claim 10, wherein the lateral extent of the member
- 20 is more than one and a half times as great as the axial or longitudinal extent of the member from the rear of the member to the front of the pommel portion.
12. A cycle seat according to any one of claims 1 to 11, wherein said member is formed from a substantially rigid material which is covered by a layer of resilient
- 25 material.

DATED THIS tenth DAY OF August 1998

HARRODON HOLDINGS PTY LTD

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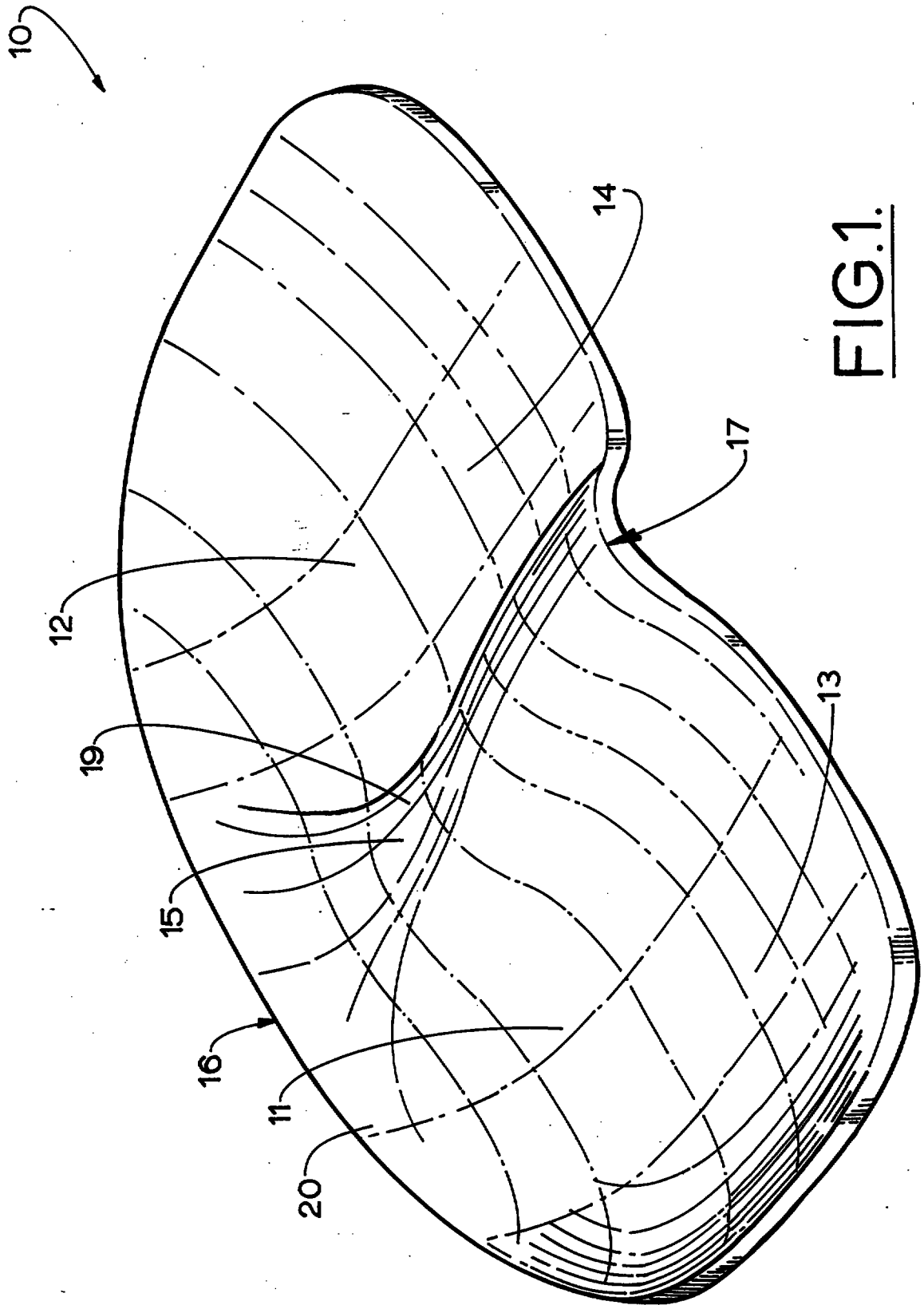


FIG. 1.

