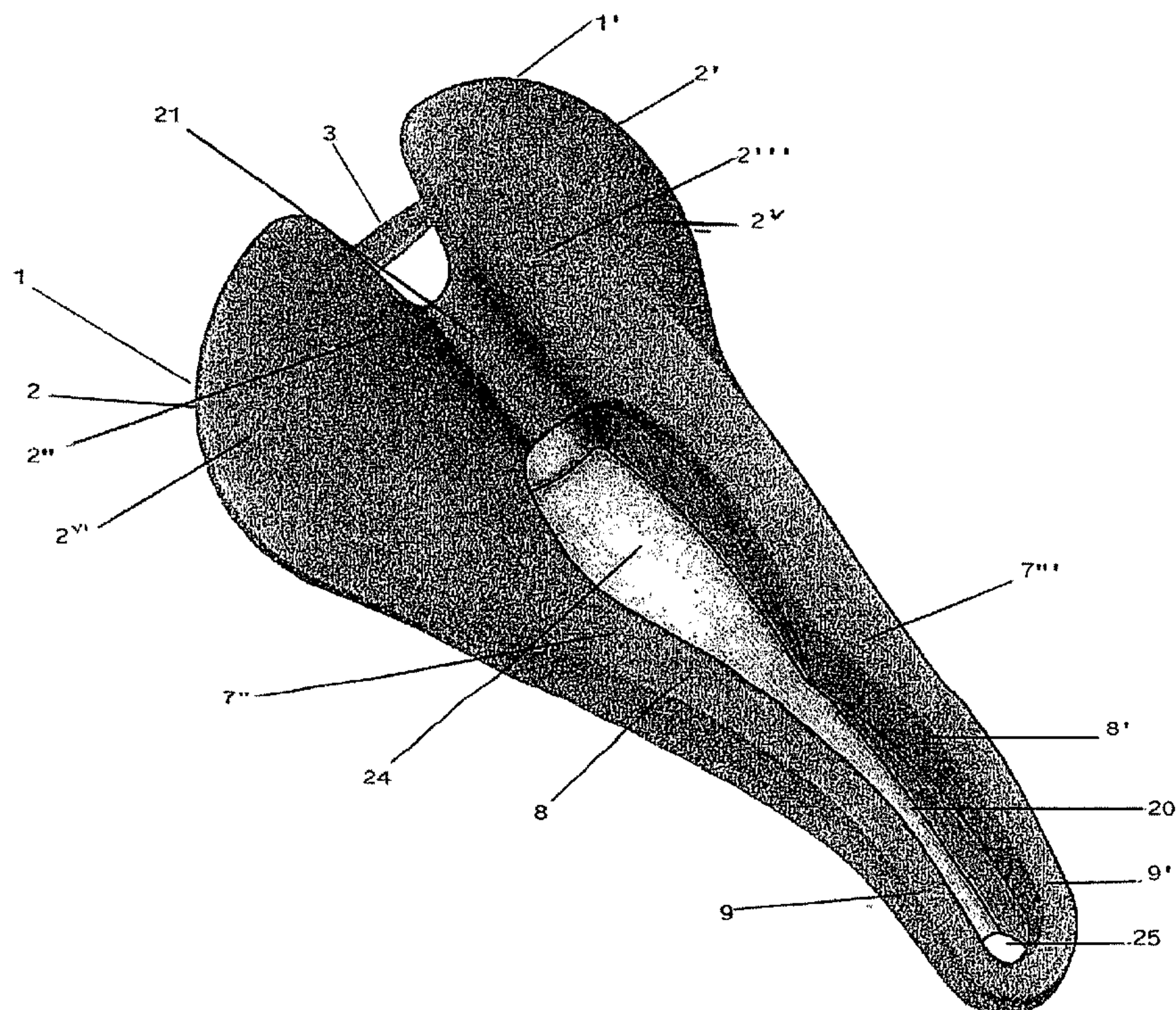




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(57) **Abrégé/Abstract:**

There is disclosed a bicycle saddle, of the type that has two identical portions (1, 1') longitudinally symmetrical. The saddle has a central channel (20) which is closed at the bottom by a thin wall (24) permitting an optimal use of the saddle when the cyclist peddles in adverse climatic conditions, in particular in case of rain. The wall (24) closing the channel (20) has a small opening (25) to make it easier for various dusts and liquids to exit or come out from the channel (20).

**Abstract**

There is disclosed a bicycle saddle, of the type that has two identical portions (1, 1') longitudinally symmetrical. The saddle has a central channel (20) which is closed at the bottom by a thin wall (24) permitting an optimal use of the saddle when the cyclist peddles in adverse climatic conditions, in particular in case of rain. The wall (24) closing the channel (20) has a small opening (25) to make it easier for various dusts and liquids to exit or come out from the channel (20).

**BICYCLE SADDLE HAVING A CENTRAL CHANNEL**

The present finding concerns a bicycle saddle. In particular, the saddle according to the finding constitutes an improvement of the saddle described in Italian patent application no. VI2004A000204, to the same Applicant (corresponding to publication PCT no. WO2006/015731). As far as the state of the art is concerned, we refer to the very same documents quoted in that publication. Nevertheless, summarising the problems for which the finding according to the quoted publications intended to provide a solution, it essentially concerns avoiding vascular compression of the perineal structures that occurs in users of bicycle saddles previously placed on the market. In particular, many medical studies have demonstrated that temporary and in some cases even permanent insensitivity of the penis is caused, of course to a greater extent the more the bicycle is used. The main cause of these effects has been attributed by these studies to the long and narrow point of the saddle. Moreover, it has been possible to establish that the most important factor in safeguarding blood flow to the penis is not the amount of padding in the saddle, but its length, this characteristic making it possible to avoid the compression of the structures of the pelvic floor in the compression of the vein and of the deep artery of the penis, on the pubic arch. It should also be noted that saddles known at that time were able to cause substantial problems for female users as well causing, in particular, their genital organs to be squashed.

The saddle according to the publications quoted above solves the problem outlined above thanks to its special configuration; the main thing of note is the presence of a suitably shaped central channel, which avoids the compression of the vascular structures of the perineum. Thanks to its special configuration the saddle is made so that the user sits on its surface only with the gluteal muscles, the ischiatic tuberosities and the pubic-ischial rami. Moreover, said saddle has a lateral configuration such that, during the pedalling action, there is no rubbing of the gracilis and adductor muscles. Moreover, the aforementioned saddle has a typical eagle's beak-shaped tip, which keeps the external genitals from compression.

Such a saddle is extremely effective for achieving the aforementioned purposes, but it has the drawback due to the existence of its central channel, which is relatively large in size. In practice, the presence of this channel is liable to cause problems for the user, since his/her various organs, above all under low temperature conditions, are exposed to bad weather. Moreover, in the case in which the bicycle is used on a wet road, the user's various organs in contact with the saddle are subjected to substantial cooling, due to the fact that his/her clothes will clearly soak up water. This is particularly unpleasant and uncomfortable in the case of users who perform competitive sport and who are forced to remain on the saddle even for many hours non-stop.

The purpose of the present finding is to make a saddle that has the same advantages for the user offered by the saddle according to the documents quoted above, but that at the same time does not have the

aforementioned drawbacks, with reference to the use of the saddle itself in bad weather conditions.

This is obtained, according to the finding, by shaping the saddle according to the present invention.

In practice, according to the finding, the central channel located in the central part of the saddle is closed through a thin wall at its lower part; advantageously, said lower closing surface ends with a small opening to make it easier for various dusts and liquids that could be caught in the cavities defined beneath said closing wall during the use of the saddle to come out.

These and other characteristics of the finding shall now be illustrated and described in detail, with reference to some particular embodiments thereof, given as non-limiting examples, with the help of the attached tables of drawings, where:

fig. 1 (Table I) illustrates an overall perspective view of the saddle according to the finding;

fig. 1 bis (table II) illustrates an exploded view of the elements that make up the saddle according to the finding

fig. 2 (table III) illustrates a longitudinal-vertical section view of the saddle according to the finding;

fig. 3 (table IV) illustrates a plan view from above of the saddle according to the finding;

fig. 4 (table V) illustrates a plan view from below of the saddle according to the finding;

fig. 5 (table VI) illustrates a view of the two small plates for the attachment of the support fork of the saddle and a perspective view of said fork;

fig. 6 (table VII) illustrates a longitudinal section of the racing saddle according to the finding and the lateral dissection of the coccyx bone;

fig. 6 bis (table VIII) illustrates the compression that the ischial-pubic ramus exerts on the padding when the user sits on the saddle;

fig. 7 (table IX) illustrates the longitudinal section of the saddle according to the finding of the type for leisure and the lateral dissection of the coccyx bone;

fig. 7 bis (table X) illustrates the compression that the ischiatic tuberosity and the ischial-pubic ramus exert on the padding, when the user sits on top of the saddle;

fig. 8 (table XI) illustrates a front view of the saddle according to the finding with the coccyx bone resting on top of it; the space for housing the body of the penis between the pubic arch and the central channel of the saddle according to the finding and the stable position of the four quadrants of the human body are thus highlighted;

fig. 9 (table XII) illustrates a horizontal dissection of the structures of the pelvic floor, of the ischiatic tuberosities, of the pubic-ischial rami and of the gluteal muscles, housed on the surface of the saddle according to the finding;

fig. 10 (table XIII) illustrates a perspective view of the coccyx bone positioned on top of the saddle according to the finding, where it is possible to see the free articulation of the hip and the body of the penis and the

testicles arranged between the pubic arch and the saddle according to the finding;

fig. 11 (table XIV) illustrates a rear view of the saddle according to the finding and the dissection of the coccyx and of the gluteal muscles housed on the rear parts of the saddle according to the finding;

fig. 12 (table XV) illustrates a plan view of a saddle according to the finding of the type for leisure;

fig. 13 (table XVI) illustrates a plan view of a saddle according to the finding of the type for cycling enthusiasts and for racing;

fig. 14 (table XVII) illustrates a plan view of a racing saddle according to the finding and the detail of a further widening of the longitudinal central channel in the front part;

fig. 15 (table XVIII) illustrates a longitudinal section of the body made from carbon or similar and of the support fork, of the saddle according to the finding;

fig. 16 (table XIX) illustrates a rear view of the body made from carbon or similar of the saddle according to the finding;

The saddle according to the finding is designed to be used on a racing bicycle, with non-limiting measurements of length 27 cm and of width rear 13-14 cm and on a leisure bicycle of length 20 cm and rear width about 18-22 cm.

As can be seen in fig. 1, the saddle according to the finding has two identical portions 1, 1', longitudinally symmetrical, with a long central channel 20 at the front part of its middle area; it is closed in the lower part with a wall 24

and has a depth with respect to the surface of the body where the padding rests of about 1 cm, which added to the thickness of the padding of the racing saddle increases to 2 cm (not limiting) and for the leisure saddle to 2.8 cm (not limiting), thus creating a sufficient housing to receive the vascularisation and the structures of the floor of the perineum and genitals, when the user sits on the saddle according to the finding. In the front part, where the tip of the saddle goes down like an eagle's beak at 30°-45°-75°, the underlying wall 24 advantageously ends with a small opening 25 to make it easier for various dusts and liquids, which could build up during its use, to come out from the channel. Each of these identical portions has a rear part 2, 2', which jointly, for the racing bicycle are advantageously of width 13-14 cm and for the leisure bicycle of 18-22 cm. The two parts 2, 2' are joined together by a depression portion 21. As can be seen in particular in fig. 2 their rear portion is inclined upwards between about 10° and 20°.

The parts close to the central depression 21 of the parts 2, 2', indicated in the figures with reference numerals 2'' and 2''', are substantially flat and globally have a size of about 7 cm, to then go down suddenly with respect to the vertical with an angulation that varies from about 45° to about 60°, ending with the side parts 2'(IV) 2'(V).

It shall be clear in the subsequent anatomical figures that the flat parts 2'', 2''' are used to support the gluteal muscles and the ischiatic tuberosities and vice-versa just the gluteal muscles rest upon the inclined parts 2(IV), 2(V), as can be seen in fig. 11.

As can be seen in fig. 1, but also in fig. 3, at their intermediate rear area the parts 2,2' are configured like an inlet 3, which is essentially dovetail shaped, the ends of which 5',5'' (fig. 3) are about 2.5-3 cm apart (not limiting) and that end with the front end 5 in the shape of a semi-circle. From said end the depression 21, indeed, already seen previously, which acts as a joining element of the two parts 2,2', begins. Such a depression has a length that is variable between about 4-6 cm and is about 1.5 cm deep. Its presence is essential to avoid the coccyx touching the surface of the saddle, particularly when riding on substantially uneven road surfaces.

Preventing the coccyx from touching the surface of the saddle means protecting against possible microtraumas that, in the contrary case, would lead to unpleasant pains in the spine, especially for those who use the bicycle for training or racing over prolonged periods.

The rear parts 2'', 2''' join at the front portion 7'', 7''' through a slight slope. At this slope the saddle has a total width of 7 cm (not limiting).

The front portions 7'',7''' are inclined upwards by about 5° (not limiting) for the racing saddle and by about 10°- 20° (not limiting) for the leisure saddle and thus are intended to substantially approach one another until they are 4 – 4.5 cm apart, at the points 8,8'. In these areas the side of the saddle goes perpendicularly laterally downwards, with the corners suitably radiated so as not to create discomfort on the skin of the thigh.

