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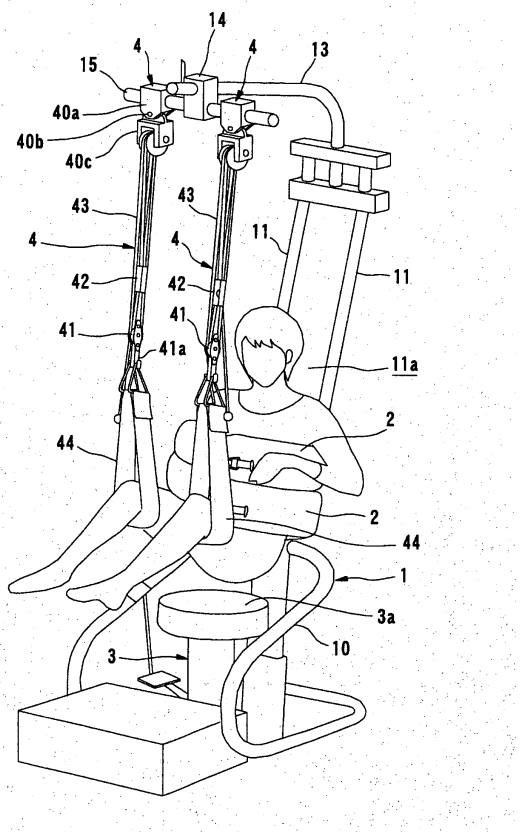
(54) HEALTH APPARATUS

(57) The lumbar of a patient can be dragged with the weight of the lower part of the patient by folding the trunk of the human body with trunk holding members (2). Furthermore, an opening (11a) is formed between support poles (11, 11) for supporting the trunk holding members 2, and an acupuncture treatment or a massage treatment is carried out on the back of the patient from the opening (11a). A leg hanging unit 4 is a device for hanging the leg portion of a patient. By using the leg hanging unit (4), so-called mobilization can be performed while the lumbar part of the patient is floated, so that the effect of the lumbago treatment.

Fig.4



EP 1 637 099 A1

Description

Technical Field

[0001] The present invention relates to health equipment for holding the trunk of the human body and dragging his or her lumbar with the weight of the lower part of the body.

Background Art

[0002] There is known a bed for lumbago treatment which is equipped with a bed for letting a patient lie, a fixing belt for fixing the patient onto the bed, ankle belts to be attached around the ankles of the patient, and weights hanged from the ankle belts. In this type bed for lumbago treatment, the crooked spinal column of the patient is straightened while dragging the lower part of the back with weights to treat lumbago.

[0003] However, with respect to such a bed, since the lower part of the back of a patient is dragged with the patient lain, the movement of the patient under treatment is limited, and the patient needs an assist from somebody else to attach the belt to him/her, which needs significant labor costs. Although the dragging weight is adjusted based on the experience of the doctor or the physical therapist; it could be too heavy or too light, and thus it is troublesome to adjust. In addition, it has been necessary to allocate a significant space for installing the bed.

[0004] Therefore, the applicant of this application has proposed health equipment that can solve all the problems of the prior art described above, that is, has proposed epoch-making health equipment that can surely hold the trunk of the human body in a seating posture and dragging his or her lumbar with the weight of the lower part of the body (see WO00/41657)

Disclosure of the Invention

[0005] The present invention has been implemented by improving the health equipment proposed previously. The present invention enables a composite medical treatment in which a doctor or physical therapist carries out other medical treatments on the back of a patient under the state that the lower part of the back of the patient is dragged.

[0006] That is, the present invention provides health equipment for holding the trunk of a user (patient) and dragging his/her lumbar with the weight of the lower part of his/her body, and the health equipment is equipped with an equipment body, at least a pair of trunk holding members which hold the trunk of the user and is designed to be freely flexible and deformable, and a seat portion on which the user sits. An opening (gap) is formed in the back portion of the equipment body so as to expose through the opening the back of the user whose trunk is supported and held by the trunk holding members.

[0007] The rear portions of the pair of trunk holding members are secured to the equipment body at the user's back side, the flank portion of the user is folded from the right and left sides by the intermediate portions thereof; and the front end portions thereof are mutually jointed to each other in the vicinity of the abdominal region of the user to thereby hold the trunk of the user. The trunk holding members as described above can surely fit and hold the trunk of the user.