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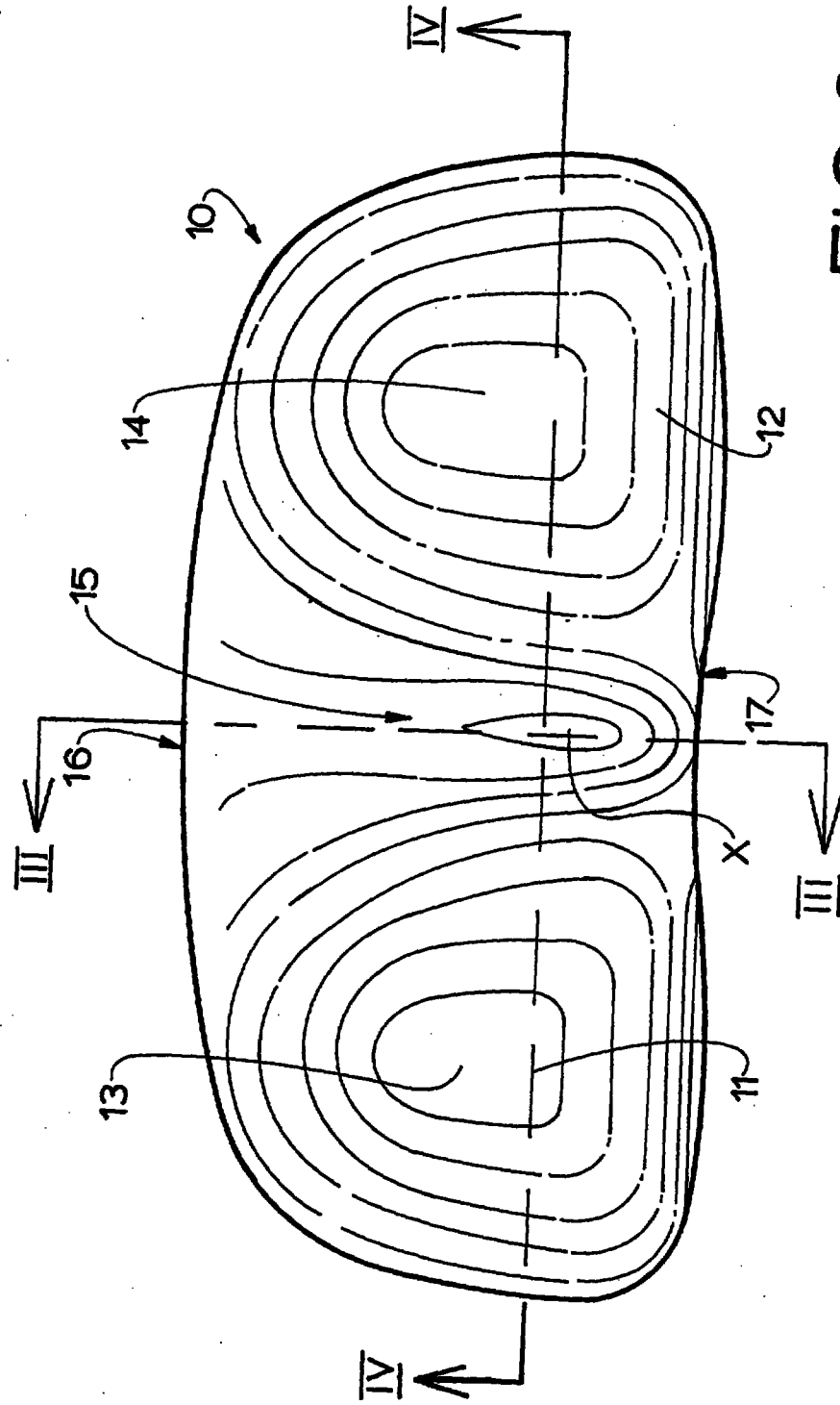


FIG. 2:

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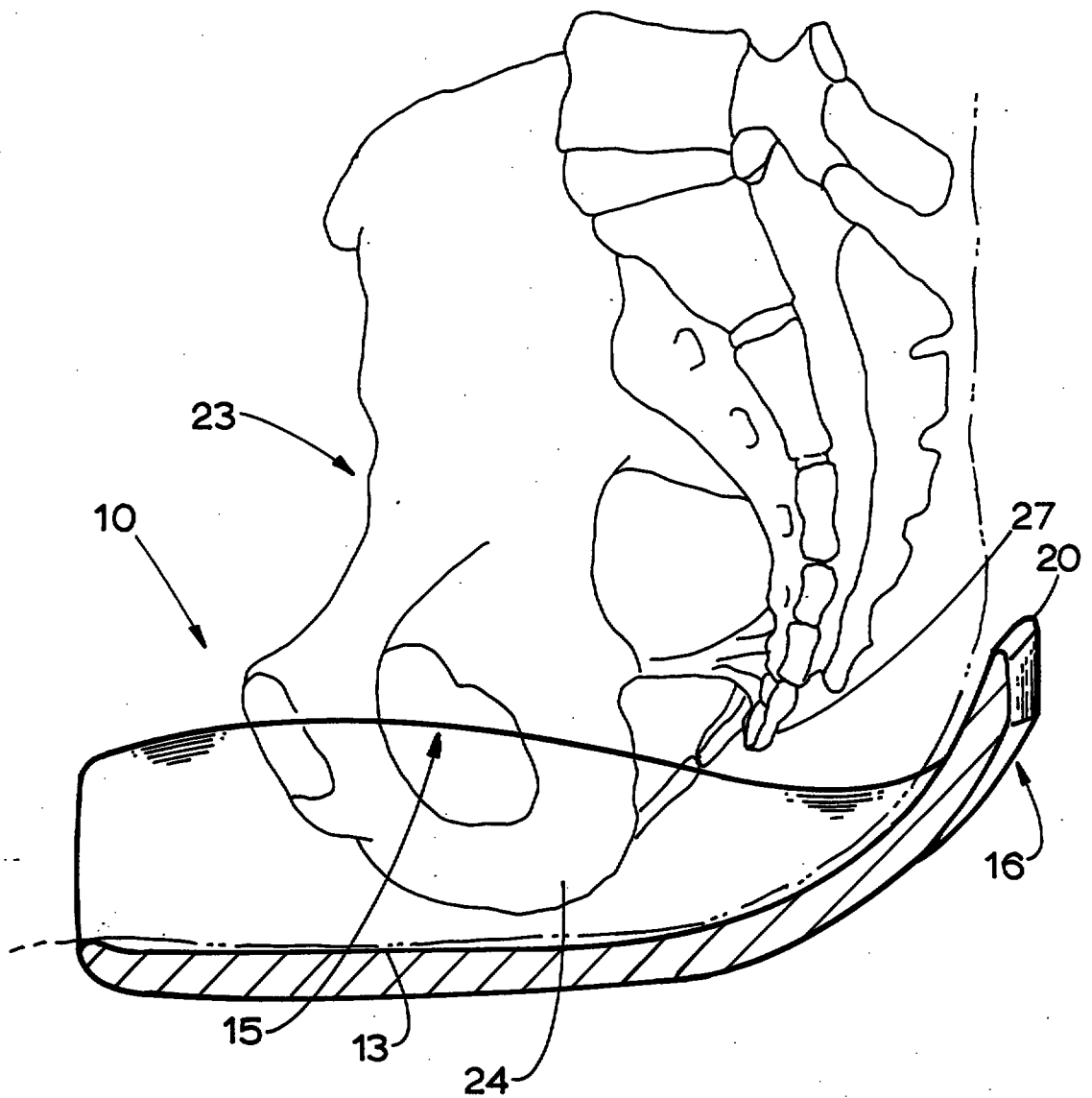


FIG.3.