The ischiatic tuberosities and the pubic-ischial rami rest on top of these front parts of the saddle and said ischiatic tuberosities and the pubic-ischial rami find a support surface on which the concentrated load of the human body is

uniformly distributed, for their entire length, when the user sits on the saddle according to the finding.

Moreover, the pubic-ischial rami, resting on the front parts 7", 7'", at the points 8 , 8' have the function of supporting a part of the weight of the bust of the human body, when the user puts his/her hands on the handlebars of the bicycle.

Finally, at the front end part of the saddle 8 , 8', where the seat of the pelvis ends, there are the portions 9, 9', inclined downwards like an eagle's beak with an inclination of 30°- 45° (not limiting) for the racing saddle and of 75° (not limiting) for the leisure saddle, as can be clearly seen in fig. 2. At the front end of the saddle the two portions 9, 9' join up substantially in the shape of a semi-circle, with a diameter of about 4-3.5 cm, to keep the portions 1, 1' joined at the front.

The very considerable inclination of the portions 9,9', (see figs. 9 and 10) makes it possible to avoid, respectively, the testicles in the case of a male user and the clitoris in the case of a female user, being squashed on them during use of the saddle, thus conforming to the indications of the Urology tests quoted above.

Not only this, but the compression of the body of the penis, of the vein and of the deep dorsal artery is also avoided, thus maintaining normal blood flow.

The parts 9, 9', which in the racing saddle are inclined downwards by 30°- 45° (not limiting), are useful to the competitive user, during the final spring or time trials when he/she leans forward with his/her pelvis, to gain a

minimum support for the gluteal muscles thus avoiding the compression on the anus and on the prostate.

Observing fig. 3 it can be seen that the saddle has a particularly tapered and aggressive shape. This tapered shape is able to satisfy in particular the professional user, who does not have to feel any discomfort or pain when pedalling either in training or during a race. In particular, with reference to the central channel 20, it should be noted that at its rear end it is semi-circle shaped with a diameter that varies from about 3 cm to 5 cm.

Proceeding to the front the channel 20 narrows up to about 2.5 cm, ending at the front with an area having a configuration, also in this case, that is substantially semicircular.

At the widest rear part of the channel the anus, the prostate (obviously for the male user), worked out in scientific tests to be about 2.5 cm in diameter, as well as the genital arteries, the veins and dorsal arteries can be comfortably housed; the body of the penis and the testicles rest at the parts 9, 9'. In the case of a female user the vagina, as well as not suffering any compression, since the central channel 20 is sufficiently wide and deep, is able to maintain constant aeration, which is important to sustain the complex interaction between microorganisms that constitute the vaginal flora; at the same time the vestibule, the labia minus and majus and the clitoris rest at the points 8, 8' of the saddle. The channel 20 fully satisfies the indications quoted above provided by the Urology studies already carried out; indeed, the saddle according to the finding has been subjected to a scientific Urology test, on 29 healthy young cyclists, with a body weight of

between 45-70 kg and between 18 and 30 years old, firstly sitting on the saddle according to the finding for 15 minutes and then on the same saddle pedalling for another 15 minutes, measuring the blood flow to the perineal structures with a Clark electrode positioned on the gland of the penis of the cyclists.

The obtained data compared with the data of the last scientific test by the Urologist Schwarzer demonstrates that the saddle according to the finding is statistically better than the saddle that provided the best results in that study, thus demonstrating the regular blood flow to the perineal vascular structures, when sitting and pedalling on it.

Regarding this, it is important to note that, with the saddle according to the finding, the male user does not encounter any rubbing on the anus and on the entire surface of the skin of the penis, thus avoiding possible forunculosis or dermatitis. Moreover, the testicles are abundantly aerated, thus keeping the temperature below 37°, optimal for the normal operation of the production of seminal liquid.

It should be noted that the intermediate part of the racing saddle (see fig. 3), the one approximately defined, respectively, by points 16, 16" and 16', 16"', the saddle has a limit width such as to allow the ischiatic tuberosities and the pubic-ischial rami to rest with the inner part.

This provision is important so that the joints of the semitendinosus muscles, of the biceps femoris, of the gracilis muscles and furthermore of the perineal nerves and of the lower buttock nerves, do not undergo any compression,

thus maintaining a regular blood flow and consequently the oxygenation of the muscle fibres during pedalling.

Proceeding with fig. 1 bis, (exploded view of the main components of the saddle according to the finding) it is possible to see the padding that shall be mainly covered in leather, the bearing body made from nylon plus a percentage of carbon or other plastic materials and the support fork, made in steel tubing.

In fig. 2, a vertical longitudinal section, we can see the particular ergonomic shape, which characterises the saddle according to the finding.

The overlying padding 11 (fig. 2), with a non-limiting thickness of 1-1.5 cm in the front part and with a non-limiting thickness of 2-5 mm in the rear part, is advantageously made from expanded bicomponent elastomeric polyurethane, or from compact or expanded polyurethane, or from styrol-butylene-styrol, or from expanded vulcanised rubber or other plastic materials suitable for the requirements of the saddle according to the finding; these materials shall be suitably used in the various models that make up the product range of the saddles according to the finding. These materials that make up the padding are able to withstand the load of the human body of the user, when he/she sits on top of the saddle according to the finding, thus avoiding the ischiatic tuberosities and the pubic-ischial rami touching the underlying bearer body.

The underlying bearer body has a non-limiting thickness of about 2-3 mm, thus configured, it has the ergonomic function of housing the gluteal muscles and a part of the ischiatic tuberosities in the rear parts and the

pubic-ischial rami in the front parts; thus designed, also with this minimal support surface, the weight of the human body of the user is uniformly distributed over the saddle, without him suffering any bruising or squashing of delicate parts of the floor of the perineum and of the muscle joints.

Basically, the saddle according to the finding is a small bicycle seat, which meets the requirements both of the cycling enthusiast and of the professional cyclist.

The support fork 13 is fixed to the body on suitable seats, frontally 15 on suitable pockets and at the back 30 on ready-made supports on the body. In fig. 4 the positioning and the locking of the fork in points 30 consists in plan of two prism-shaped superelevations above which two plates 22, 22' shall be fixed in a sandwich, with self-threading screws (fig. 5), already provided with holes for the screws and joined together by a plate 23 (fig. 6); there is also a perimetric band 18 with a width of about 6 mm and a thickness of about 3.5 mm, above which the final part of the leather covering the saddle according to the finding shall be glued and further fixed with staples.

The support fork 13 (fig. 5) is configured in a single tubing element made from stainless steel, aluminium, titanium or other materials that are strong and at the same time light, with the rear part closed, facing upwards for about 4 cm and about 10 cm wide in the upper part and configured following the shape of the underlying surface of the body of the saddle according to the finding.

The saddle this firmly fixed to the fork, which is in turn fixed to the support of the bicycle, always remains stable during the pedalling action of the user,

when the body weight discharges with force, in an alternating manner, on the parts 1 , 1' of the saddle according to the finding (see fig. 8 ).

Hereafter with the suitable illustrations, we shall consider the different ergonomic shape of the surface of the body of the racing saddle and of the leisure saddle according to the finding.

Fig. 6 illustrates the section of the racing saddle with the coccyx bone dissected above, arranged in pedalling position at about 45°. In fig. 6 bis it is possible to see the pubic rami of the ischium, which compress the padding of the saddle with the weight of the human body; the front surface of the body faces upwards by only 5° (not limiting) to house the pubic rami of the ischium, which in this position move downwards, whereas the tip of the saddle goes downwards by 30°- 45° (not limiting) to allow the professional user to rest the gluteal muscles during the final sprint or time trial; in the rear part facing upwards by 10°- 20° (not limiting) the gluteal muscles are housed.

Fig. 7 illustrates the section of the leisure saddle with the coccyx bone dissected above, arranged in pedalling position at about 60°. In fig. 7 bis it is possible to see the ischiatic tuberosities and the pubic rami of the ischium, which compress the padding of the saddle with the weight of the human body; the front surface of the saddle faces upwards by 10°-20° (not limiting), to house the pubic rami of the ischium that, in this leisure pedalling position, face upwards, whereas the tip faces downwards by 75° (not limiting); in the rear part, facing upwards by 10°-20° (not limiting), the gluteal muscles are housed.

Fig. 8 illustrates a front view of the saddle according to the finding and a dissection of the coccyx bone housed above its surface; four quadrants - q 1 left upper - q 2 right upper - q 3 left lower - q 4 right lower always remain stably in axis with the saddle during any pedalling action that can also be intense or even excessive, also thanks to the support fork described above, allowing all of the muscles of the lower limbs and other vital functions to interact uniformly.

Fig. 9 highlights, with the dissection of the floor of the structures of the perineum, of the ischiatic tuberosities, of the pubic rami of the ischium, of the gluteal muscles and of the genitals, their positioning on the surface of the saddle; the channel 20 houses, without undergoing any compression, in the male the coccyx, the anus, the pudendal arteries, the prostate, the body of the penis, the artery and deep dorsal vein of the penis, the skin of the penis, and the testicles, whereas in the female it houses the vagina, the labia minus and majus and the clitoris.

In this way the blood flow to the penis is total during the pedalling action of the user.

Here below the legend of fig. 9 is shown

- a perimeter of the saddle according to the finding
- b gluteal muscles
- c coccyx
- d anus
- e pudendal arteries
- f prostate body

- g body of the penis
- h artery and deep dorsal vein of the penis
- i skin
- l testicles
- m ischiatic tuberosities
- n pubic rami of the ischium

Fig. 10 shows the perspective view of the dissection of the coccyx bone positioned above the surface of the saddle according to the finding, highlighting how the space occupied by the body of the penis and by the testicles is free from hindrances in points 8, 8' and in parts 9, 9' that go down like an eagle's beak at 30°-45° (not limiting) for the racing saddle and at 75° (not limiting) for the leisure saddle.

Fig. 11 illustrates the rear view of the saddle according to the finding with the dissection of the gluteal muscles of the coccyx and of the sacrum positioned above the surface of the saddle according to the finding; it should be noted that the coccyx is quite detached from the surface of the saddle due to the presence of the depression 21 and that the gluteal muscles rest ergonomically on the lateral surfaces of the saddle, which are inclined downwards by about 45°-60°. The plate 23, which connects the two attachment plates 22-22' of the fork, shall be used to display the brand name of the firm that commercialises the saddle according to the finding.

Fig. 12 illustrates the plan of the leisure saddle according to the finding, which is 20-22cm in length (not limiting), with the rear parts 18-20 cm wide (not limiting), and the central channel 20 and that in the rear part is about

4-5 cm wide and in the front is about 2.5-3 cm wide, with the underlying wall 24 and the opening 25.

Fig. 13 illustrates the plan of the saddle according to the finding for cycling enthusiasts with the rear parts 14 cm wide (not limiting), to end in the front parts with 3.5 - 4.5 cm (not limiting); the middle channel 20 (fig. 1) and the underlying wall 24 with the opening 25, in the rear part, is about 3.5 cm wide and in the front part about 2.5 cm wide and its length is 27 cm for men and 25 cm for women.

Fig. 14 illustrates the plan of the racing saddle according to the finding that, in the rear part, is 13 cm wide (not limiting) and 27 cm long (not limiting); then the section of the constructive detail in the position of points 8 and 8' is illustrated (fig. 1), where it is possible to see that in these points the inner side surfaces open from the bottom towards the top at 30°, so that in this position the central channel 20 (fig.1) in the upper part widens further up to about 3 cm.

This provision is important for the professional cyclist, who during training and competitive races almost always keeps his/her pelvis facing downwards and with the points 8, 8' thus configured (fig.1) the saddle allows the body of the penis to have a satisfactory ergonomic housing, thus avoiding the compression of the artery and of the deep dorsal vein thereof.

In order to meet the substantial and increasing demand for racing bicycle saddles that are as light as possible, fig. 15 illustrates the longitudinal section of the body made only from carbon material.

In order to make the saddle even lighter the rear part that projects upwards of the support fork 13 with which the saddle according to the finding is equipped has been eliminated, replacing it with two elements 31, forming an integral part of the body in object (see fig. 16), which go down until they rest on the rear part of the fork, which in this point is in closed form, to then be fixed in a sandwich in the underlying part, with a suitable plate held by two self-threading screws made from ultra light metal.

