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(54) **SUPPORT FOR USER**

(57) The present invention relates to a support configured for supporting a user, particularly for housing and supporting the head of a user.

Likewise, the present invention also relates to a structure comprising a support such as the one mentioned.

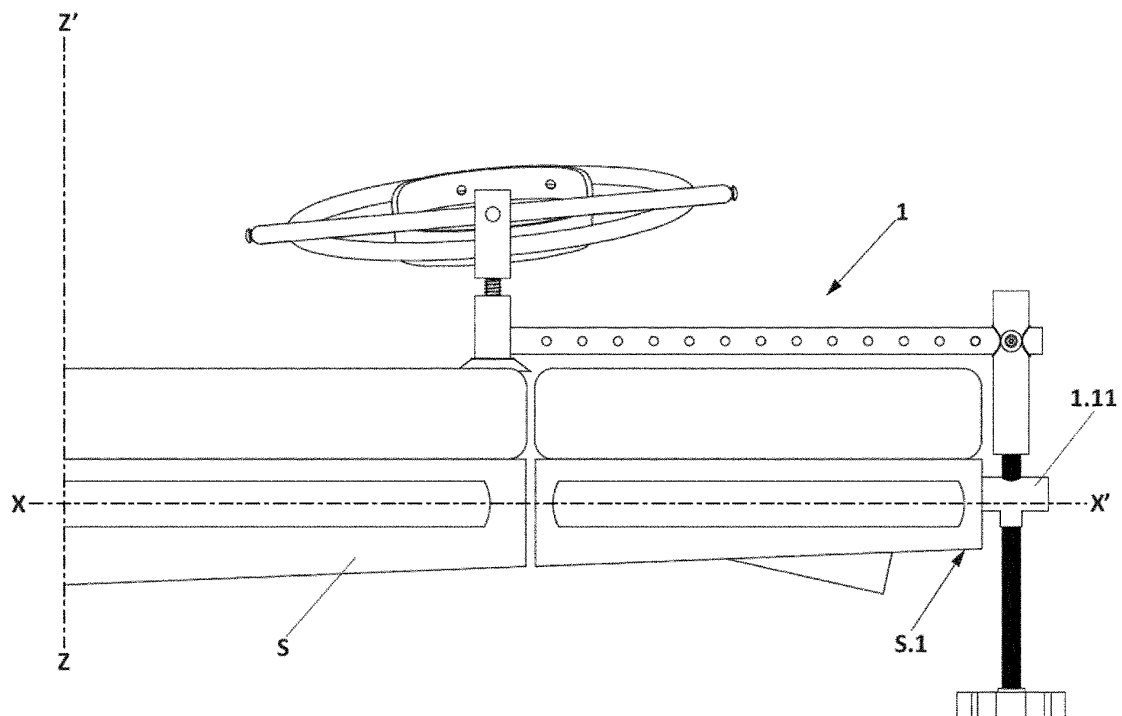


FIG. 3

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a support configured for supporting a user, particularly the head of said user, with said support in turn being configured for housing and orienting the head of this user.

[0002] In a particular embodiment, the present support further comprises an image display device, preferably virtual reality glasses, such that the present support allows said image display device to be held in a suitable position while a user is using same.

[0003] Likewise, the present invention also relates to a structure comprising a support such as the one mentioned, preferably the structure is a medical structure, such as an operating table.

BACKGROUND OF THE INVENTION

[0004] First, supports which allow supporting and housing the head of a user in a specific position are already known in the current state of the art, particularly, supports which allow maintaining the position of the head of a user during a particular activity, such as a surgical operation, thereby maintaining the proper position of the user for the required time, are known.

[0005] However, supports of this type only allow immobilizing the head of the user in a particular predefined position, so the position of the head of the user in the support must be relocated in order to perform any additional movement.

[0006] Additionally, this causes misalignments and unbalanced positions where the head of the user contacts the support, which are more problematic in the case of the user being in prone position.

[0007] Likewise, structures, such as operating tables, which comprise a support for housing and orienting the head of a user during the performance of an activity, such as a surgical operation, are also known.

[0008] These structures have the same drawbacks as those mentioned for the support.

[0009] In this way, two fundamental problems arise: the possible erroneous or unstable positioning of a user in a situation that requires high precision, as well as the lack of freedom of movement of the user, particularly the head of said user, during the performance of said activity. Additionally, this implies extreme discomfort for said user.

[0010] Moreover, structures, such as operating tables, wherein the support further comprises a display device that can be fitted to the head of the user, for use during the corresponding activity, are also known.

[0011] However, this assembly presents the same problems indicated above, based on the lack of freedom of movement of the user and the precariousness of his/her position, particularly the position of his/her head, supported by a particular element.

[0012] The present invention allows solving the men-

tioned problems, which are not solved in the current state of the art, by means of a support for housing and orienting the head of a user, as well as a structure, for example, an operating table, comprising a support such as the one indicated.

DESCRIPTION OF THE INVENTION

[0013] The present invention allows solving the mentioned problems, which are not solved in the current state of the art, and avoiding the mentioned drawbacks.

[0014] In this way, the present invention relates to a support for housing and orienting the head of a user which has greater freedom of movement, as well as suitable stability to maintain the optimal position during the activity to be performed.

[0015] Likewise, the invention also envisages a structure, for example, an operating table, comprising a support such as the one indicated, as well as a structure which in turn comprises image display means housed in said support.

[0016] Therefore, the first inventive aspect relates to a support configured for housing and orienting the head of a user, comprising:

- a first structural element, contained in a plane defined by a longitudinal direction X-X' and a first transverse direction Y-Y', transverse to the longitudinal direction X-X',
- a second structural element coplanar with the first structural element, and wherein the second structural element is coupled to the first structural element by first attachment means,
- securing means, attached to the first structural element by second attachment means,
- support means configured for being supported on an essentially planar surface, wherein the support means are attached to the securing means by third attachment means,
- adjustment means, configured for regulating the position of the support, which in turn comprise:
 - at least one bracing element, located on the support means, and configured for bracing the support,
 - first adjustment means extending according to the longitudinal direction X-X', and configured for regulating the position of the support according to said longitudinal direction X-X',
 - second adjustment means extending according to a second transverse direction Z-Z', transverse to the longitudinal direction X-X' and to the first transverse direction Y-Y',

wherein the second adjustment means are configured for regulating the position of the support according to said second transverse direction Z-Z', and wherein first attachment means are configured for

allowing a pivoting movement of the second structural element with respect to the first structural element, and/or wherein the second attachment means are configured for allowing an integral movement of the first structural element and the securing means according to the second transverse direction Z-Z'.

[0017] In this way, the present support is configured by means of a first structural element and a second structural element, with said elements being coplanar.

[0018] Said first structural element and second structural element extend over a plane formed by a longitudinal direction X-X' and a first transverse direction Y-Y', essentially perpendicular to said longitudinal direction X-X'.

[0019] In a particular embodiment, the first structural element and the second structural element are circular and coaxial.