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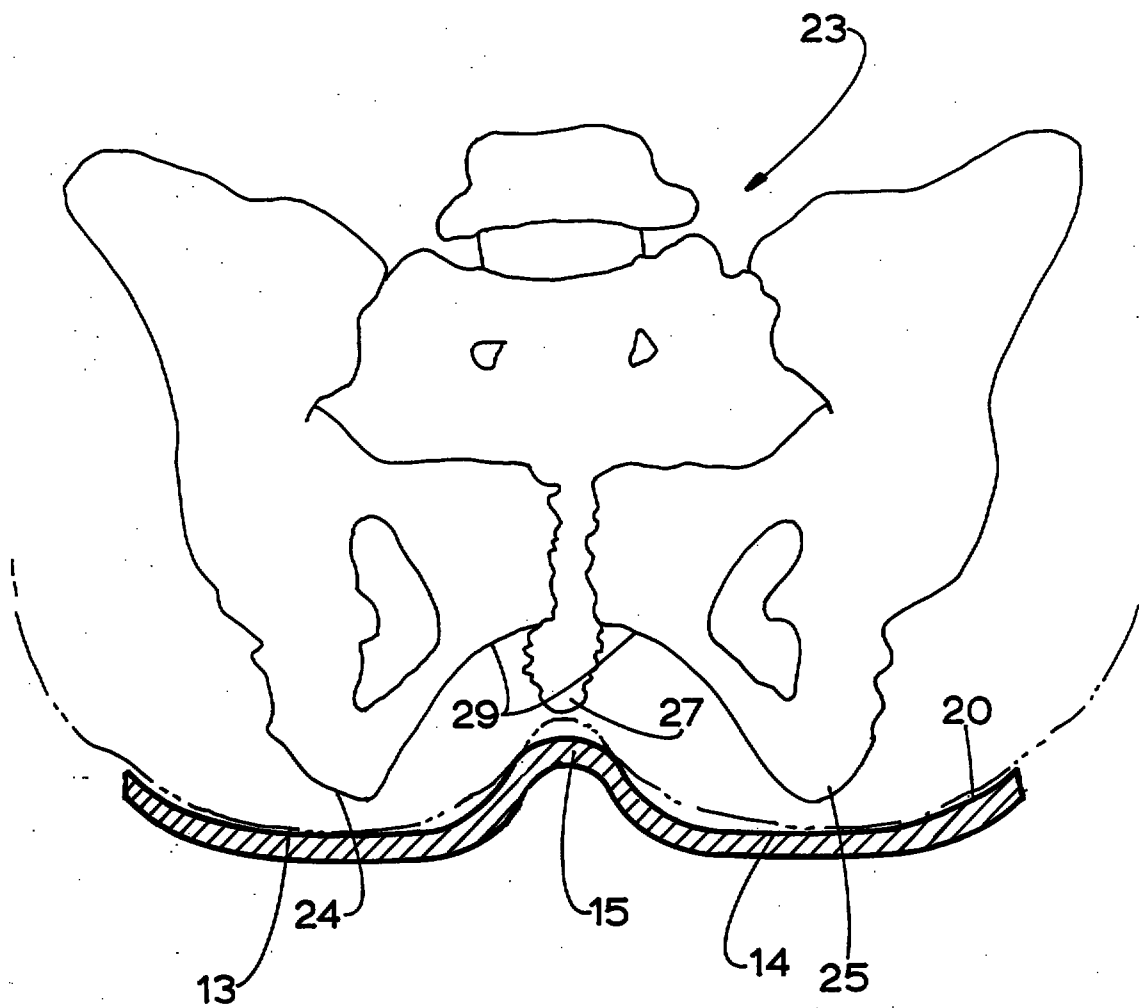


FIG. 4.