[0008] It is preferable that plural pairs of trunk holding members as described above are arranged in the vertical direction, and this arrangement enables the trunk of the user to be more surely held.

[0009] Furthermore, the opening is formed in the back portion of the equipment body so as to expose the back of the user to the outside, whereby the back of the user can be treated through the opening.

[0010] Here, two support poles extending in the vertical direction are provided to the back portion of the equipment body, and the rear end portions of the respective trunk holding members are secured to the respective support poles, whereby one end of each trunk holding member can be surely supported by each support pole. In addition, an opening through which the back of the user is exposed can be formed by merely disposing the two support poles away from each other.

[0011] In the apparatus for lumbago treatment of the present invention, lumbago treatment may be easily executed by the following procedure. The user sits on the seat portion and takes a seating posture, and then places the trunk holding members around his/her trunk while keeping the seating posture. At this time, it is preferable that the height of the seating portion is adjusted so that the trunk of the patient is at almost the same level as the trunk holding members . Since the trunk holding members are freely deformable, it can tight fit and hold the trunk of the patient securely.

[0012] Then the sitting portion is lowered or removed from the position where the user is sitting to allow the hip of the user to be suspended in the air, so that the lumbar is dragged by the weight of the lower part of the body to treat the lumbago. In this situation, since the trunk of the body is held by the trunk holding members, dragging force is not applied to the bones other than the lumbar (for example, the spinal column), whereby only the lumbar area is dragged intensively, and the effective lumbago treatment can be expected.

[0013] A doctor or physical therapist can carry out acupuncture, massage or the like on the back of a patient from the opening of the back portion of the equipment body (the gap between the two support poles) while the lower part of the back of the patient is dragged. Accordingly, a particular medical treatment which cannot be performed by a conventional lumbago treating apparatus can be expected by bringing the synergistic effect between the dragging of the lumbago treating apparatus and the acupuncture treatment or massage medical treatment.

[0014] In order to adjust the height of the seating por-

tion as described above, a mechanism for moving the seating portion upward and downward must be provided. It is also possible to change the position of the user from the seating position to the position where the hip is suspended in the air by employing the structure wherein the seat portion is fixed and the trunk holding portion is movable in the vertical direction. In other words, it is essential only that the trunk holding members and the seat portion be relatively movable in the vertical direction.

[0015] If the seating portion is constructed by a chair which can be removed from the seating position of the user, it would be also possible to change the position of the user from the seating position to the position where the hip is suspended in the air.

[0016] In the invention thus constructed, the trunk holding member may be designed to contain a framework achieved by linking plural blocks freely rotatably. In this construction, the trunk holding member can be designed to be freely flexible and deformable (in this structure, freely bendable), so that the state where it fits around the trunk of the human body and surely supports the same can be established.

[0017] The health equipment of the present invention may be equipped with a pair of leg hanging units for hanging up and holding the leg portions of the user. The leg hanging unit hangs up the knee or ankle of the user. The knee or ankle of the user is hung up while the trunk of the human body is held by the trunk holding members, and if the leg suspended in the air is waggled in the right-and-left direction, torsion force is applied to the lumbar, so that the lumbago can be more effectively treated.

[0018] Specifically, a first guide bar extending in the front-and-rear direction is supported by the two support poles at the upper side of the head portion of the user, and a second guide bar extending in the right-and-left direction is secured to the first guide bar. The leg hanging units are suspended to the second guide bar through pulley members. Here, each of the two support poles also functions as a support pole for supporting the leg.hanging unit.

[0019] Each of the leg hanging units may comprise a hanging string member suspended through the pulley member to the second guide bar, and a leg holder which is secured to the lower end portion of the hanging string member and holds the user' s leg portion, and the leg holder is designed to be freely adjustable in height by operating the hanging string member.

[0020] The pulley member may comprise a mount fitting secured to the second guide bar, and a pulley which is freely rotatably joined to the mount fitting through a shaft pin extending in the front-and-rear direction. With this construction, when the user's leg suspended by the leg hanging unit is waggled in the right-and-left direction, the pulley is rotated around the shaft pin interlockingly with the waggling of the user' s leg, so that the leg hanging unit can be smoothly waggled in the right-and-left direction.