[0020] In a particular embodiment, the perimeter of the first structural element is larger than the perimeter of the second structural element. This means that, in the case of being circular elements, the diameter of the first structural element is larger than the diameter of the second structural element.

[0021] This advantageously allows configuring a symmetrical and balanced support structure, with greater availability of relative movement between both first and second structural elements.

[0022] In a particular embodiment, the first structural element and/or the second structural element are configured by means of tubular elements, particularly metallic tubular elements that are preferably hollow.

[0023] Advantageously, this allows reducing the weight of the support, which means greater stability of the support and of the position of the head of the user housed in said support. Likewise, a reduced weight of the support also contributes to agility in its movement.

[0024] The first structural element and the second structural element of the support of this first inventive aspect are attached to one another by first attachment means, which allow relative movement between said first and second structural elements.

[0025] In other words, the first attachment means allow a pivoting movement of the second structural element with respect to the first structural element, which advantageously allows a more precise regulation of the position of the head of the user supported on the present support.

[0026] In a particular embodiment, the first attachment means further comprise first retention means, configured for fixing the relative position between the first structural element and the second structural element, advantageously allowing the suitable position to be maintained and reducing sliding between the first structural element and the second structural element.

[0027] In a particular embodiment, the first attachment means comprise:

- at least two through holes in the first structural ele-

ment, and at least two through holes in the second structural element, said through holes coinciding with one another in twos, and

- at least two pins, housed in each pair of coinciding through holes.

[0028] In a particular embodiment, said at least two through holes are arranged in opposing positions.

[0029] In a particular embodiment, in the case where the first and second structural elements are circular, said at least two through holes are arranged at diametrically opposite points.

[0030] In a particular embodiment, the assembly configured by the first and second structural elements is a gyroscope.

[0031] In a particular embodiment, said first retention means comprise stops, preferably stops configured in plastic.

[0032] In a particular embodiment, the first retention means are housed in the through holes and interact with the pins housed in said through holes, such that it is possible to control the range of relative movement and the suitable position of the first and second structural elements.

[0033] Additionally, the support according to the first inventive aspect also comprises at least securing means, attached to the first structural element by second attachment means.

[0034] These securing means advantageously allow supporting the assembly configured by the first and second structural elements, through the attachment thereof with said first structural element.

[0035] In other words, the second attachment means allow an integral movement of the first structural element along with said securing means, which advantageously allows an additional degree of freedom of movement according to a second transverse direction Z-Z', essentially perpendicular to the longitudinal direction X-X' and to the first transverse direction Y-Y'. Additionally, the second attachment means also allow the rotation of the first structural element with respect to said second attachment means. These movements allow obtaining a more precise regulation of the position and orientation of the head of the user supported on the present support.

[0036] In a particular embodiment, the securing means are configured by means of a tubular element, preferably hollow, which stably supports said assembly configured by the first and second structural elements.

[0037] In a particular embodiment, the second attachment means are located at 90° with respect to the first attachment means, in relation with the plane defined by the longitudinal direction X-X' and the first transverse direction Y-Y'.

[0038] In a particular embodiment, in the case where the first and second structural elements are circular, said second attachment means are arranged at diametrically opposite points, and at 90° with respect to the first attachment means, also located in diametrically opposite posi-

tions with respect to one another.

[0039] In a particular embodiment, the second attachment means comprise:

- at least one through hole in the securing means, and
- at least one projection in the first structural element, and

wherein the projection of the first structural element is housed in the through hole of the securing means.

[0040] In a particular embodiment, the second attachment means comprise:

- at least one through hole in the securing means, and at least one through hole in the first structural element, said through holes coinciding with one another in twos, and
- at least one pin, housed in each pair of coinciding through holes.

[0041] In a particular embodiment, said at least two through holes are arranged in opposing positions.

[0042] Additionally, the support according to this first inventive aspect further comprises support means, configured for supporting the assembly of the first and second structural elements along with the securing means on an essentially planar surface.

[0043] This advantageously allows locating said assembly of elements on a surface, such that its position is more stable and allows effectively supporting the weight of the head of the user, once housed in the support.

[0044] These support means are attached to the securing means by third attachment means, and remain fixed during the movement of the securing means, according to the second transverse direction Z-Z'.

[0045] In a particular embodiment, the third attachment means are configured as a cylinder, preferably solid, housed in the securing means.

[0046] In a particular embodiment, the third attachment means further comprise at least one spring and second retention means.

[0047] Said spring advantageously allows regulating and dampening the movement of the securing means, according to the second transverse direction Z-Z', such that the movement of the assembly of the first and second structural elements is gradual and continuous, such that the support provide a high stability and movement capacity.

[0048] Moreover, the second retention means allow fixing the relative position of the securing means with respect to the essentially planar surface on which the support rests.

[0049] In a particular embodiment, the spring is fixed on the second retention means, such that the movement of said spring is limited or prevented.

[0050] Additionally, the support according to the first inventive aspect comprises adjustment means, configured for regulating the position of the support, which in

turn comprise at least one bracing element, located on the support means.

[0051] Said bracing element advantageously allows bracing the support such that its configuration, once supported on a surface through the support means, is more stable and robust.

[0052] Moreover, the adjustment means further comprise first adjustment means extending according to the longitudinal direction X-X' and are configured for regulating the position of the support according to said longitudinal direction X-X'.

[0053] This advantageously allows moving the support with respect to said longitudinal direction X-X', selecting its ideal position with respect to the user according to said direction.

[0054] In a particular embodiment, the first adjustment means comprise a cylinder which in turn comprises a plurality of holes, and holding means configured for being housed in one of said holes.

[0055] Advantageously, this allows a more precise regulation of the position with respect to the longitudinal direction X-X'.

[0056] In a particular embodiment, the holding means comprise a pin and/or a bolt.

[0057] In a particular embodiment, the holding means comprise a spring, preferably configured as a bolt with a locking spring.

[0058] Likewise, the adjustment means further comprise second adjustment means extending according to a second transverse direction Z-Z', transverse to the longitudinal direction X-X' and to the first transverse direction Y-Y', wherein the second adjustment means are configured for regulating the position of the support according to said second transverse direction Z-Z'.

[0059] This advantageously allows moving the support with respect to said second transverse direction Z-Z', selecting its ideal position with respect to the user according to said direction.

[0060] In a particular embodiment, the second adjustment means comprise at least one threaded cylinder and at least one threaded element configured for being housed in said threaded cylinder.

[0061] In other words, the threaded element is configured to be threaded into the inner part of the threaded cylinder, such that this configuration allows a more precise regulation of the position with respect to the second transverse direction Z-Z'.

[0062] In a particular embodiment, the support further comprises anchoring means configured for coupling the support to a structure, and wherein said anchoring means are attached to the adjustment means.

[0063] In other words, the anchoring means allow the support to be coupled and/or fixed to a structure belonging to the essentially planar surface on which said support is supported through the support means.

[0064] Advantageously, this allows a greater stability in the position of the support with respect to an outer surface.

[0065] In one embodiment, the support further comprises a third structural element, attached to the second structural element by fourth attachment means, said third structural element being configured for supporting an image display device.