## Claims

1. A bicycle saddle suitable for racing having two longitudinally symmetrical identical portions (1, 1') and a length of about 27 cm, comprising:

a) two adjacent rear parts (2, 2') having a total width of about 13 to 14 cm and joined by a hollow shaped section (21) about 4 to 6 cm in length and about 1.5 cm deep, said hollow shaped section (21) being adapted to prevent a cyclist's coccyx from touching said bicycle saddle's surface,

each rear part (2, 2') including a rear portion sloping upwardly at an angle of about  $10^{\circ}$  to  $20^{\circ}$  so as to be adapted to support the cyclist's gluteus muscles, a part (2'', 2''') proximate to said hollow shaped section (21) being substantially flat and having a total width of about 7 cm, a side part (2''', 2''') extending downwardly from each said flat part (2'', 2'''), respectively, at an angle of about  $45^{\circ}$  to  $60^{\circ}$  so as to be adapted to prevent friction against the cyclist's gracilis and adducent muscles during pedaling,

said adjacent rear parts (2, 2') having a recessed rear intermediate zone (3) substantially dove-tailed in shape commencing at an end of said hollow shaped section (21) and terminating at said rear parts (2, 2') at ends (5', 5'') , respectively, about 2.5 to 3 cm apart;

b) two front portions (7'', 7''') joined respectively to the flat parts (2'', 2''') of said adjacent rear parts (2, 2') sloping upwardly from the juncture of said front portions (7'', 7''') with said flat parts (2'', 2''') at an angle of about  $5^{\circ}$ , the bicycle saddle having a width at the juncture of said front portions (7'', 7''') with said flat parts (2'', 2''') of about 6 to 8 cm narrowing towards a front end of said bicycle saddle to about 4 to 4.5 cm, said front portions (7'', 7''') having sides extending substantially perpendicularly downward, the cyclist's ischiatic tuberosities and ischial pubic rami being supportable on said flat parts (2'', 2''') and front portions (7'', 7''') , respectively;

c) two front end sections (9, 9') continuing from said front portions (7'', 7'''), respectively, said front end sections (9, 9') sloping downwardly in a substantially hook shaped curve at an angle of about  $30^{\circ}$  to  $45^{\circ}$  and uniting at the front end of said bicycle saddle in a substantially semi-circular shape having a diameter of about 3.5 to 4cm, the downward sloping of said front end sections (9, 9') being adapted to prevent compression of the cyclist's

genitals and compression of the deep dorsal artery and vein so as to maintain normal blood flow;

d) a central channel (20) commencing at a front terminus of said hollow shaped section (21) with a semi-circular shape having a diameter of about 3cm which narrows to a width of about 2.5 cm and terminating at the front end of said bicycle saddle with a semi-circular shape and having a depth from the bottom of said central channel (20) to the top surface thereof of about 1 cm, said central channel (20) separating unjoined portions of said rear parts (2, 2'), said front portions (7", 7'') and said front end sections (9, 9'), the cyclist's perineum being disposable above said central channel (20) so that the structures thereof are not compressed, whereby the cyclist is supportable on said bicycle saddle exclusively on the gluteus muscles, the isciatic tuberosity, and the pubic ischium; and

e) a wall (24) disposed at the bottom of said central channel (20) whereby to establish a housing to receive the vascularizations and structure of the floor of the perineum and genitals of the cyclist sitting on the saddle, said wall (24) closing the bottom of said central channel (20) so as to shield said housing from the environment therebelow and protect the cyclist's organs therefrom.

2. The bicycle saddle as defined in Claim 1, wherein said wall (24) disposed at the bottom of said central channel (20) is provided with a small opening (25) in the vicinity of said front end sections (9, 9') so as to facilitate the egress of fluids and dusts built up in the housing formed by the central channel (20) and wall (24) during use.

3. The bicycle saddle as defined in claim 2, which further comprises a soft upper padding attached to and overlying said bicycle saddle wherein on the rear parts (2, 2') the thickness of said padding is about 2 to 10 mm, said thickness increasing to about 10 to 15 mm on said front portions (7", 7'') and then decreasing to about 3 mm on said front end sections (9, 9').

4. The bicycle saddle as defined in claim 3, wherein the padding is formed of a material selected from the group consisting of soft compact or expanded polyurethane, expanded bicomponent elastomer polyurethane, styrol-butylene styrol, and expanded vulcanized rubber.

5. The bicycle saddle as defined in claim 1, wherein a padding is fixed on said bicycle saddle, said bicycle saddle being composed of a material selected from the group consisting of plastic, nylon plastic plus carbon, and carbon; and on an underlying surface of said bicycle saddle at said rear parts (2, 2') two protruding elements having a prismatic form and having central seats shaped to accept a support rail (13) are provided, two small plates (22, 22') are provided to secure the support rail to said protruding elements, respectively, by selfthreading screws; and along an external perimeter of said bicycle saddle a ridge (18) is provided having a width of about 6 mm and a thickness of about 3.5 mm to which a leather covering of the bicycle saddle is secured.

6. The bicycle saddle as defined in claim 1, wherein said channel (20) at said front portions (7", 7'") and said front end sections (9, 9') opens from below in an upward direction at an angle of about 30° thereby increasing the width of said channel (20) to about 3 cm so that a larger ergonomic space is provided.

7. A bicycle saddle suitable for touring having two longitudinally symmetrical identical portions (1, 1') and a length of about 20 to 22 cm, comprising:

a) two adjacent rear parts (2, 2') having a total width of about 18 to 22 cm and joined by a hollow shaped section (21) about 4 to 6 cm in length and about 1.5 cm deep, said hollow shaped section (21) being adapted to prevent a cyclist's coccyx from touching said bicycle saddle's surface,

each rear part (2, 2') including a rear portion sloping upwardly at an angle of about 10° to 20° so as to be adapted to support the cyclist's gluteus muscles, a part (2", 2'") proximate to said hollow shaped section (21) being substantially flat and having a total width of about 7 cm, a side part (2''', 2''') extending downwardly from each said flat part (2", 2''), respectively, at an angle of about 45° to 60° so as to be adapted to prevent friction against the cyclist's gracilis and adducent muscles during pedaling,

said adjacent rear parts (2, 2') having a recessed rear intermediate zone (3) substantially dove-tailed in shape commencing at an end of said hollow shaped section (21) and terminating at said rear parts (2, 2') at ends (5', 5''), respectively, about 2.5 to 3 cm apart;

b) two front portions (7", 7'") joined respectively to the flat parts (2", 2'") of said adjacent rear parts (2, 2') sloping upwardly from the juncture of said front portions (7", 7'") with said flat parts (2", 2'") at an angle of about 10° to 20°, the bicycle saddle having a width at the juncture of said front portions (7", 7'") with said flat parts (2", 2'") of about 6 to 8 cm narrowing towards a front end of said bicycle saddle to about 4 to 4.5 cm, said front portions (7", 7'") having sides extending substantially perpendicularly downward, the cyclist's isciatic tuberosities and ischial pubic rami being supportable on said flat parts (2", 2'") and front portions (7", 7'"), respectively;

c) two front end sections (9, 9') continuing from said front portions (7", 7'"), respectively, said front end sections (9, 9') sloping downwardly in a substantially hook shaped curve at an angle of about 75° and uniting at the front end of said bicycle saddle in a substantially semi-circular shape having a diameter of about 3.5 to 4cm, the downward sloping of said front end sections (9, 9') being adapted to prevent compression of the cyclist's genitals and compression of the deep dorsal artery and vein so as to maintain normal blood flow;

d) a central channel (20) commencing at a front terminus of said hollow shaped section (21) with a semi-circular shape having a diameter of about 4 to 5 cm which narrows to a width of about 2.5 to 3 cm and terminating at the front end of said bicycle saddle with a semi-circular shape and having a depth from the bottom of said central channel (20) to the top surface thereof of about 1 cm, said central channel (20) separating unjoined portions of said rear parts (2, 2'), said front portions (7", 7'") and said front end sections (9, 9'), the cyclist's perineum being disposable above said central channel (20) so that the structures thereof are not compressed, whereby the cyclist is supportable on said bicycle saddle exclusively on the gluteus muscles, the isciatic tuberosity, and the pubic ischium; and

e) a wall (24) disposed at the bottom of said central channel (20) whereby to establish a housing to receive the vascularizations and structures of the floor of the perineum and genitals of the cyclist sitting on the saddle, said wall (24) closing the bottom of said central channel (20) so as to shield said housing from an environment therebelow and protect the cyclist's organs therefrom.

8. The bicycle saddle as defined in claim 7, wherein said wall (24) disposed at the bottom of said central channel (20) is provided with a small opening (25) in the vicinity of said front end sections (9, 9') so as to facilitate the egress of fluids and dusts built up in the housing formed by the central channel (20) and wall (24) during use.

9. The bicycle saddle as defined in claim 8, which further comprises a soft upper padding attached to and overlying said bicycle saddle wherein on the rear parts (2, 2') thickness of said padding is about 2 to 10 mm, said thickness increasing to about 10 to 15 mm on said front portions (7", 7'") and then decreasing to about 3 mm on said front end sections (9, 9').

10. The bicycle saddle as defined in claim 9, wherein the padding is formed of a material selected from the group consisting of soft compact or expanded polyurethane, expanded bicomponent elastomer polyurethane, styrol-butylene styrol, and expanded vulcanized rubber.

11. The bicycle saddle as defined in claim 7, wherein a padding is fixed on said bicycle saddle, said bicycle saddle being composed of a material selected from the group consisting of plastic, nylon plastic plus carbon, and carbon; and on an underlying surface of said bicycle saddle at said rear parts (2, 2') two protruding elements having a prismatic form and having central seats shaped to accept a support rail (13) are provided, two small plates (22, 22') are provided to secure the support rail to said protruding elements, respectively, by selfthreading screws; and along an external perimeter of said bicycle saddles a ridge (18) is provided having a width of about 6 mm and a thickness of about 3.5 mm to which a leather covering of the bicycle saddle is secured.