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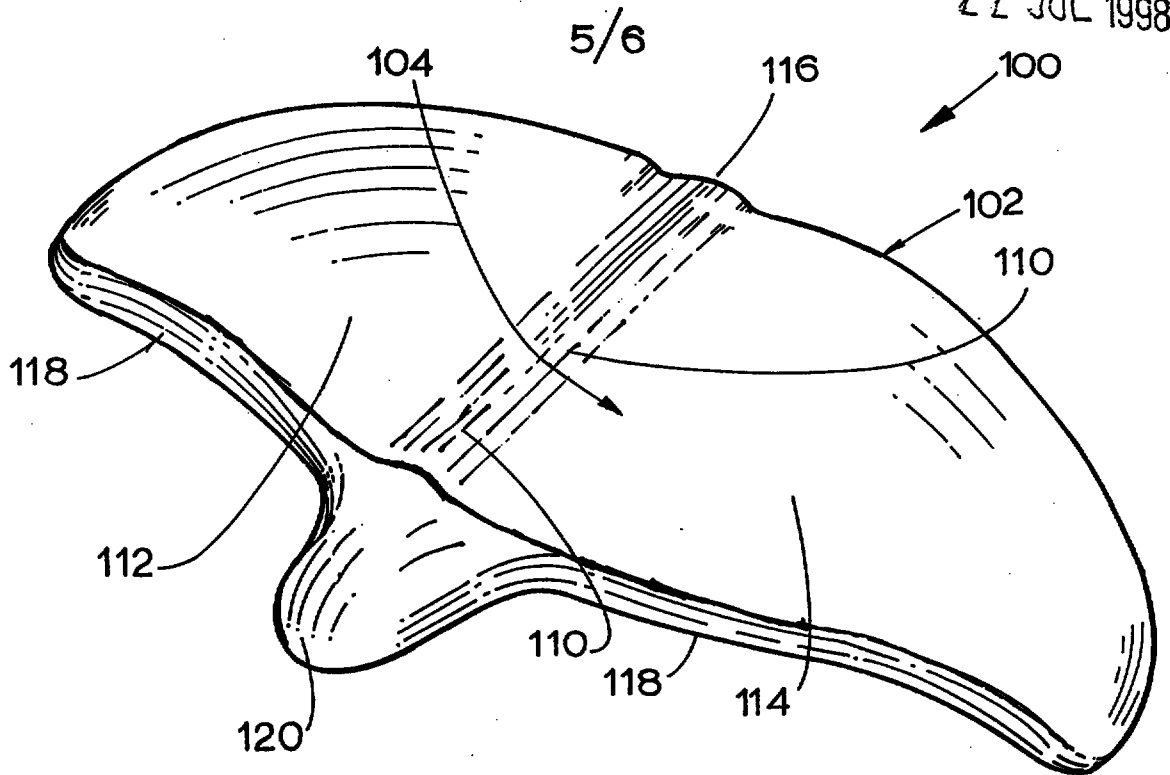


FIG. 5.

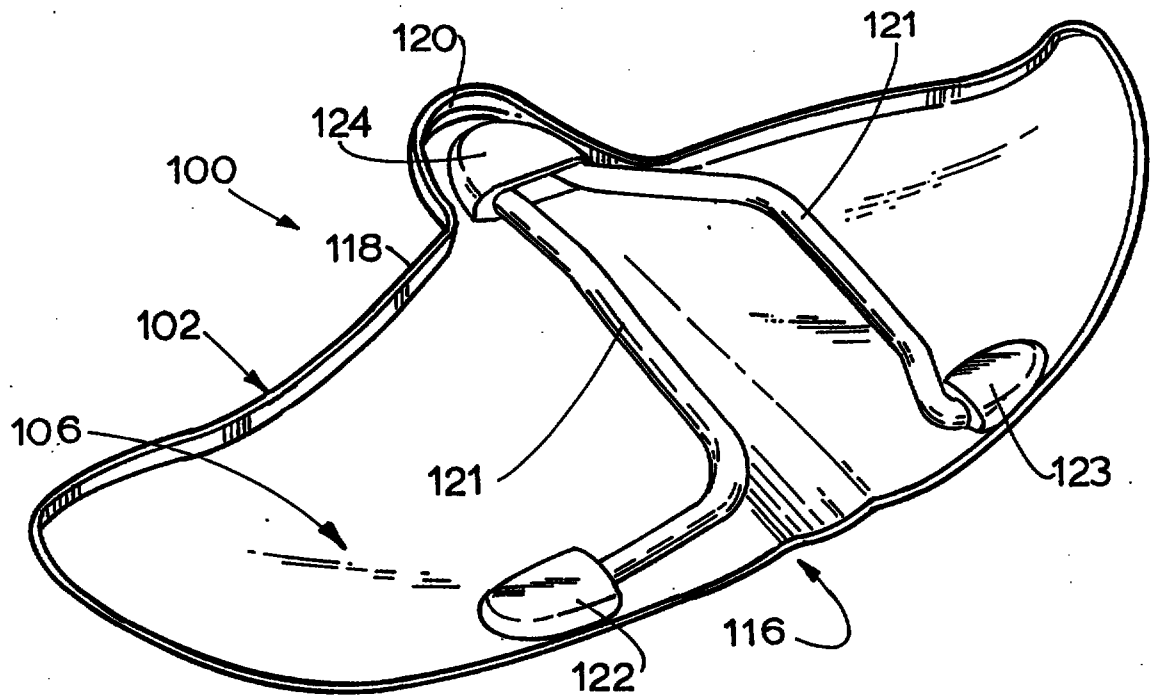


FIG. 6.