[0066] In other words, the third structural element is configured for supporting an image display device for use by the user, such that the third structural element is configured for housing the head of the user.

[0067] In a particular embodiment, the image display device are virtual reality glasses.

[0068] In a particular embodiment, the fourth attachment means comprise:

- at least one through hole in the second structural element, and
- at least one projection in the third structural element, and

wherein the projection of the third structural element is housed in the through hole of the second structural element.

[0069] In a particular embodiment, the fourth attachment means comprise:

- at least one through hole in the second structural element, and at least one through hole in the third structural element, said through holes coinciding with one another in twos, and
- at least one pin, housed in each pair of coinciding through holes.

[0070] In a particular embodiment, said at least two through holes are arranged in opposing positions.

[0071] In a particular embodiment, the third structural element comprises fixing means configured for fixing said third structural element to a user, with it thereby remaining fixed with respect to said user.

[0072] In a particular embodiment, said fixing means comprise through holes on the third structural element, as well as a fixing element, such as a Velcro strap and/or elastic rubber for coupling the third structural element to the head of the user.

[0073] In a particular embodiment, the image display device is located in a relative position with respect to the position of the eyes of the user, with said position being adjusted and fixed through the fixing means.

[0074] In a particular embodiment, the support further comprises elastic elements in at least one of the first attachment means, the second attachment means, the third attachment means, and the fourth attachment means, said elastic elements being configured for fixing the relative position between the elements attached by same, advantageously allowing the suitable position to be maintained and reducing sliding between said elements.

[0075] In other words, the elastic elements allow at least partially fixing the relative position between the first

structural element and the second structural element in the case of the first attachment means, between the securing means and the first structural element in the case of the second attachment means, between the support means and the securing means in the case of the third attachment means, and between the second and third structural element in the case of the fourth attachment means.

[0076] Advantageously, this at least partial fixing of the relative position of the elements of the attachment by means of elastic elements reduces the friction and fitting tolerances between said elements, such that the relative movement between the elements is limited.

[0077] In a particular embodiment, the support is symmetrical with respect to the second transverse direction Z-Z'.

[0078] In a particular embodiment, the support means are two elements, symmetrically located on both sides of the support, and the bracing element is located in contact with said two elements which configure the support means.

[0079] In a particular embodiment, the longitudinal direction X-X' and the first transverse direction Y-Y' correspond, respectively, with a different horizontal direction, with the plane formed by both therefore configuring a horizontal plane. Likewise, in this particular embodiment, the second transverse direction Z-Z' corresponds with a vertical direction, as will be shown below.

[0080] In this way, the support according to the first inventive aspect comprises the following degrees of freedom, allowing movement according to the following directions:

- lateral movement of the support, and therefore of the head of the user, with said movement being that performed by means of pivoting the support about the longitudinal direction X-X',
- rocking movement of the support, and therefore flexion and extension movement of the head of the user, with said movement being that performed by means of pivoting the support about the first transverse direction Y-Y', and
- linear movement of the support, and therefore of the head of the user, along the second transverse direction Z-Z'.

[0081] Likewise, as established, the support is also configured for being moved linearly along the longitudinal direction X-X' and the first transverse direction Y-Y'.

[0082] The second inventive aspect relates to a structure comprising:

- a first end, and
- a second end,

wherein said structure extends between the first end and the second end and is contained in the plane defined by the longitudinal direction X-X' and the first transverse

direction Y-Y', said structure being configured for supporting a user in prone position, and wherein said structure further comprises a support according to any of the preceding claims, located at the first end.

[0083] In a particular embodiment, said structure is an operating table.

[0084] This advantageously allows a user of said structure to be able, during an activity such as a surgical intervention in which the user must be in prone position, to support and orient his/her head in a more precise and comfortable manner from the support, and additionally use an image display device, such that the experience during the activity is less traumatic, also increasing user comfort.

[0085] In a particular embodiment, the structure further comprises at least one support element between the first end and the second end for supporting the user at least partially. This advantageously allows the user to be more suitably positioned in relation to the support.

BRIEF DESCRIPTION OF THE FIGURES

[0086] To complete the description of the invention, and for the purpose of helping to make the features thereof more readily understandable, according to a preferred exemplary embodiment thereof, a set of drawings is included wherein, by way of illustration and not limitation, the following figures have been represented:

Figures 1A and 1D show, respectively, a perspective view and a front view, of a particular embodiment of a support.

Figures 1B and 1C depict detailed views of the particular embodiment shown in Figures 1A and 1D. Figures 2A and 2B depict, respectively, a lateral view and a cross-section of said lateral view, of the particular embodiment shown in Figures 1A and 1D.

Figure 3 shows a particular embodiment of a structure, together with the coupling of a support according to the particular embodiment shown in Figures 1 and 2.

Figure 4 depicts a user on a structure as shown in Figure 3.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0087] Figures 1A and 1D show, respectively, a perspective view and a front view, of a particular embodiment of a support, whereas Figures 1B and 1C depict detailed views of the particular embodiment shown in said Figures 1A and 1D.

[0088] Particularly, Figure 1A shows a perspective view of a support (1) comprising a circular first structural element (1.1), particularly configured as a hollow tubular metallic element with a given diameter, as well as a second structural element (1.2) that is also circular and configured as a hollow tubular metallic element, having a

diameter smaller than the diameter of the first structural element (1.1).

[0089] In this way, the first structural element (1.1) embraces the second structural element (1.2), both being attached by first attachment means (1.3), in this case two pins, located diametrically opposite one another, wherein each pin (1.3) goes through a through hole made on the first structural element (1.1) and is housed inside an also through hole of the second structural element (1.2).

[0090] In this way, the assembly formed by the first structural element (1.1) attached through the pins (1.3) to the second structural element (1.2) configure a gyroscope.

[0091] Likewise, the first structural element (1.1) is contained in a horizontal plane, formed by the longitudinal direction X-X' and the first transverse direction Y-Y'.

[0092] As also shown in Figure 1A, the second transverse direction Z-Z', perpendicular to the horizontal plane formed by the mentioned directions, corresponds to the vertical direction, or the height of the support (1).

[0093] Additionally, the first structural element (1.1) is attached to securing means (1.4) by second attachment means (1.5).

[0094] In other words, the first structural element (1.1) comprises projections (1.5) located diametrically opposite and rotated 90° with respect to the pins (1.3), wherein each projection (1.5) is housed respectively in a through hole present in a tubular element (1.4), each tubular element (1.4) being an element of the securing means (1.4).

[0095] In this way, as can be seen, the support (1) is symmetrical with respect to the second transverse direction Z-Z'.

[0096] As can be seen in this figure, one of the securing means (1.4) is surrounded by a discontinuous circular mark, providing a detailed view of this section indicated in Figure 1B.

[0097] In this way, Figure 1B shows an enlarged view of the tubular element (1.4) configuring securing means (1.4) of the gyroscope, as well as one of the projections (1.5) acting as second attachment means (1.5) between said tubular element (1.4) and the first structural element (1.1) of the gyroscope.