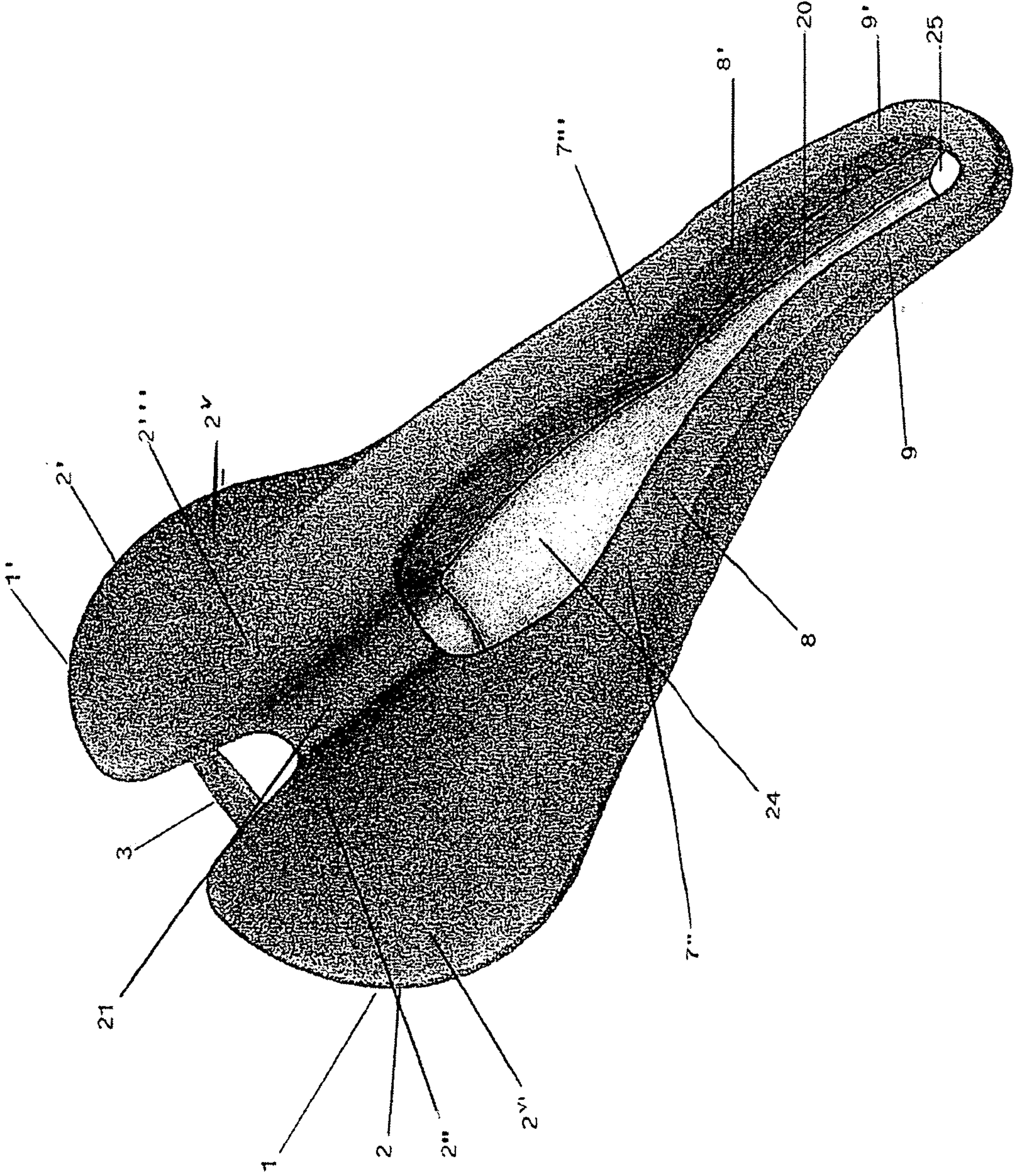


fig. 1

2 / 19

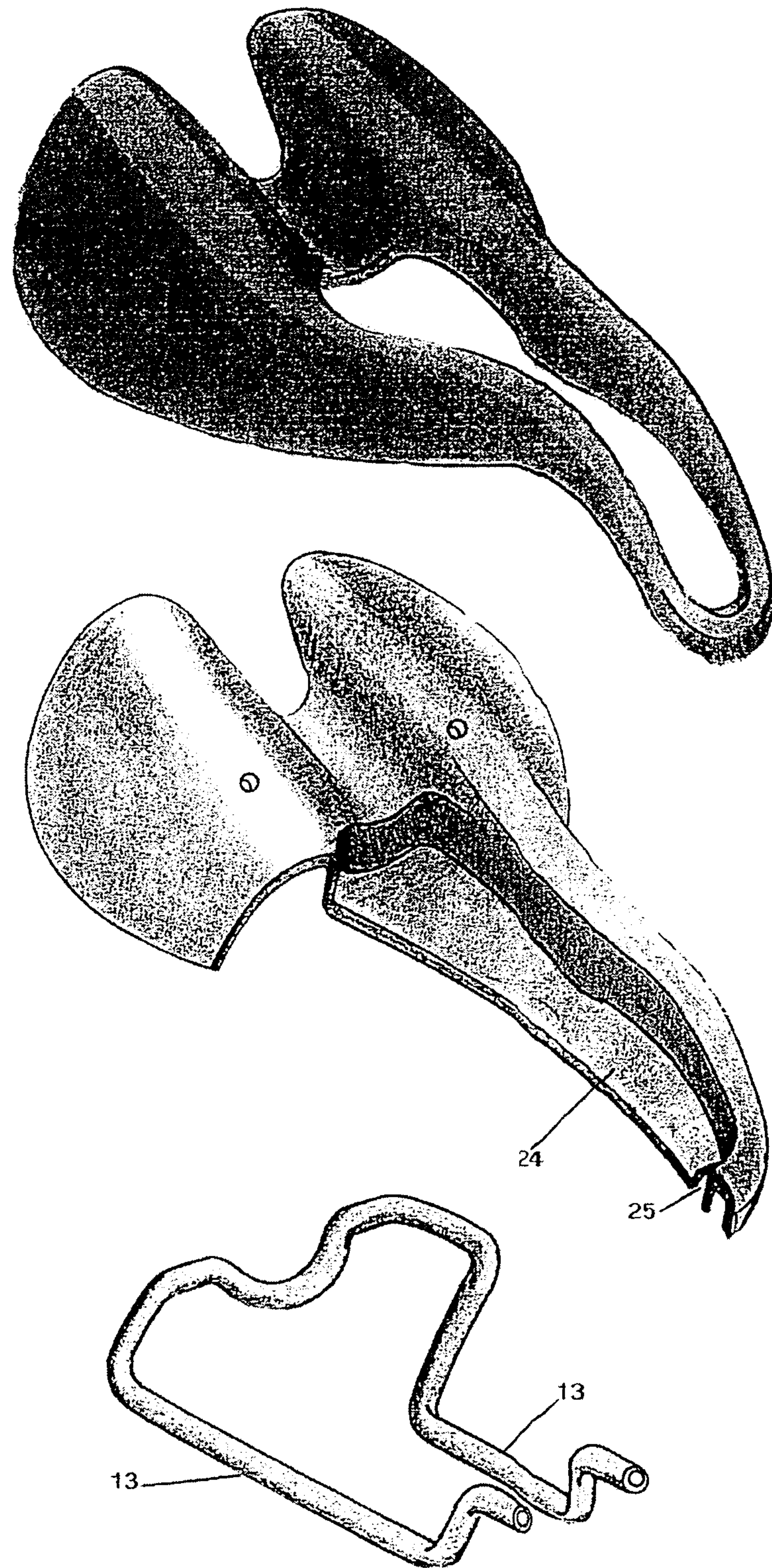


fig. 1 bis

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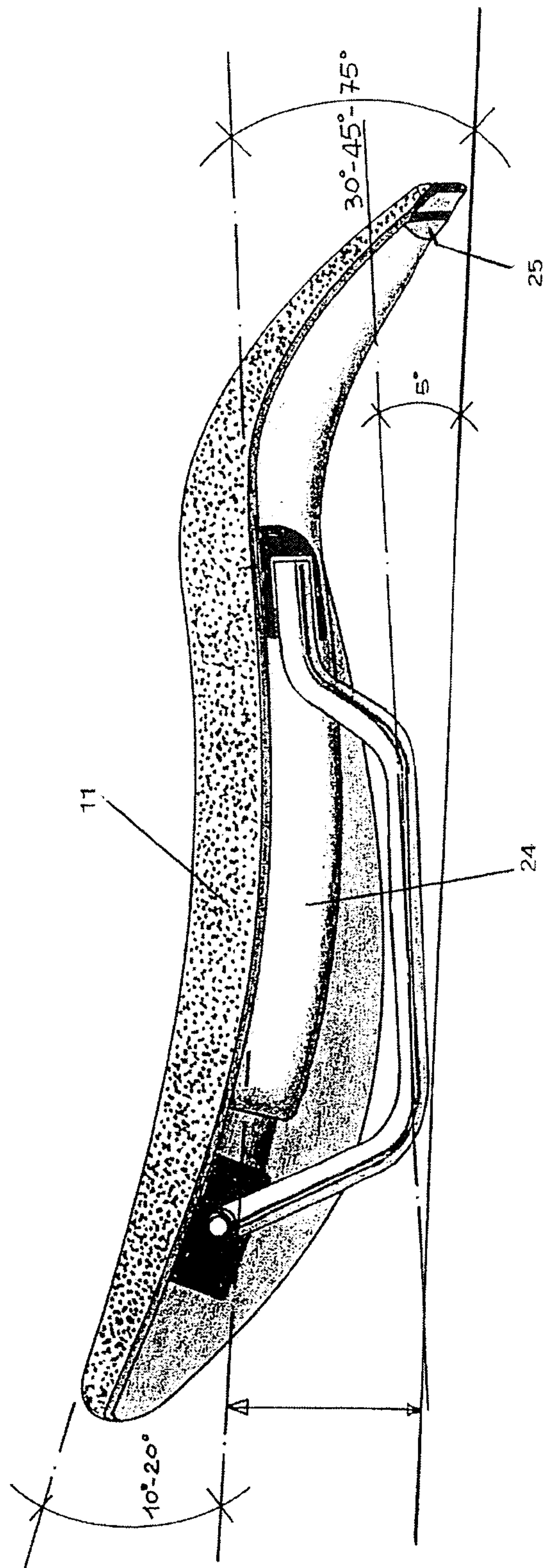
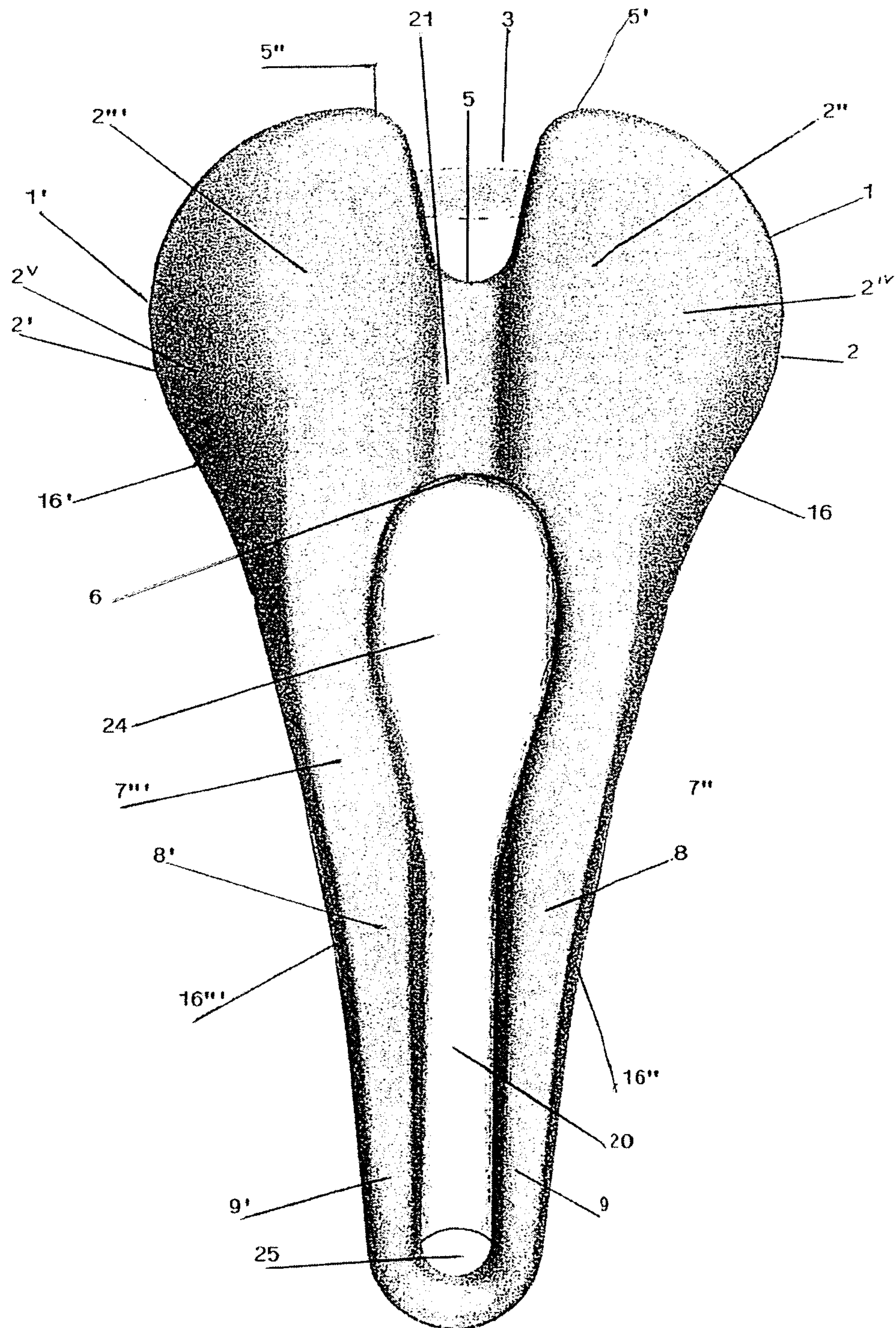


fig. 2

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fig. 3



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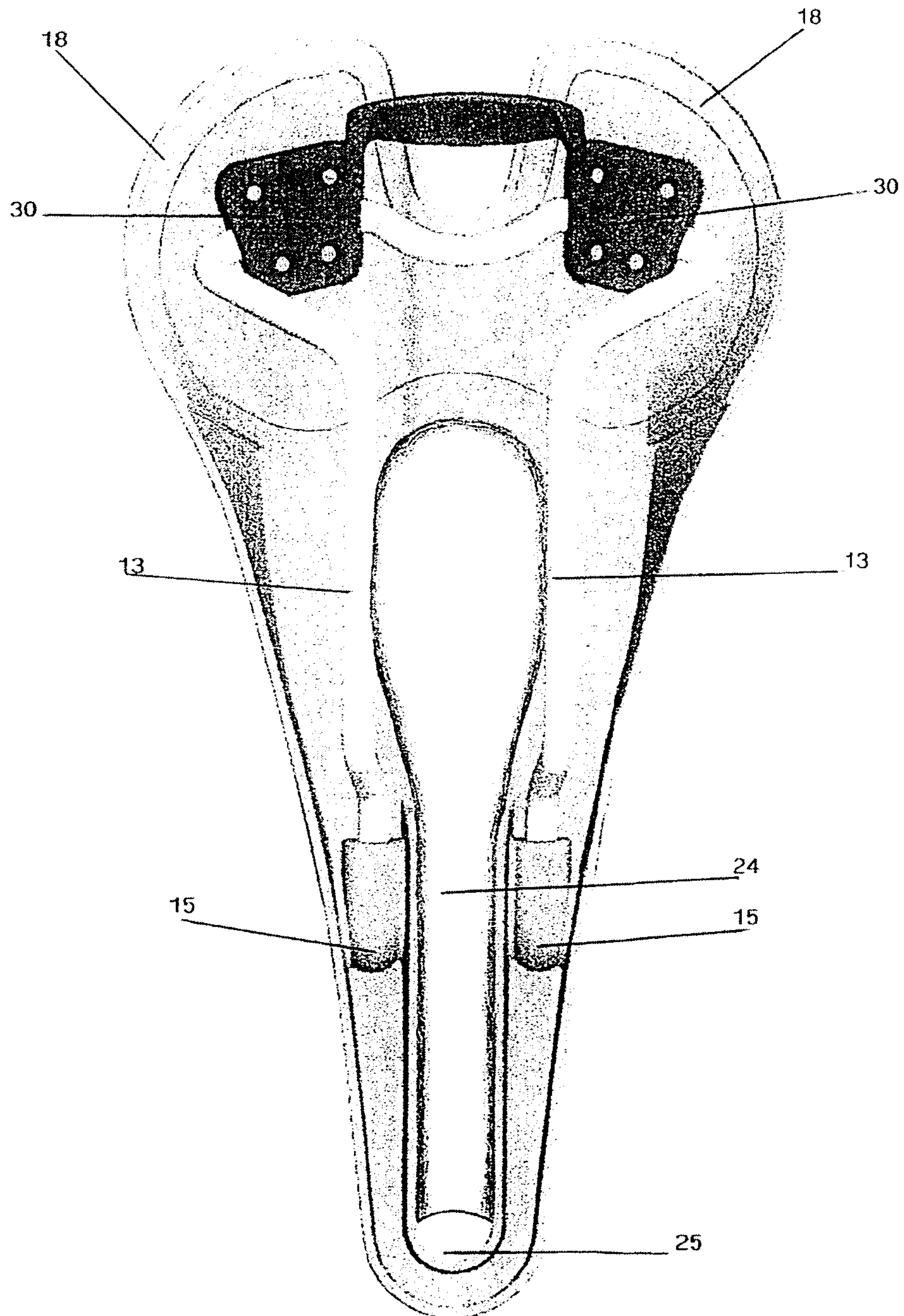