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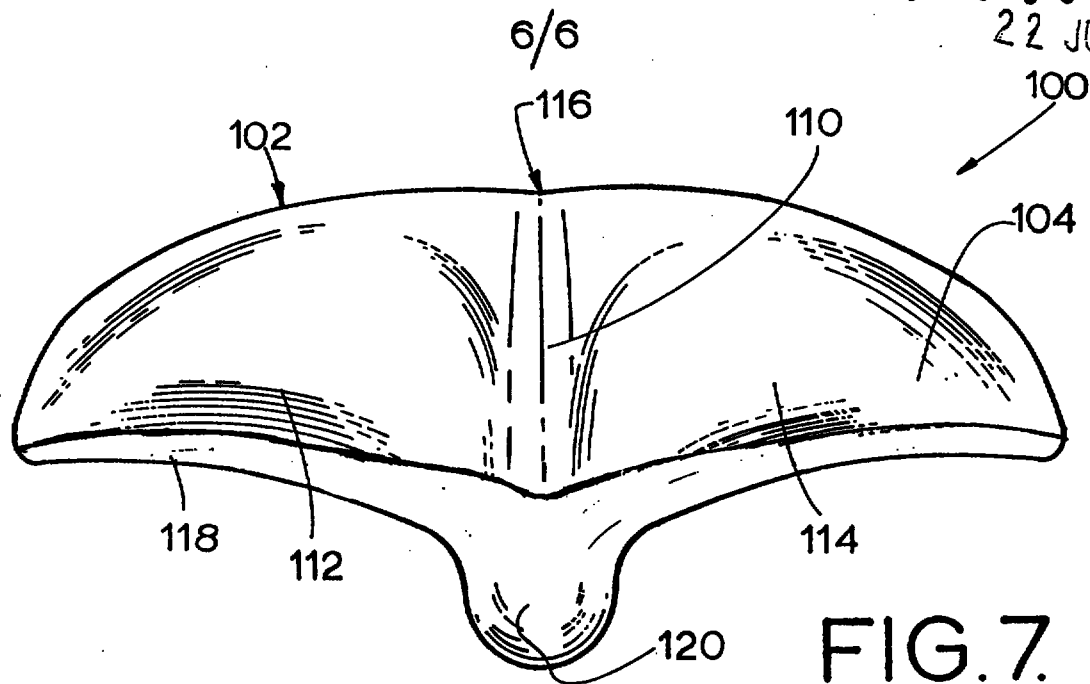


FIG. 7.

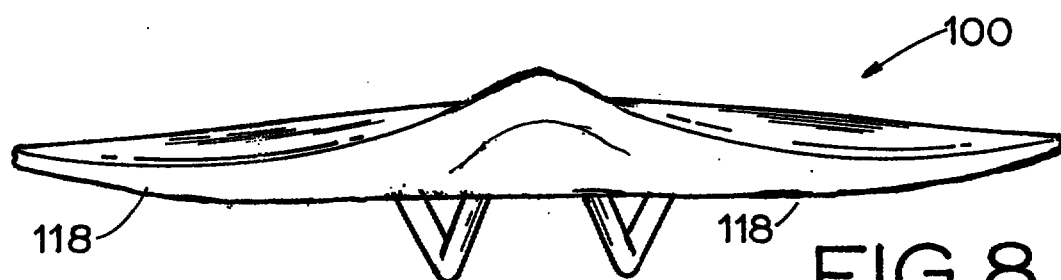


FIG.8.