[0098] Additionally, Figure 1A shows how the second structural element (1.2) in turn embraces a third structural element (1.9), in this case an oval shaped element configured in plastic, which is coupled to said second structural element (1.2) by fourth attachment means (1.9.1), in this case projections (1.9.1) of said third structural element (1.9) which are housed in through holes present in the second structural element (1.2).

[0099] Said projections (1.9.1) are also located at opposite points of the third structural element (1.9), i.e., are symmetrical with respect to the second transverse direction Z-Z'.

[0100] Moreover, the third structural element (1.9) further comprises fixing means (1.10) configured by means of through holes on the perimeter of said third

structural element (1.9).

[0101] The third structural element (1.9) acts as a support for an image display device (G), not shown in this figure, whereas the holes (1.10) corresponding to fixing means (1.10) allow the passage of a strap that allows fitting said image display device (G) to the head of a user (U), not shown in this figure.

[0102] Additionally, Figure 1A shows how each of the securing means (1.4) in the form of a tubular element is coupled to support means (1.6), in this case an element having a flat end capable of being stably supported on a flat surface.

[0103] Each of the securing means (1.4) and the support means (1.6) are attached by third attachment means (1.7), in this case a threaded attachment.

[0104] Particularly, said threaded attachment (1.7) further comprises, on the inside of the securing means (1.4), a spring (1.7.1), not shown in this figure, which allows the attachment between said securing means (1.4) and support means (1.6), and therefore the relative movement thereof is dampened and controlled.

[0105] Additionally, the support (1) shown in Figure 1A also comprises adjustment means (1.8), configured by a bracing element (1.8.1) in the form of a rod or a linear element, extending according to the first transverse direction Y-Y', which attaches the two tubular elements (1.4) configuring the securing means (1.4). This allows the support (1) to have a more robust structure, given that the bracing element (1.8.1) prevents the two symmetrical sides of the support (1) from opening, being separated from one another.

[0106] Likewise, the adjustment means (1.8) further comprise first adjustment means (1.8.2) and second adjustment means (1.8.3).

[0107] These first adjustment means (1.8.2) are configured by two cylinders (1.8.2.1), extending from the bracing element (1.8.1) according to the longitudinal direction X-X', and are located symmetrically with respect to the second transverse direction Z-Z'.

[0108] Each of said cylinders (1.8.2.1) comprises a plurality of through holes (1.8.2.2), uniformly distributed along the entire length of each cylinder (1.8.2.1).

[0109] The first adjustment means (1.8.2) also comprise holding means (1.8.2.3), configured by means of a bolt (1.8.2.3) with a locking spring, which allows being housed in one of the holes (1.8.2.2) of the cylinder (1.8.2.1), thereby establishing the fixed and immovable position thereof.

[0110] Additionally, as can be seen, each of the cylinders (1.8.2.1) is housed such that it goes through a threaded cylinder (1.8.3.1) of the second adjustment means (1.8.3), with both cylinders (1.8.2.1, 1.8.3.1) being perpendicular to one another.

[0111] In this way, the second adjustment means (1.8.3) are configured by two threaded cylinders (1.8.3.1) with a threaded inner surface, extending according to the second transverse direction Z-Z', and are located symmetrically with respect to said second trans-

verse direction Z-Z', and by two threaded elements (1.8.3.2) which also extend according to the second transverse direction Z-Z' and are housed in said threaded cylinders (1.8.3.1), thereby establishing a threaded attachment between both elements.

[0112] Each of these threaded cylinders (1.8.3.1) comprises a through hole with each cylinder (1.8.2.1) of the first adjustment means (1.8.2) going through same transversely.

[0113] Both the bolts (1.8.2.3) of the first adjustment means (1.8.2) and the threaded attachment between the threaded cylinders (1.8.3.1) and the threaded elements (1.8.3.2) allow adjusting the position of the support (1) according to the longitudinal direction X-X' and the second transverse direction Z-Z', respectively.

[0114] Moreover, the attachment between the first adjustment means (1.8.2) and the second adjustment means (1.8.3) is indicated by means of a discontinuous circular mark, with a detail being enlarged in Figure 1C.

[0115] Said Figure 1C therefore shows the first adjustment means (1.8.2) and how they go through a threaded cylinder (1.8.3.1) of the second adjustment means (1.8.3).

[0116] Figure 1D shows a front view of this same embodiment of the support (1).

[0117] The symmetry of the support (1) with respect to the second transverse direction Z-Z', as well as the preceding elements in the symmetrical arrangement thereof, can thus be more clearly seen.

[0118] Moreover, Figure 1D also shows the threaded attachment (1.7) established between the securing means (1.4) and the support means (1.6), which allows the relative movement of said securing means (1.4) with respect to the support means (1.6) according to the second transverse direction Z-Z' or vertical direction.

[0119] Particularly, Figure 1D shows the spring (1.7.1) which allows regulating and dampening said relative movement.

[0120] Figure 2A shows a lateral view of this same embodiment of the support (1), in which anchoring means (1.11) which allow coupling said support (1) to a structure, not shown in this figure, can also be seen.

[0121] As shown, said anchoring means (1.11) are configured by means of two tubular elements (1.11), extending according to the longitudinal direction X-X', and are located symmetrically with respect to the second transverse direction Z-Z', parallel to the cylinders (1.8.2.1) of the first adjustment means (1.8.2).

[0122] Each of these tubular elements (1.11) comprises a through hole at one of its ends in which a threaded element (1.8.3.2) of the second adjustment means (1.8.3) is housed, therefore being perpendicular to one another. The support (1) is coupled to the structure (S), not shown in this figure, through the opposite end of said tubular element (1.11).

[0123] Figure 2B shows a cross-section of the lateral view of the support (1) of Figure 2A, in which the spring (1.7.1) of the threaded attachment (1.7) which allows

regulating and dampening the relative movement between the securing means (1.4) and the support means (1.6), can be seen in detail.

[0124] Figure 3 shows a structure (S) extending over a horizontal plane according to the orientation of the figure, and in height according to the vertical direction Z-Z', according to the orientation of the figure. In this case, how said structure (S) extends longitudinally according to the longitudinal direction X-X' can be seen.

[0125] There is coupled on said structure (S) a support (1) such as that shown in the preceding Figures 1A - 1D and 2A - 2B, anchored to one another by anchoring means (1.11), i.e., by means of the tubular elements (1.11) previously shown.

[0126] Said support (1) is coupled to the structure (S) at its end (S.1) according to the longitudinal direction X-X'. Likewise, as can be seen in Figure 3, the support means (1.6) of the support are supported on the surface of the structure (S), in this case an operating table (S).

[0127] Lastly, Figure 4 shows the same operating table (S) with the support (1) of Figure 3 having a user (U) thereon.

[0128] In this case, the operating table (S) extends according to the longitudinal direction X-X' between a first end (S.1), where the support (1) and the head of the user (U) are located, and a second end (S.2).

[0129] The support (1) in turn comprises an image display device (G), particularly virtual reality glasses (G), which are coupled to the eyes of the user (U) for use thereof.