fig. 4

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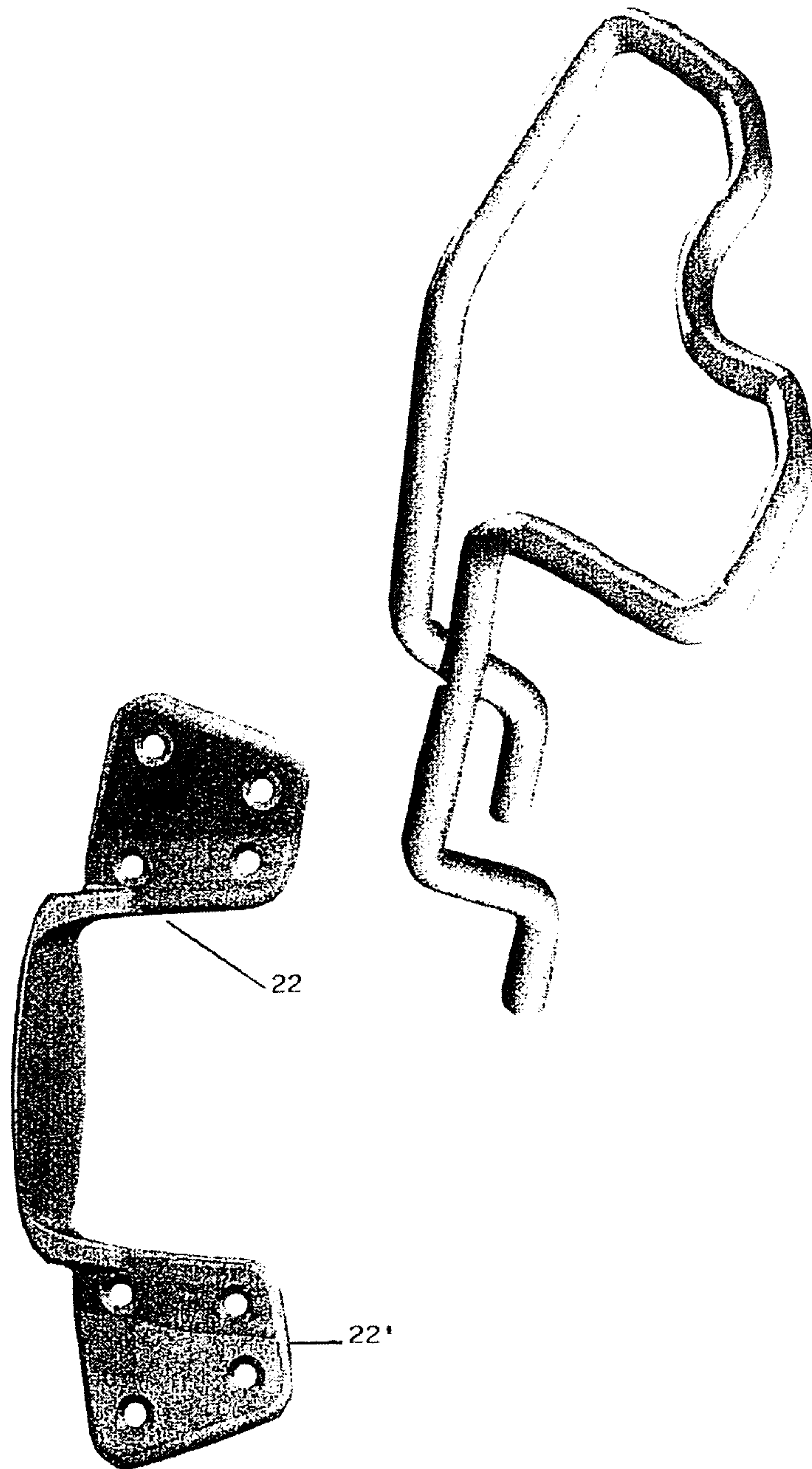


fig. 5

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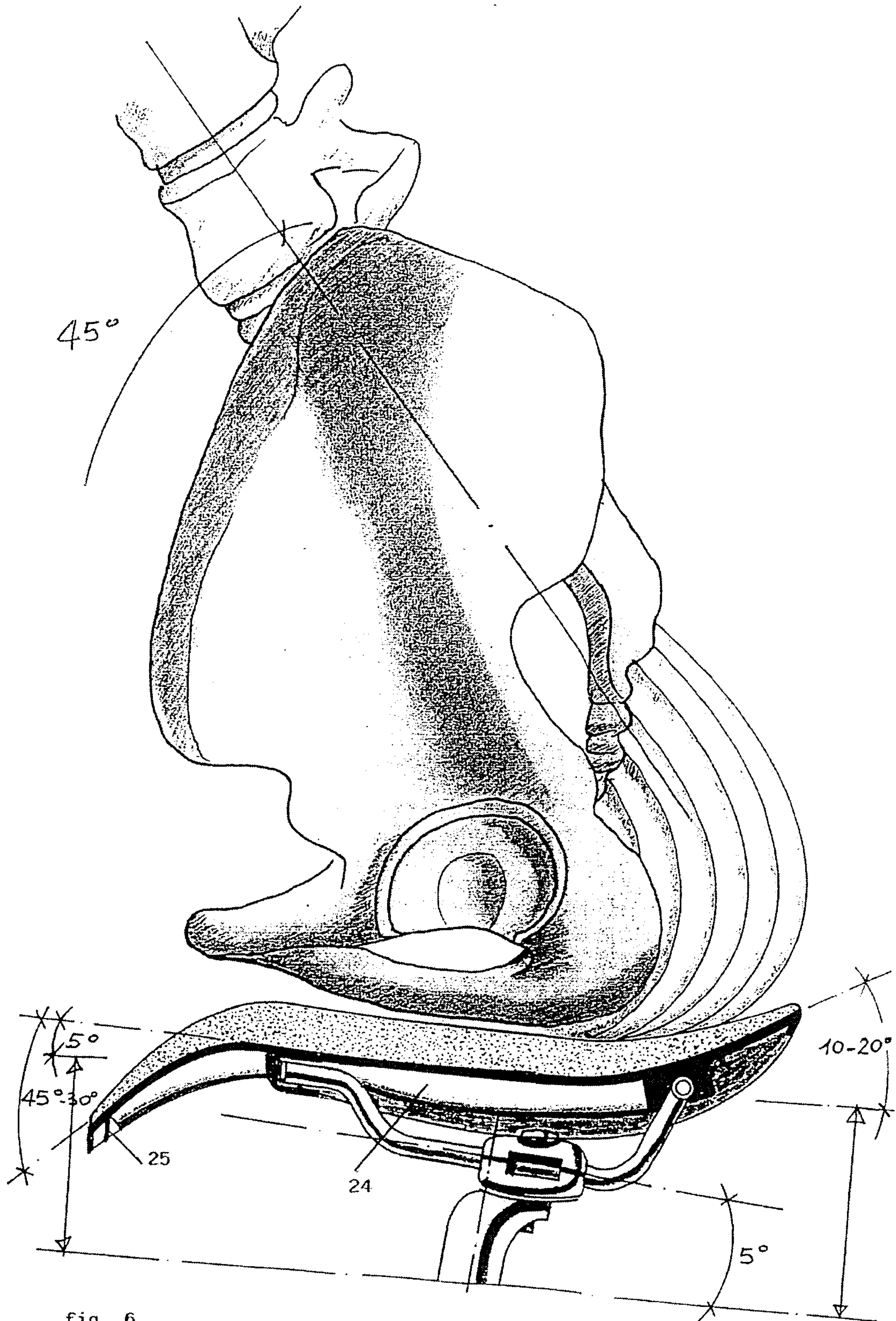


fig. 6

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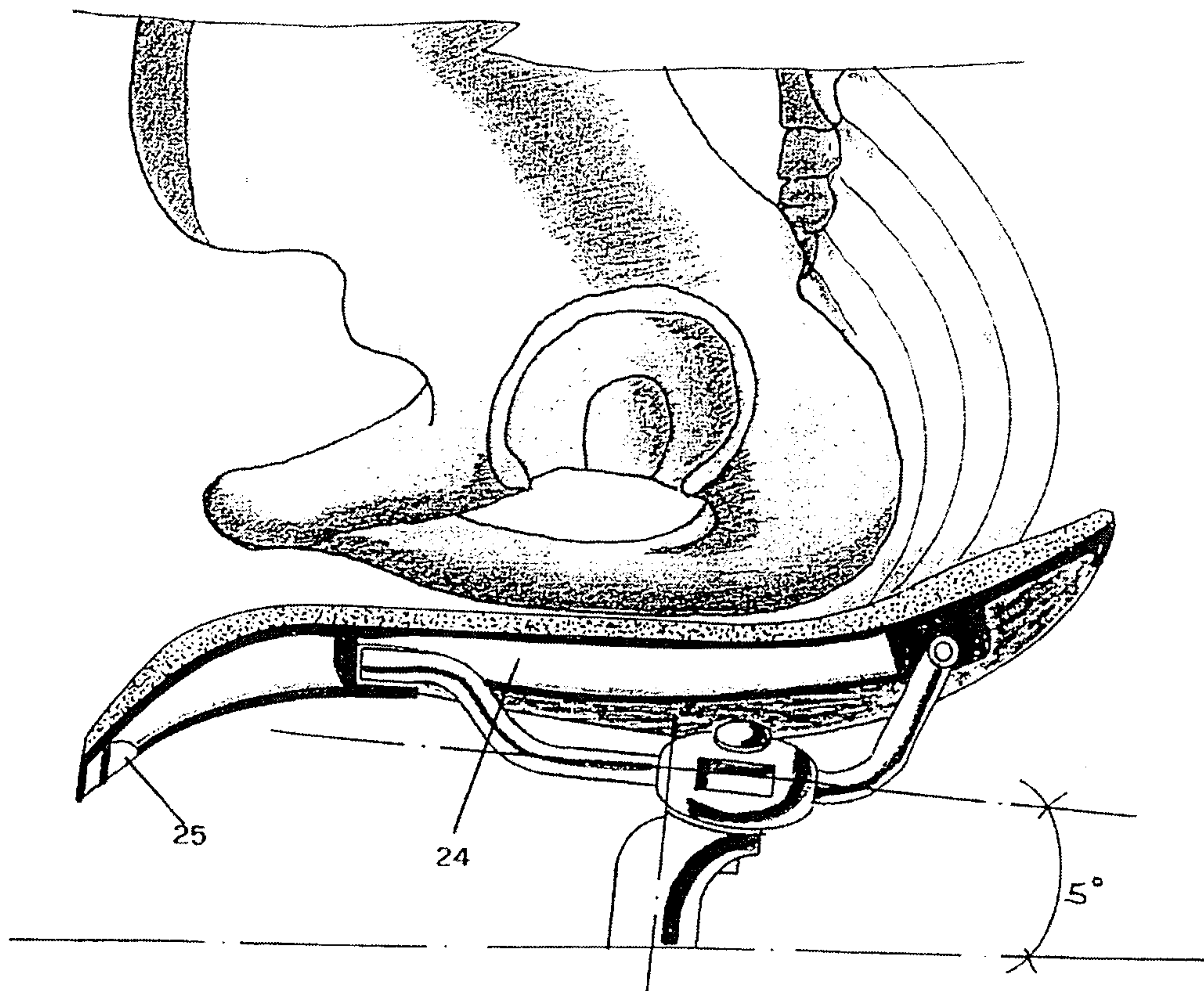


fig. 6 bis

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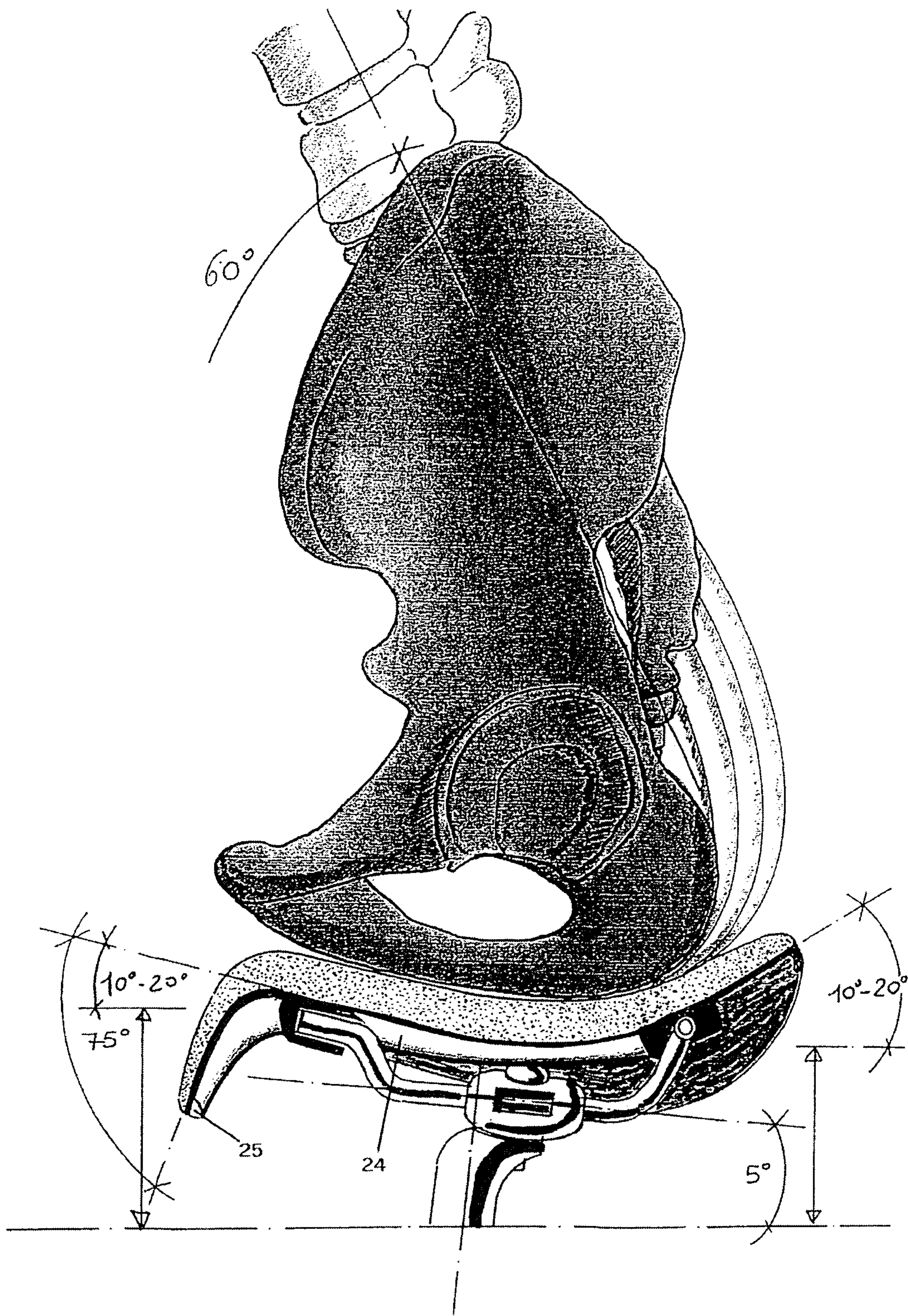