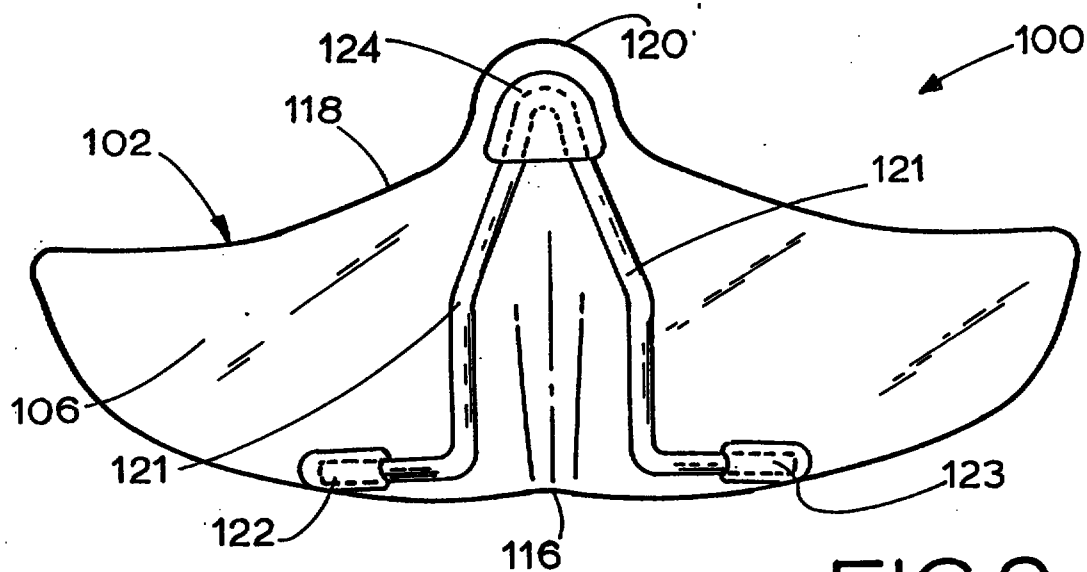


FIG.9.



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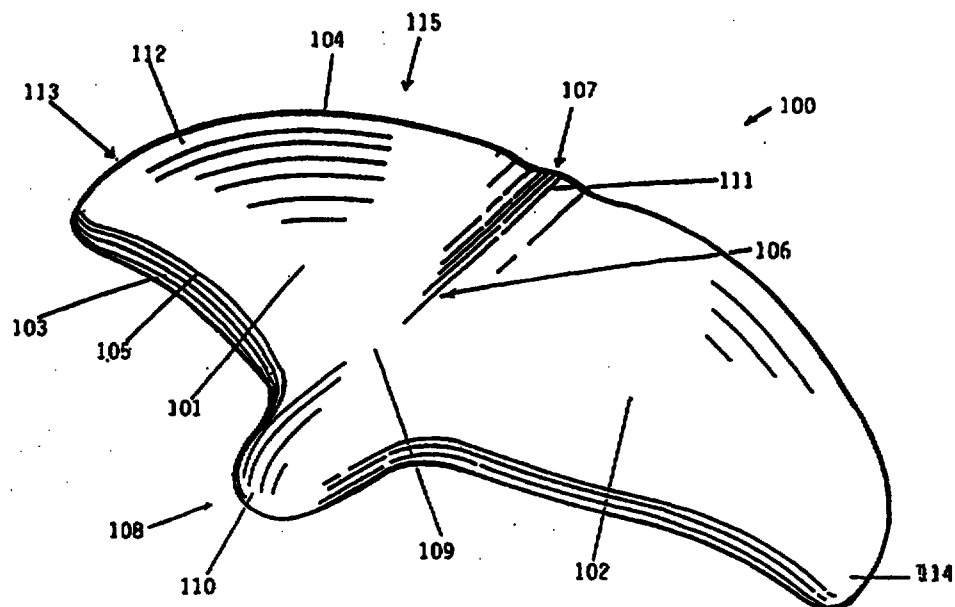
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☒ Claim(s)	: paged 16	to paged 20
☒ Drawing(s)	: paged 16	to paged 26
☐ Abstract	: paged	to paged

(54) Title: CYCLE SEAT



(57) Abstract

A cycle seat providing rider comfort and accommodating various styles of riding while providing substantially minimal pressure on the urogenital area of the rider during pedalling. The lateral portions of the seat do not interfere with the thighs of the rider during pedalling, thus allowing the legs of the rider to be angled downward to meet the pedals of the cycle with substantially minimal obstruction. The cycle seat comprises a central ridge-like member (106) intermediate of two support surfaces (101, 102) which are adapted to support respective ischial tuberosities of rider. The central ridge-like member (106) supports the coccyx and the pubic bones of the rider when the upper torso of said rider is substantially upright and is also capable of supporting the pubic bones when the rider's pelvis is angled substantially forward.