[0130] In this way, the user (U) is positioned on the operating table (S) such that he/she rests his/her head on the support (1), thereby having access to the use of the virtual reality glasses (G), and elevated by means of two support elements (S.3) such that he/she is correctly positioned respect to said support (1).

[0131] The position of the support (1) is in turn regulated with the mentioned elements to thereby correctly position same with respect to the eyes, and therefore with respect to the head of the user (U).

[0132] This allows said user (U) to use the virtual reality glasses (G) during an activity, such as a surgical intervention, while the user is on the operating table (S), providing a less traumatic experience for said user (U).

[0133] This is due to the fact that the user (U) or patient on whom the activity in question is performed is in a prone position for the performance of said activity, having a greater degree of freedom of movement of his/her head depending on the configuration of the support (1) and enjoys a less traumatic experience while looking through the support at images or contents shown through the glasses (G).

Claims

1. A support (1) configured for housing and orienting the head of a user (U), comprising:

- a first structural element (1.1), contained in a plane defined by a longitudinal direction X-X' and a first transverse direction Y-Y', transverse to the longitudinal direction X-X',
- a second structural element (1.2) coplanar with the first structural element (1.1), and wherein the second structural element (1.2) is coupled to the first structural element (1.1) by first attachment means (1.3),
- securing means (1.4), attached to the first structural element (1.1) by second attachment means (1.5),
- support means (1.6) configured for being supported on an essentially planar surface, wherein the support means (1.6) are attached to the securing means (1.4) by third attachment means (1.7),
- adjustment means (1.8), configured for regulating the position of the support (1), which in turn comprise:

- at least one bracing element (1.8.1), located on the support means (1.6), and configured for bracing the support (1),
- first adjustment means (1.8.2) extending according to the longitudinal direction X-X', and configured for regulating the position of the support (1) according to said longitudinal direction X-X',
- second adjustment means (1.8.3) extending according to a second transverse direction Z-Z', transverse to the longitudinal direction X-X' and to the first transverse direction Y-Y', wherein the second adjustment means (1.8.3) are configured for regulating the position of the support (1) according to said second transverse direction Z-Z', and

wherein first attachment means (1.3) are configured for allowing a pivoting movement of the second structural element (1.2) with respect to the first structural element (1.1), and/or wherein the second attachment means (1.5) are configured for allowing an integral movement of the first structural element (1.1) and the securing means (1.4) according to the second transverse direction Z-Z'.

2. Support (1) according to the preceding claim, wherein the first structural element (1.1) and the second structural element (1.2) are circular and coaxial.
3. Support (1) according to any of the preceding claims, wherein the perimeter of the first structural element (1.1) is larger than the perimeter of the second structural element (1.2).

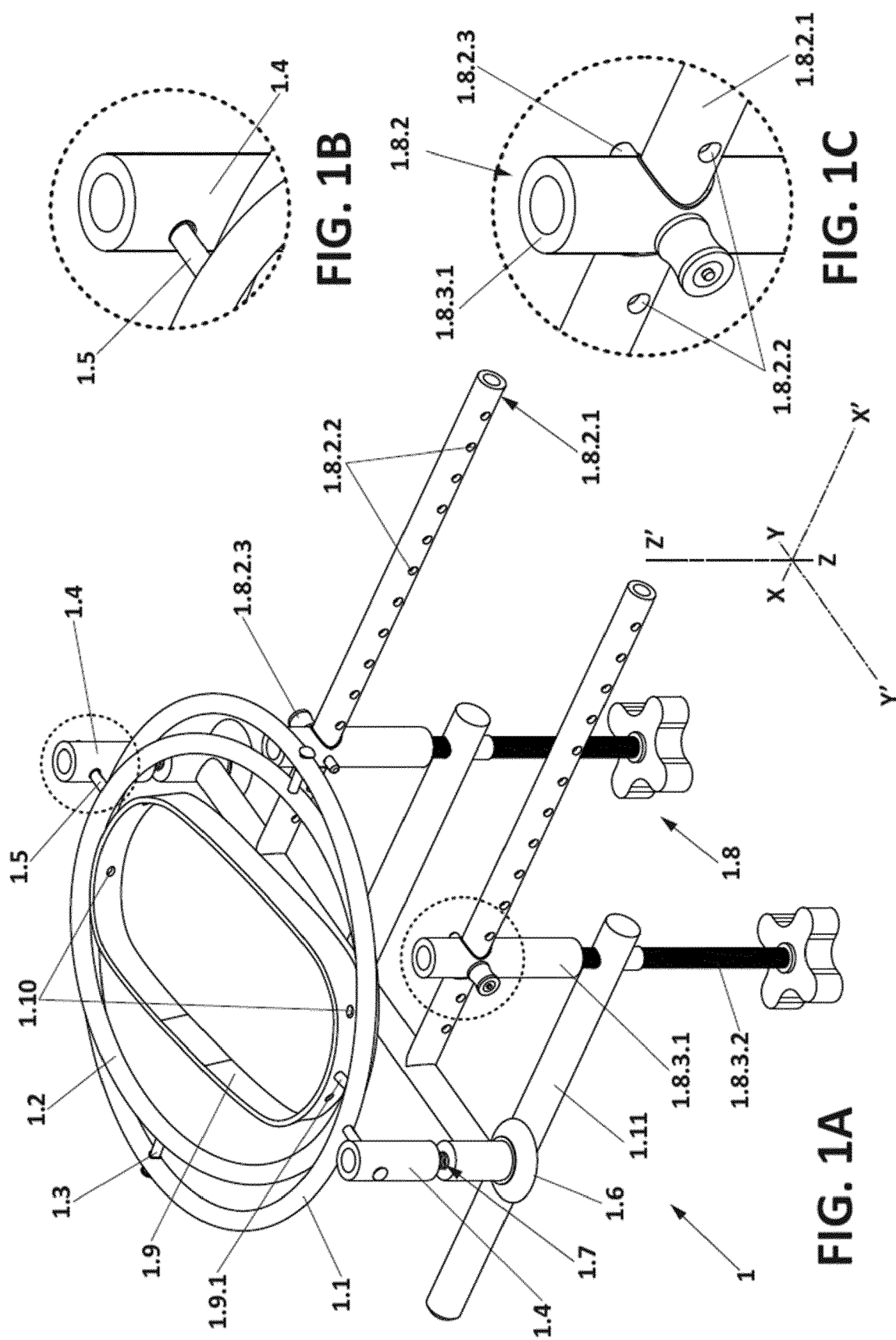
4. Support (1) according to any of the preceding claims, wherein the support (1) further comprises a third structural element (1.9), attached to the second structural element (1.2) by fourth attachment means (1.9.1), said third structural element (1.9) being configured for supporting an image display device (G). 5
5. Support (1) according to claim 4, wherein the third structural element (1.9) comprises fixing means (1.10) configured for fixing said third structural element (1.9) to a user (U). 10
6. Support (1) according to any of the preceding claims, wherein the second attachment means (1.5) are located at 90° with respect to the first attachment means (1.3) with respect to the plane defined by the longitudinal direction X-X' and the first transverse direction Y-Y'. 15
7. Support (1) according to any of the preceding claims, wherein the first attachment means (1.3) further comprise first retention means, configured for fixing the relative position between the first structural element (1.1) and the second structural element (1.2). 20
8. Support (1) according to any of the preceding claims, wherein the third attachment means (1.7) further comprise at least one spring (1.7.1) and second retention means (1.7.2). 25
9. Support (1) according to any of the preceding claims, wherein the support (1) further comprises anchoring means (1.11) configured for coupling the support (1) to a structure (S), and wherein said anchoring means (1.11) are attached to the adjustment means (1.8). 30
10. Support (1) according to any of the preceding claims, wherein the support (1) further comprises elastic elements in at least one of the first attachment means (1.3), the second attachment means (1.5), the third attachment means (1.7), and the fourth attachment means (1.9.1). 35
11. Support (1) according to any of the preceding claims, wherein the support (1) is symmetrical with respect to the second transverse direction Z-Z'. 40
12. Support (1) according to any of the preceding claims, wherein the first adjustment means (1.8.2) comprise a cylinder (1.8.2.1) which in turn comprises a plurality of holes (1.8.2.2), and holding means (1.8.2.3) configured for being housed in one of said holes (1.8.2.2). 45
13. Support (1) according to any of the preceding claims, wherein the second adjustment means (1.8.3) comprise at least one threaded cylinder (1.8.3.1) and at least one threaded element (1.8.3.2) configured for 50