fig. 7

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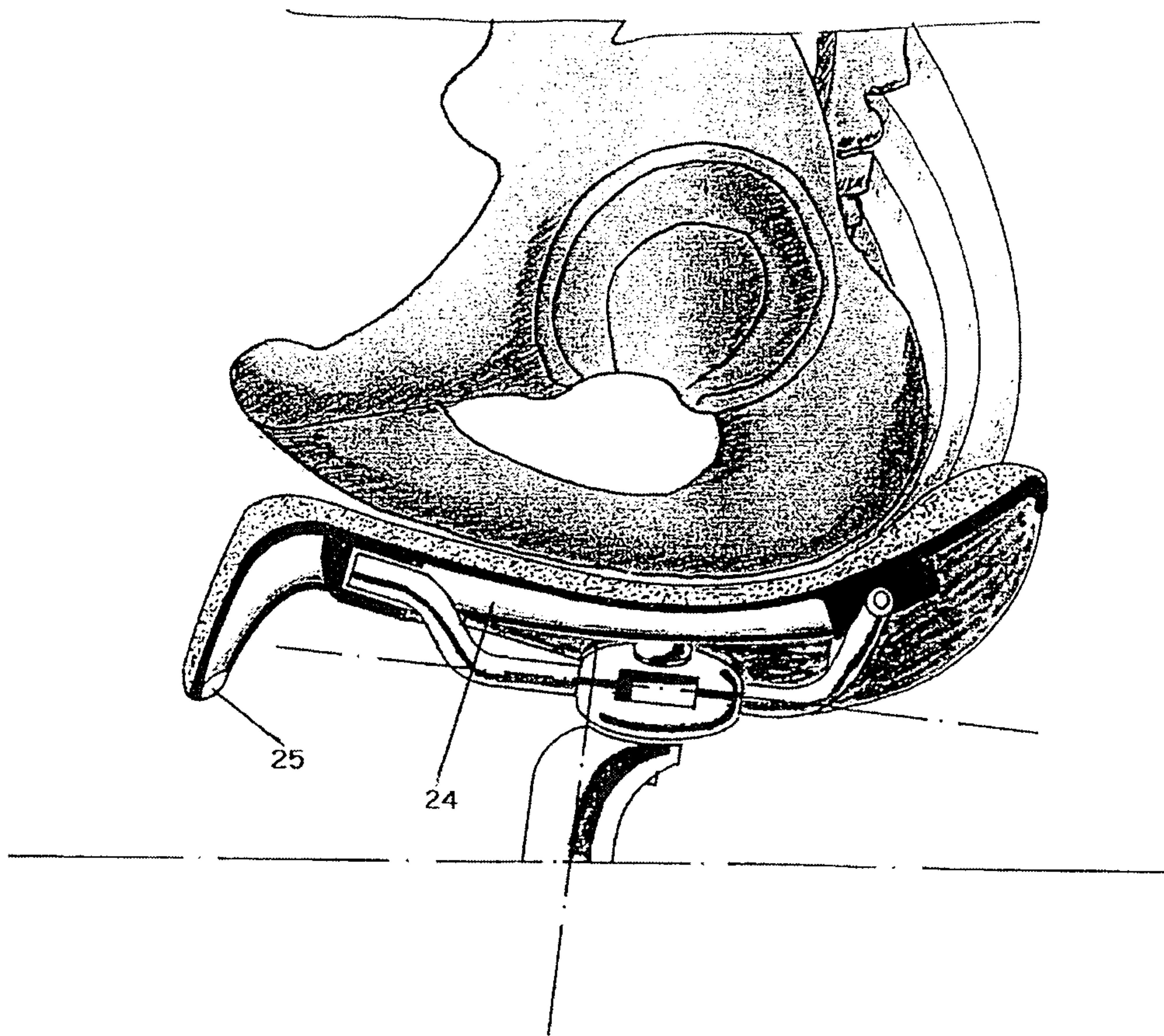


fig. 7 bis

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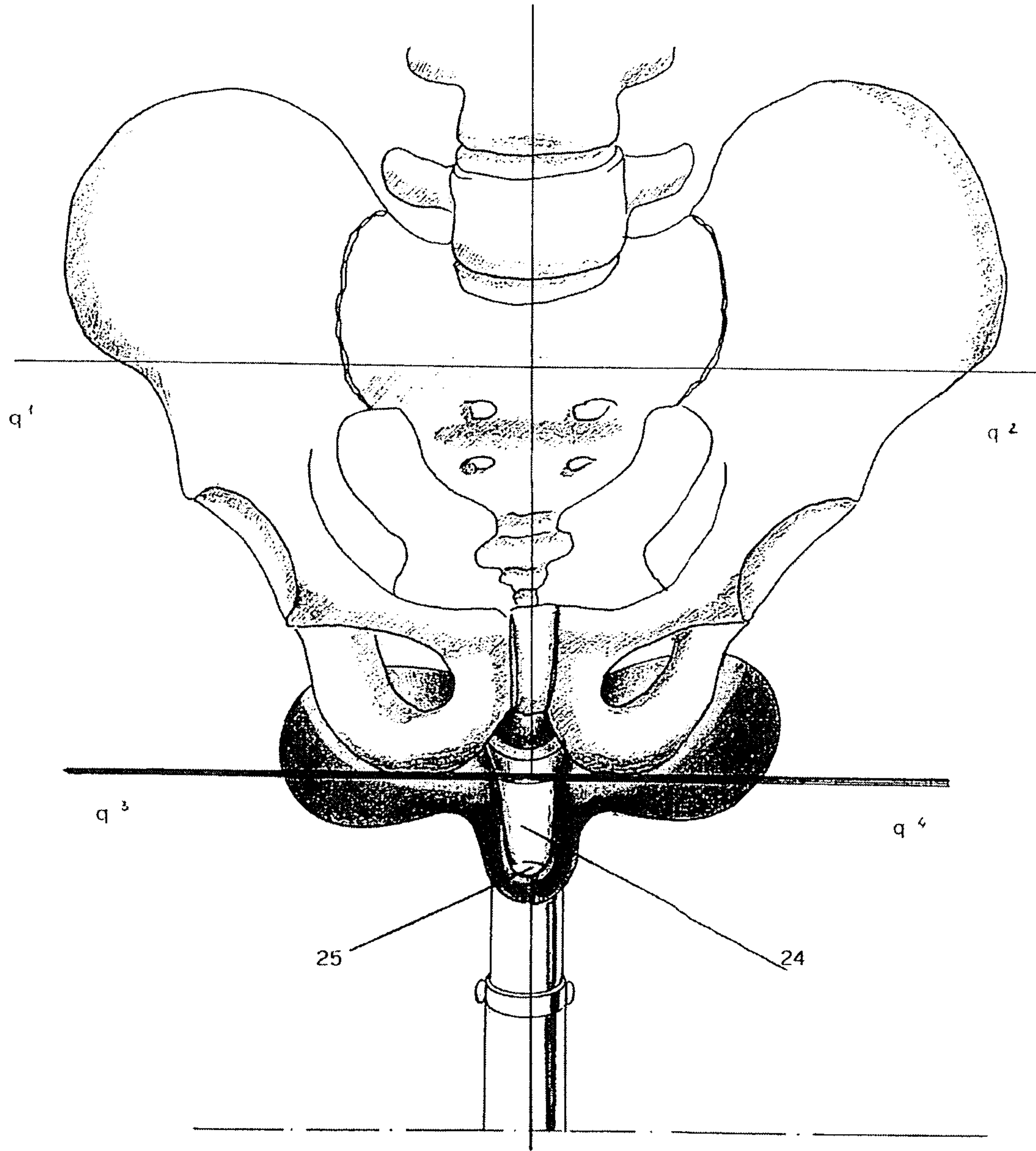


fig. 8

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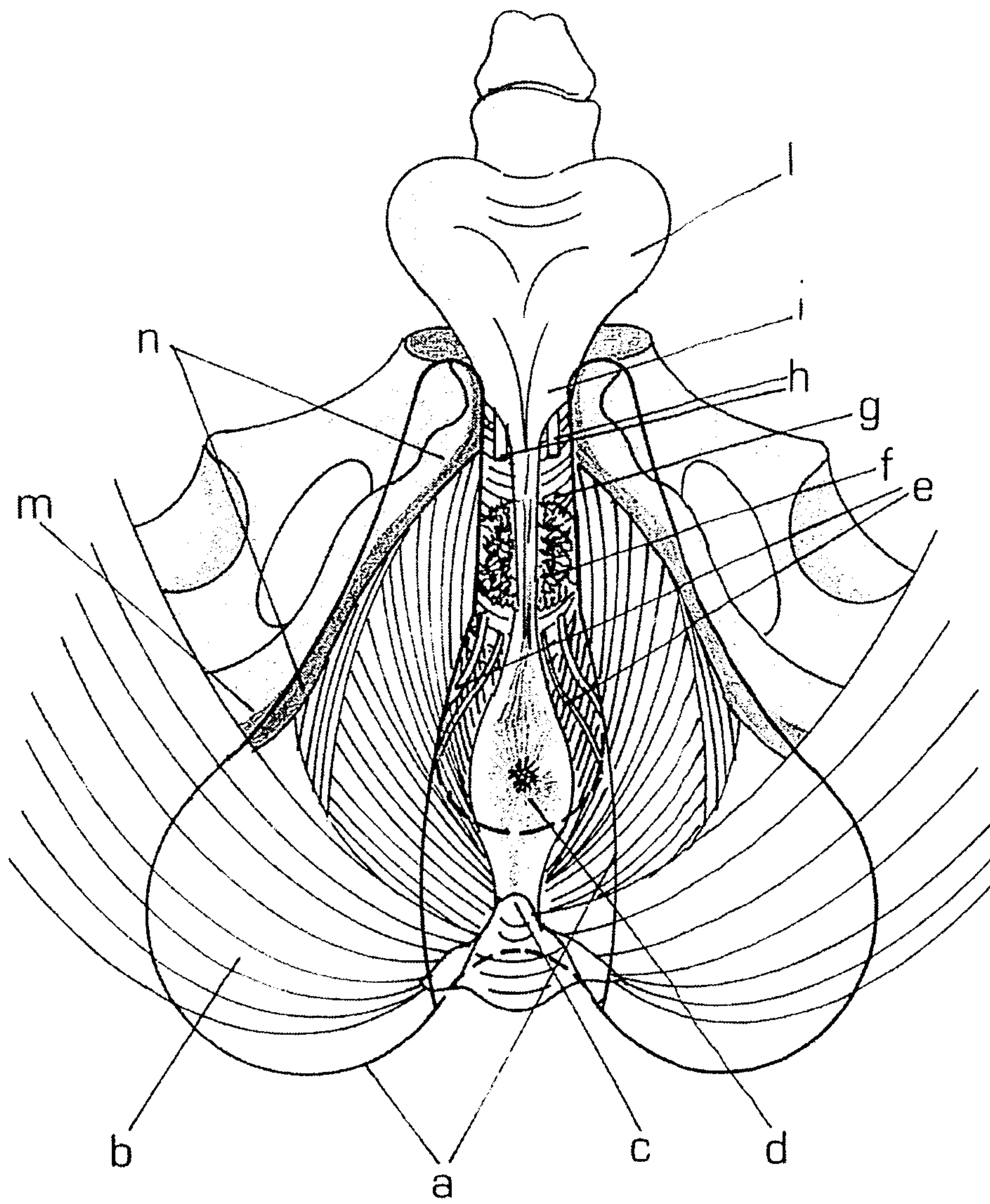


fig. 9

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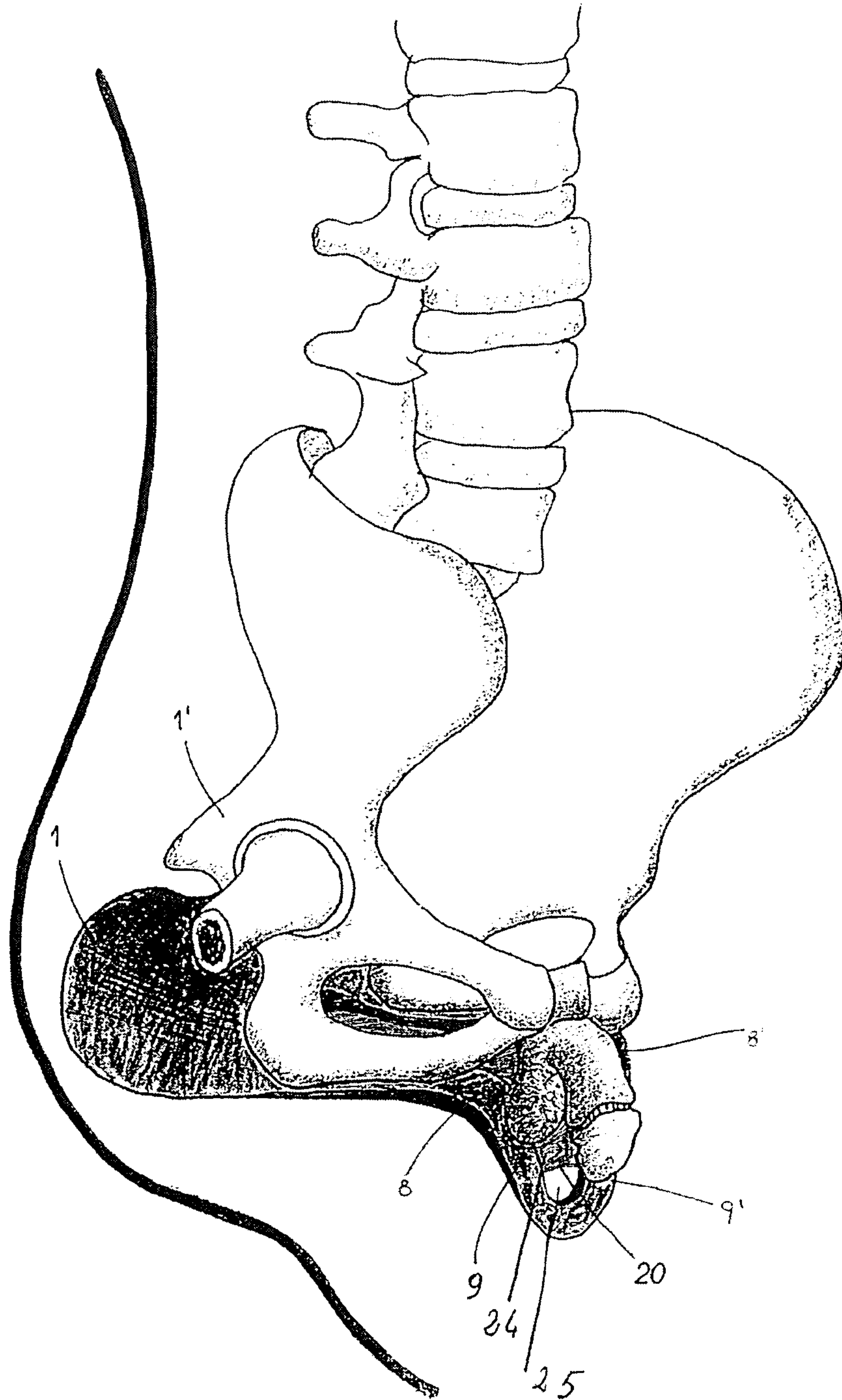


fig. 10

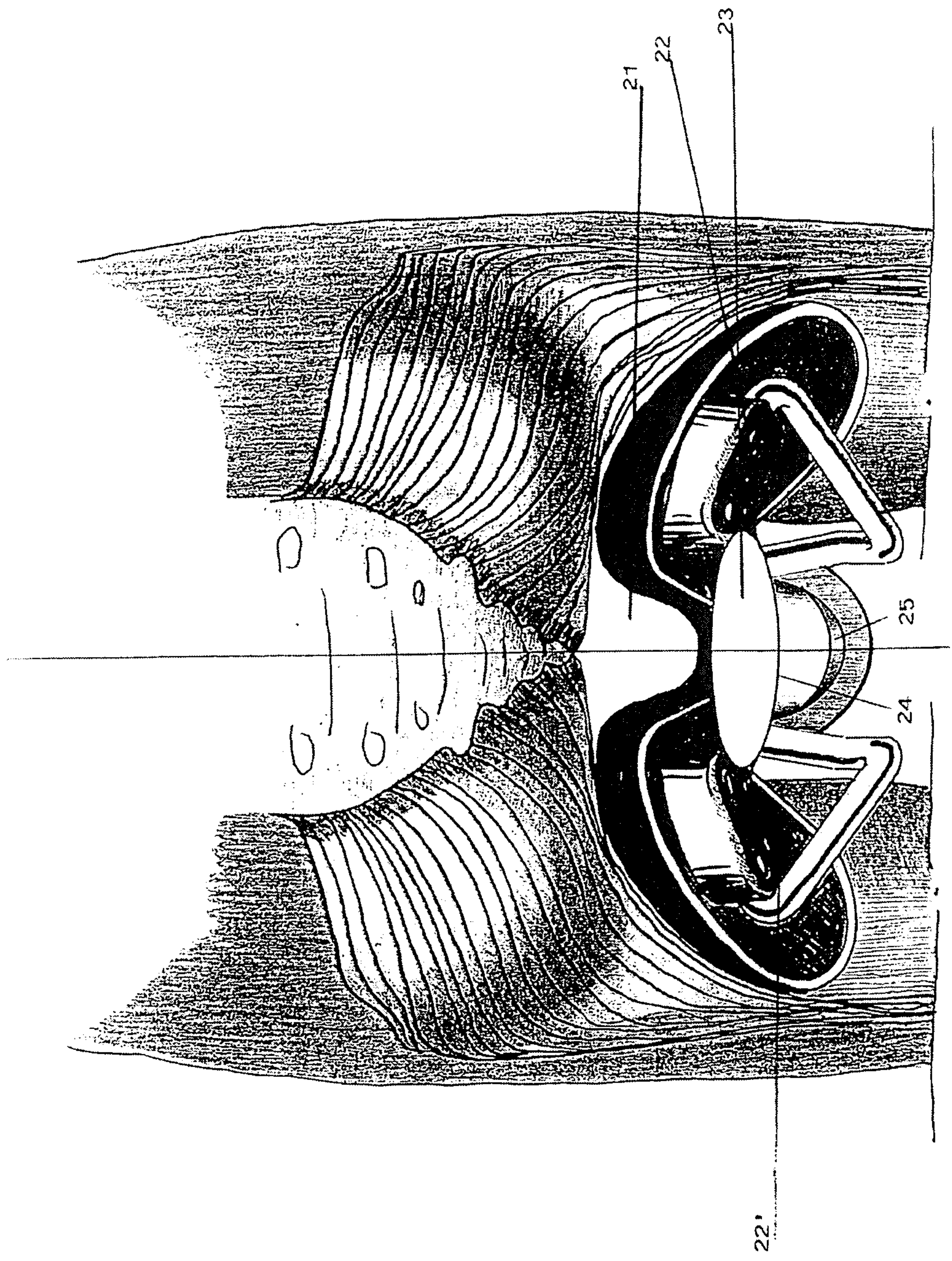


fig. 11

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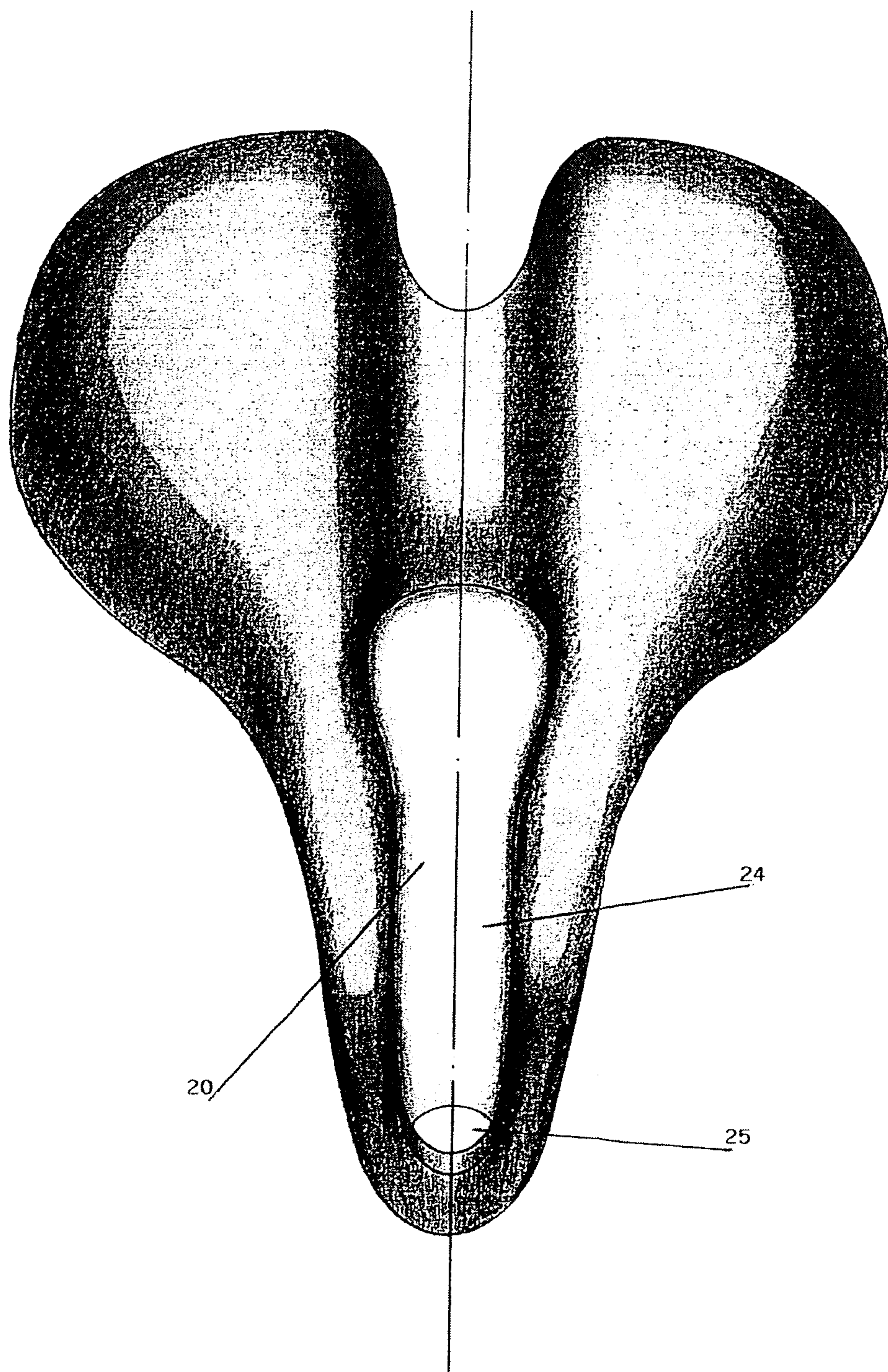


fig. 12

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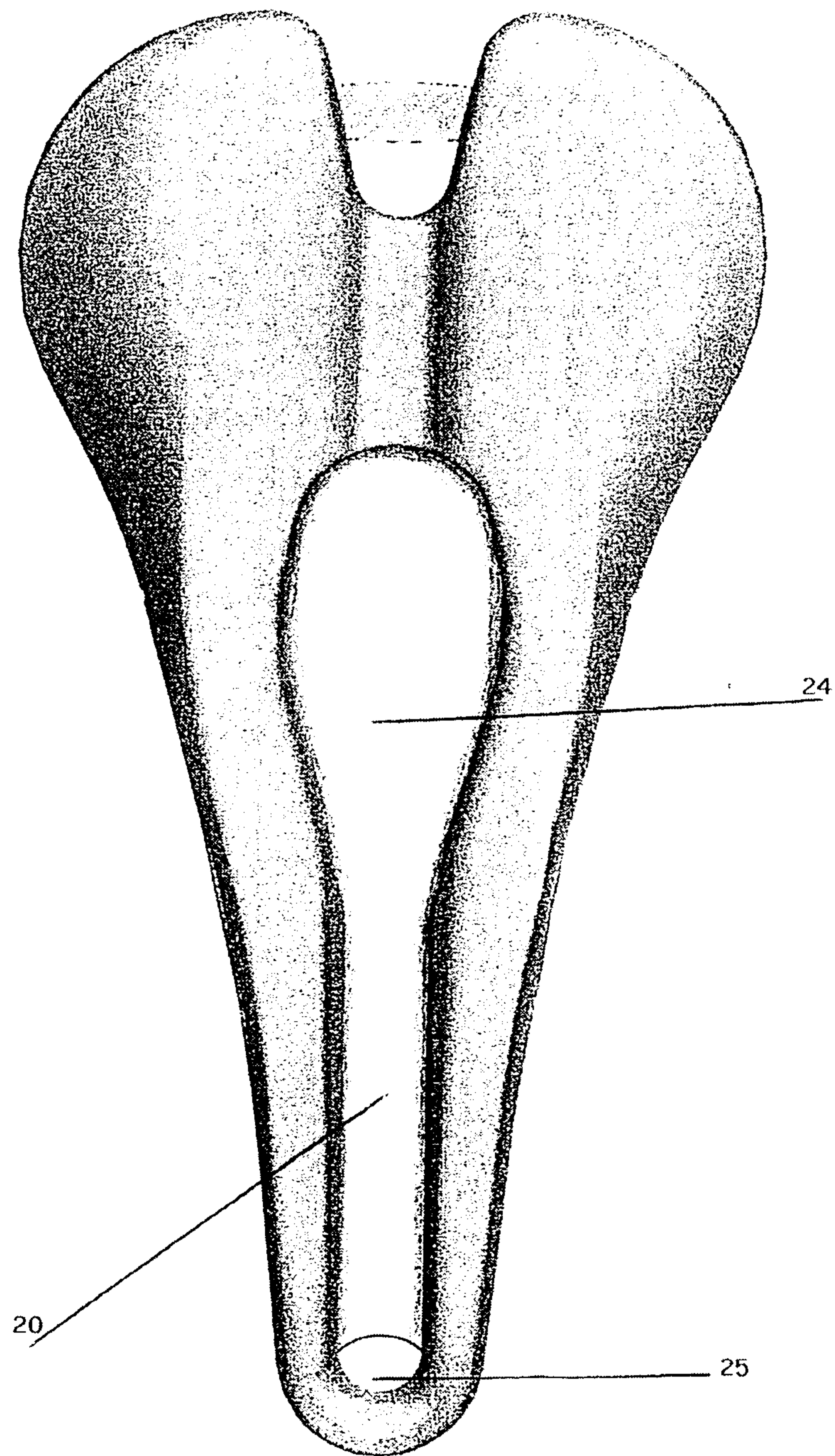