being housed in said threaded cylinder (1.8.3.1).

14. Structure (S) comprising:

- a first end (S.1), and
 - a second end (S.2),
- wherein said structure (S) extends between the first end (S.1) and the second end (S.2) and is contained in the plane defined by the longitudinal direction X-X' and the first transverse direction Y-Y', said structure (S) being configured for supporting a user (U) in prone position, and wherein said structure (S) further comprises a support (1) according to any of the preceding claims, located at the first end (S.1).

15. Structure (S) according to claim 14, further comprising at least one support element (S.3) between the first end (S.1) and the second end (S.2) configured for supporting a user (U) at least partially.



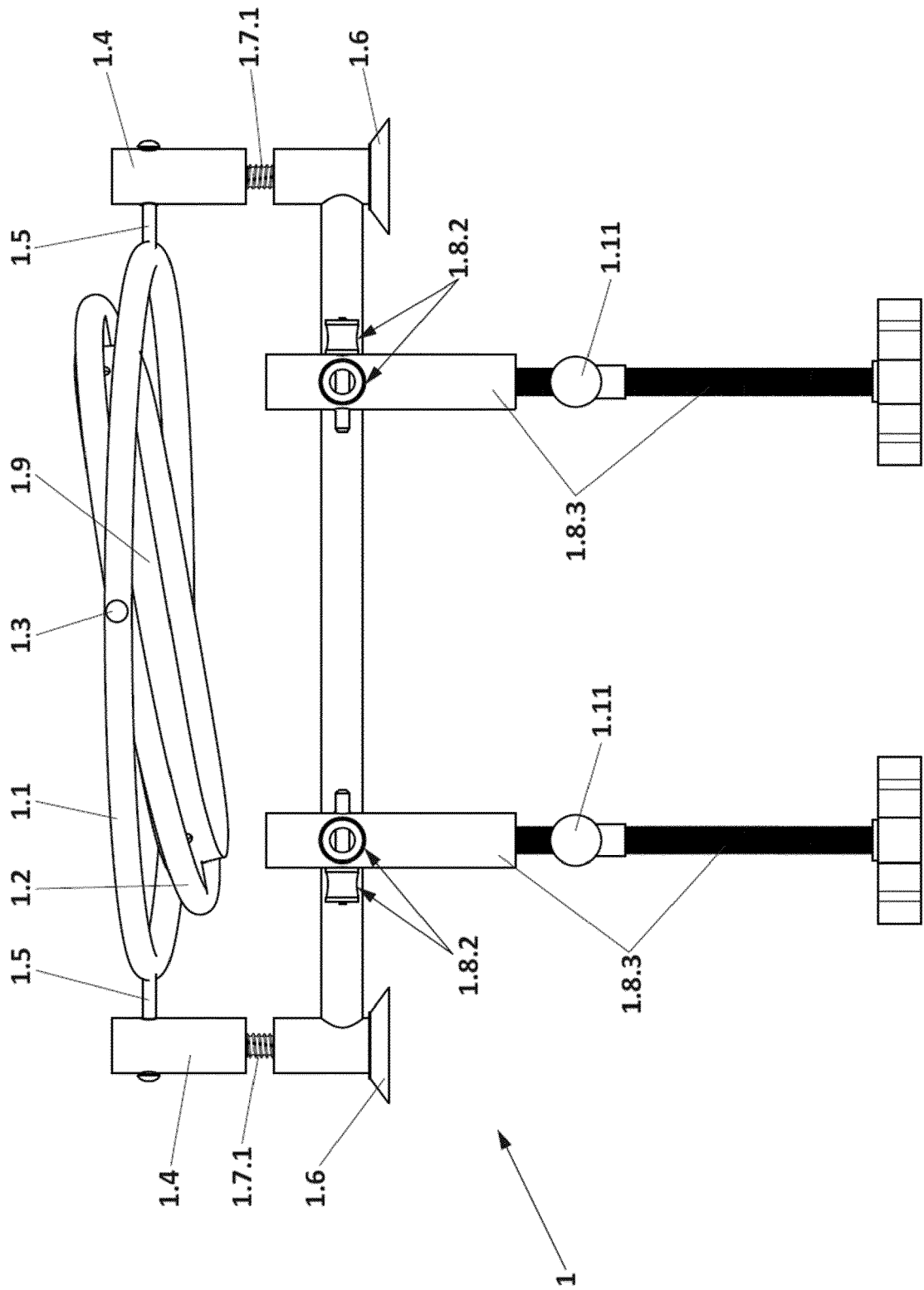


FIG. 1D