fig. 13

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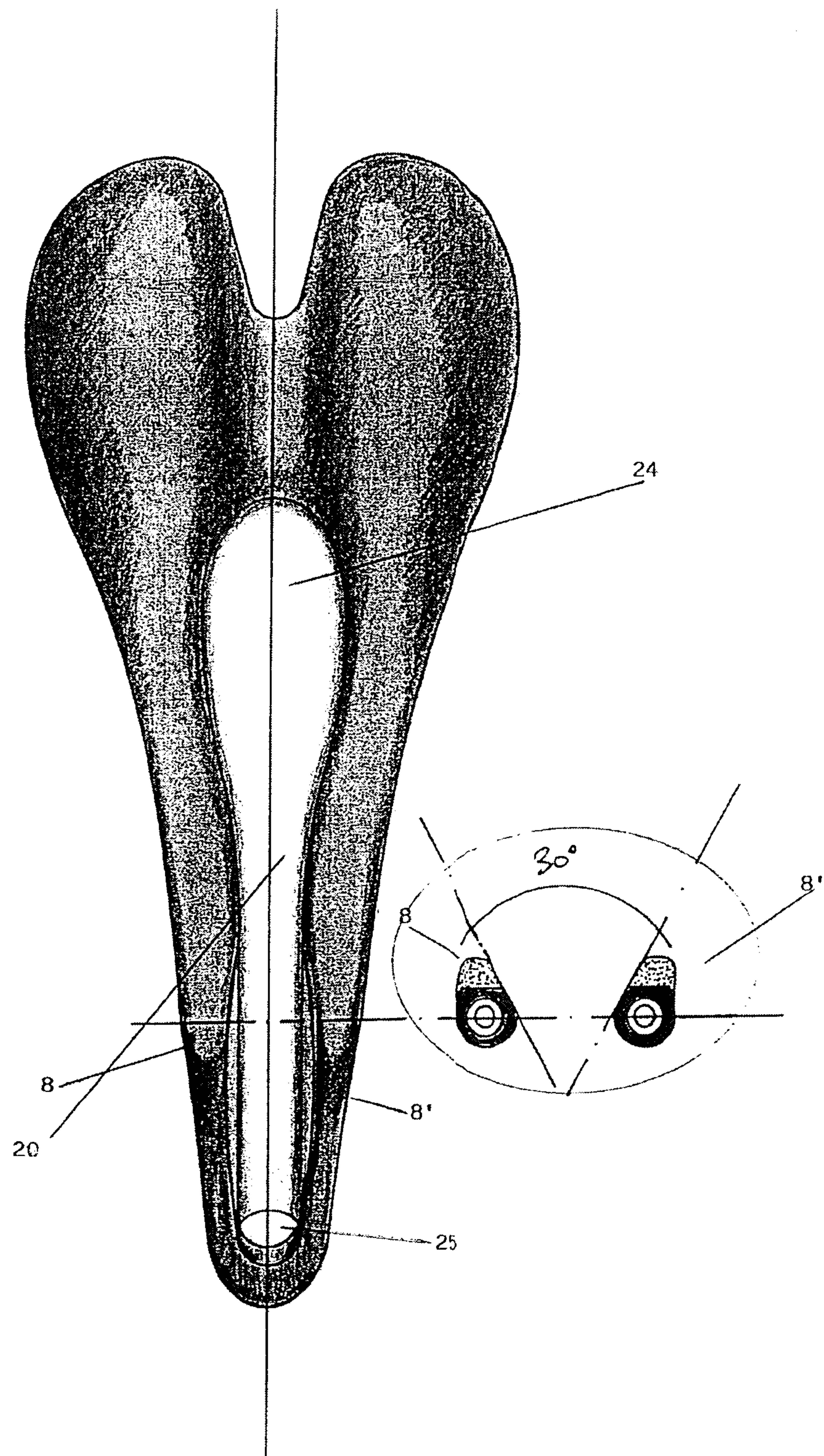


fig. 14

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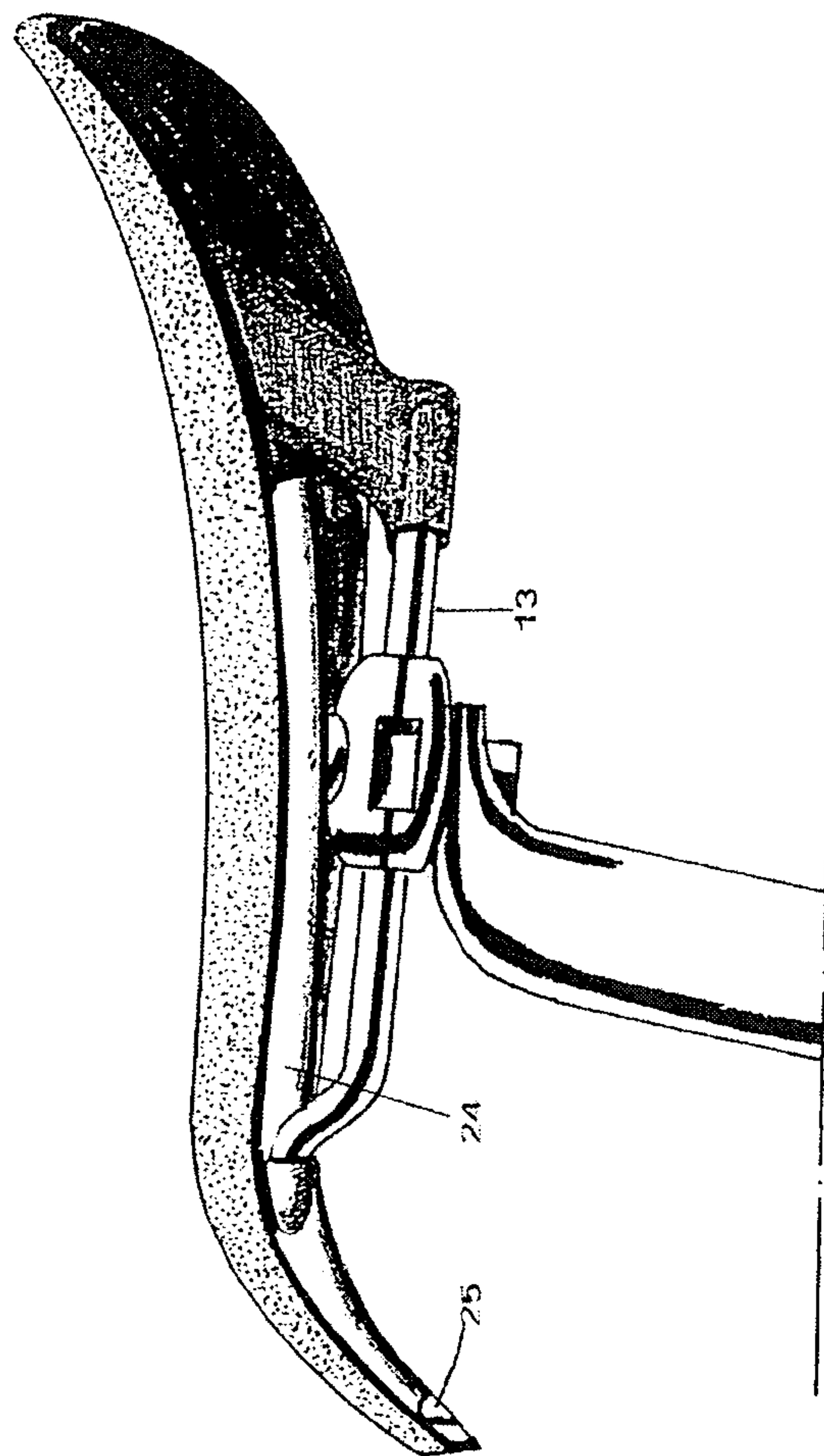


fig. 15

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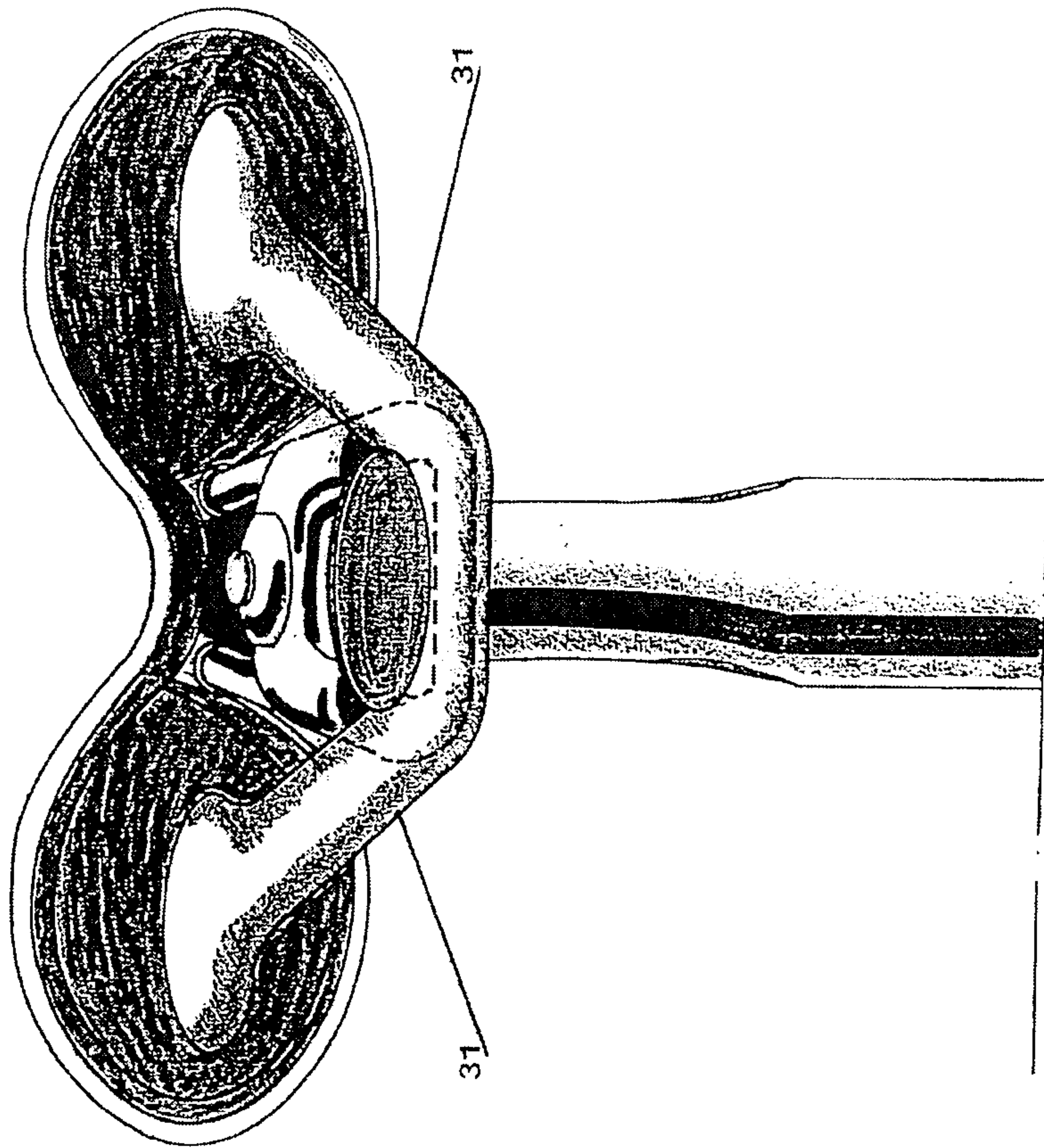


fig. 16