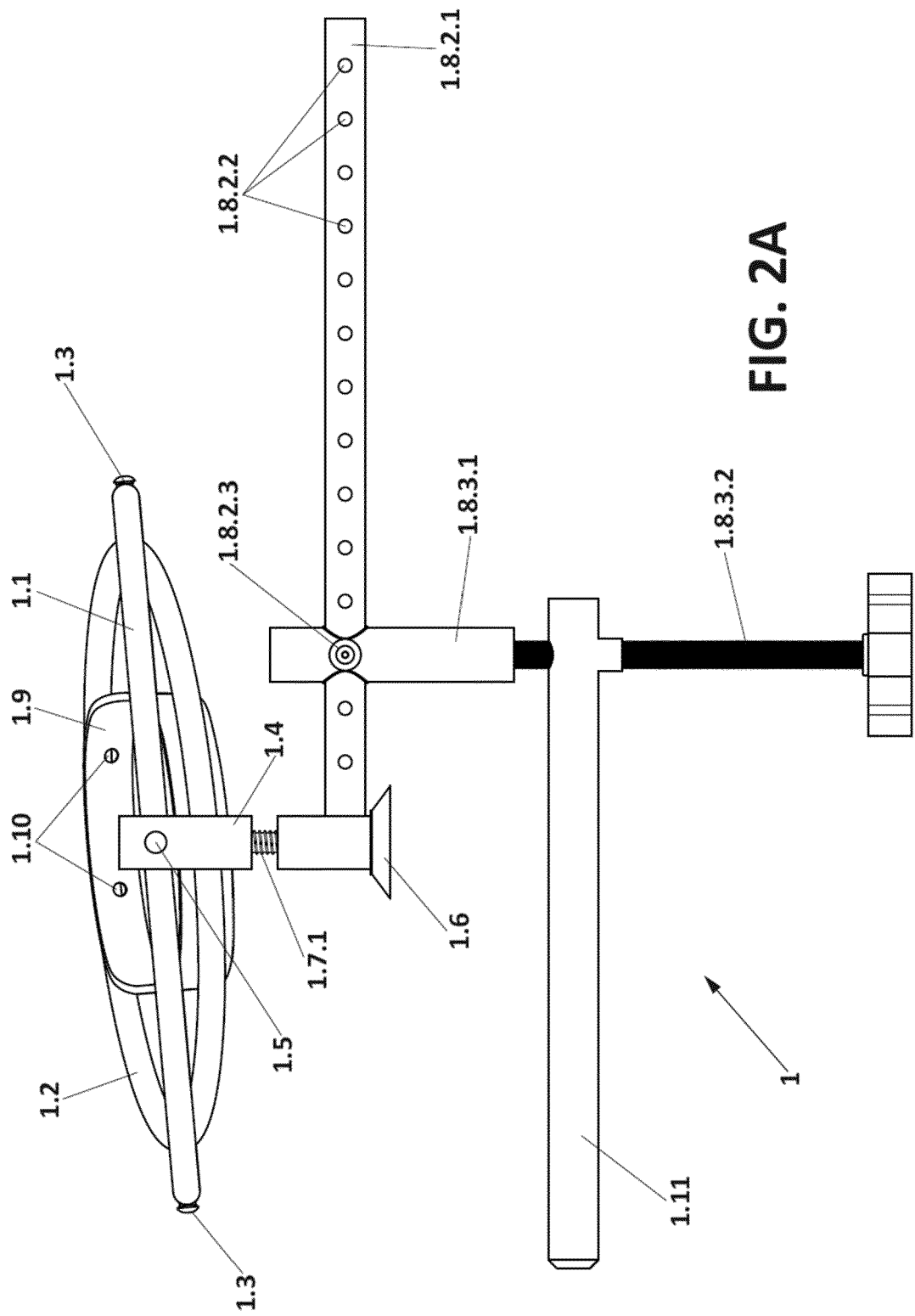


FIG. 2A

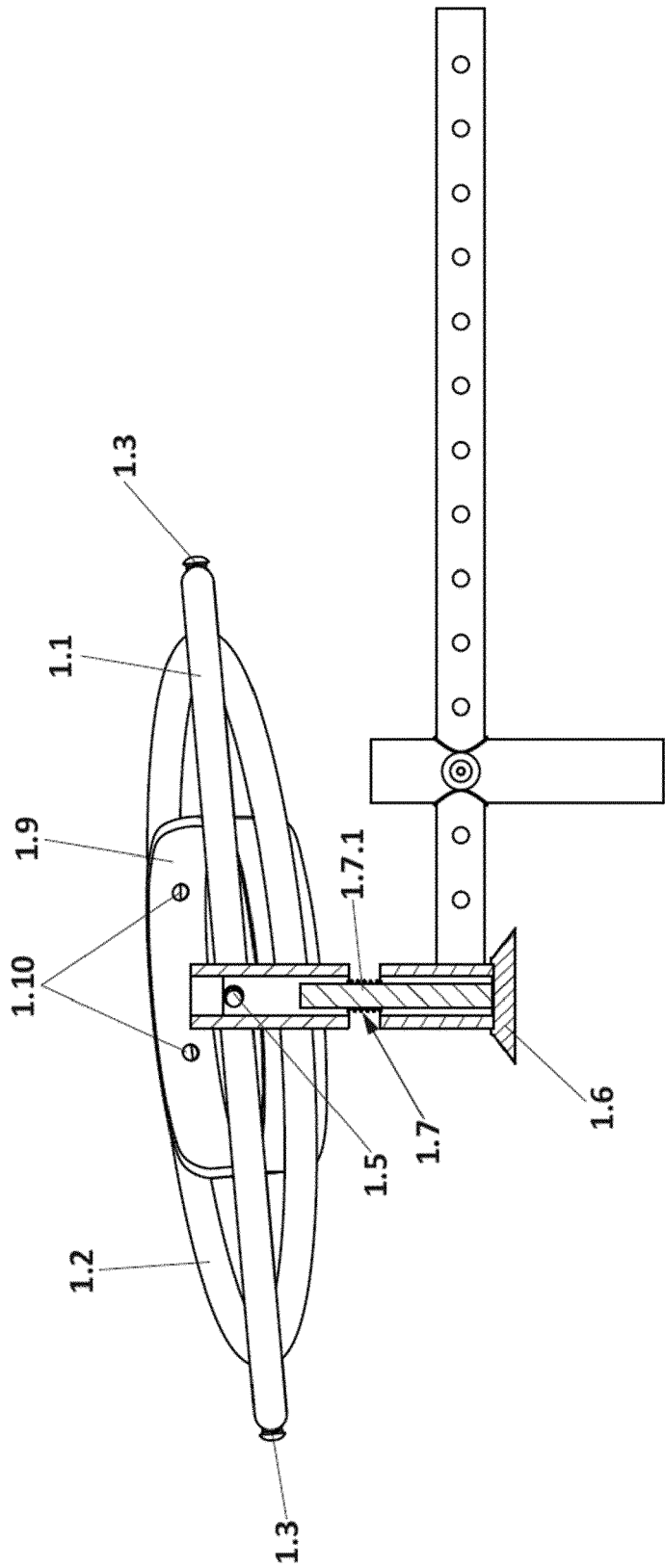


FIG. 2B

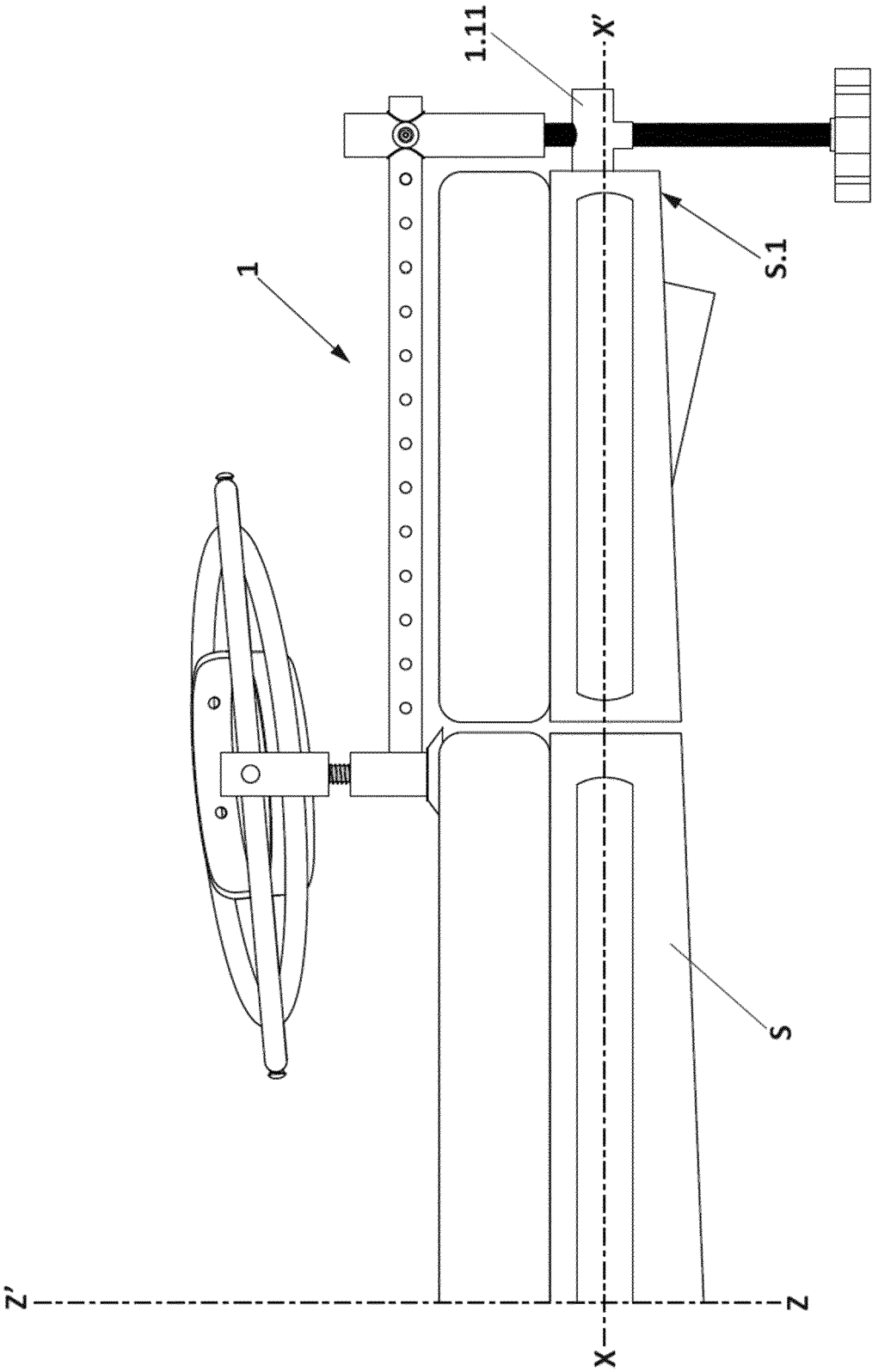


FIG. 3

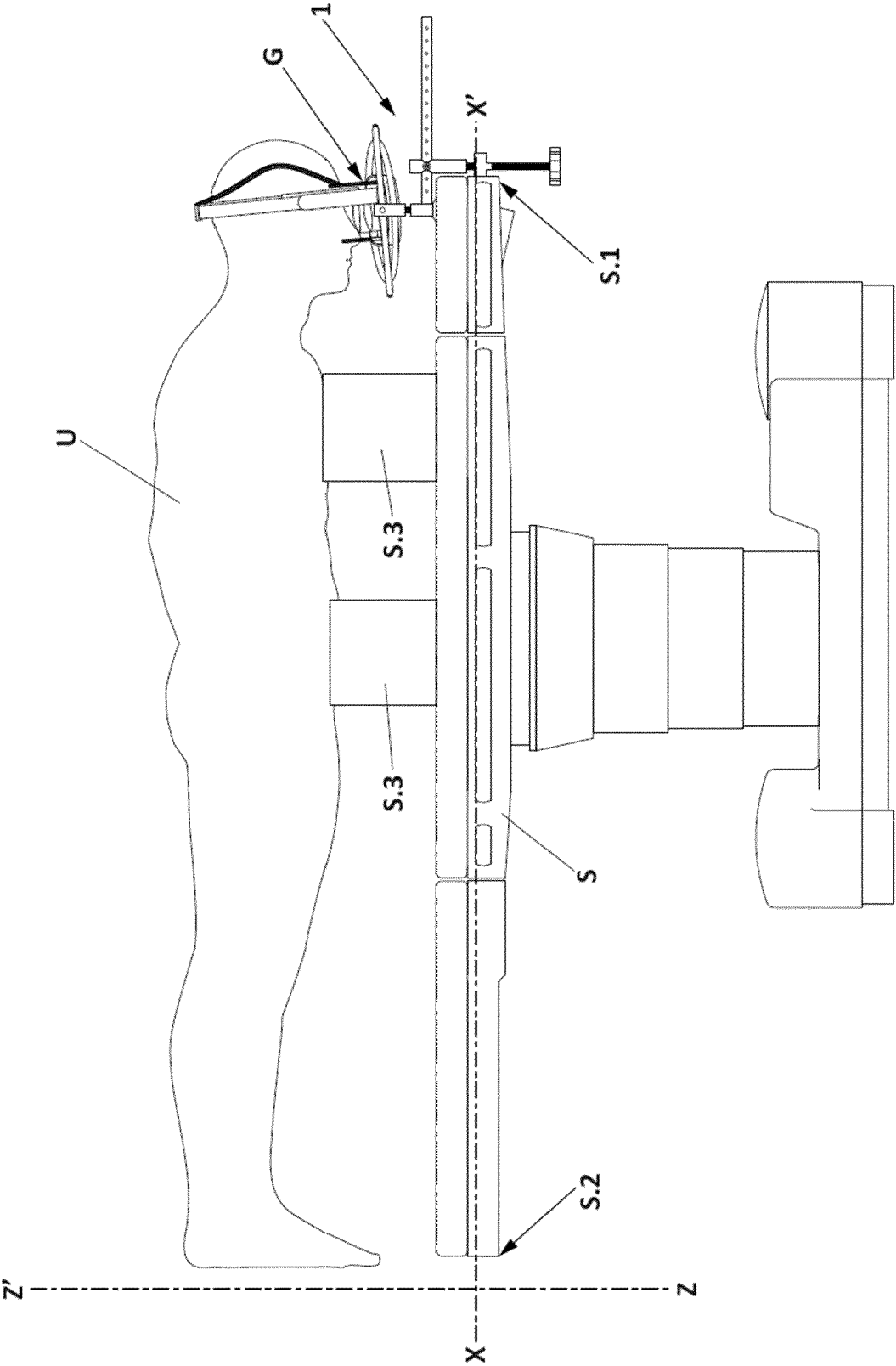


FIG. 4



EUROPEAN SEARCH REPORT

Application Number

EP 23 38 3172

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 April 2024	Examiner Mammeri, Damya
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