[0021] Furthermore, the health equipment of the present invention may be equipped with a cervical vertebra dragging unit for holding the jaw portion of the user and dragging the cervical vertebra. The cervical vertebra dragging unit has an effect on medical treatments of affections associated with the cervical vertebra, such as whiplash, stiff neck, etc. When a user puts his/her jaw portion on a jaw holder, the jaw portion is properly pulled by a weighting mechanism, so that the cervical vertebra is dragged.

[0022] Specifically, a first guide bar extending in the front-and-rear direction is supported by the two support poles at the upper side of the head portion of the user, and the cervical vertebra dragging unit is suspended by the first guide bar through a pulley member. Here, the two support poles also function as support poles for supporting the cervical vertebra dragging unit.

[0023] Each of the cervical vertebra dragging unit comprises a hanging string member suspended by the first guide bar through the pulley member, a jaw holder for holding the jaw portion of the user which is put to the tip portion of the hanging string member, and a weighting mechanism for acting a pulling load on the base portion of the hanging string member.

[0024] The weighting mechanism is equipped with a stock case, plural first weights disposed to be stacked in the stock case, and a second weight disposed vertically along the plural first weights in the stock case, and it is preferably designed as follows.

[0025] That is, a penetrating hole is formed in the lateral direction in the first weight, and penetrating holes are formed in the second weight so that each of the penetrating holes faces the penetrating hole of each of the plural first weights stacked in the stock case.

[0026] By inserting a joint pin into the penetrating hole of any first weight, the total weight of the first weight concerned (through which the joint pin is inserted) and the other first weights stacked above the first weight concerned acts on the hanging string member. Furthermore, by inserting the joint pin through the penetrating hole of any first weight and the penetrating hole of the second weight, the total weight of the first weight concerned (through which the joint pin is inserted) and the first weights stacked above the first weight concerned and the second weight acts on the hanging string member.

[0027] According to the weighting mechanism thus constructed, not only the weight of the first weights stacked are applied to the hanging string member one by one, but also the weight of the second weight is properly added to the total weight of the first weights, whereby the weight setting can be performed more finelywhile suppressing the stack number of the first weights to miniaturize the weighting mechanism.

Brief Description of the Drawings

[0028]

Fig. 1 is a front view showing health equipment ac-

cording to a first embodiment of the present invention.

Fig. 2 is a side view showing the health equipment according to the first embodiment of the present invention.

Fig. 3 is a back view of showing the health equipment according to the first embodiment of the present invention.

Fig. 4 is a perspective view showing a use state of the health equipment.

Fig. 5 is a plan view showing the internal structure of a trunk holding member.

Fig. 6 is a front view showing health equipment according to a second embodiment of the present invention.

Fig. 7 is a side view showing health equipment according to the second embodiment of the present invention.

Fig. 8A is a front side sectional view showing the construction of a weighting adjustment device.

Fig. 8B is a side view showing the construction of the weighting adjustment device.

Fig. 9A, 9B are front side sectional views showing the function of the weighting adjustment device.

Best Modes For Carrying out the Invention

[0029] Preferred embodiments according to the present invention will be described with reference to the drawings.

[First Embodiment]

[0030] First, health equipment according to a first embodiment of the present invention will be described with reference to Figs. 1 to 5.

[0031] The health equipment according to the first embodiment of the present invention holds the trunk of the human body, and drags the lumbar with the weight of the lower part of the body. The health equipment comprises an equipment body 1, two pairs of trunk holding members 2,2 a chair 2 and a pair of leg hanging units 4, 4 as shown in Figs. 1 to 3.

[0032] The equipment body 1 has a base frame 10 and two support poles 11 extending from the back portion of the base frame 10 in the vertical direction. The support poles 11, 11 are disposed so as to be spaced from each other at a fixed gap interval 11a, and the base ends of the trunk holding members 2 are secured to the support poles 11, 11.

[0033] A support fitting 12 is secured to the upper ends of the support poles 11, 11 and a first guide bar 13 is secured to the support fitting 12 at the base end thereof. The first guide bar 13 is designed to extend from the base end thereof upwardly, curve at some midpoint and then extend frontward. The first guide bar 13 is disposed at the upper side of the head portion of a user.

[0034] The trunk holding members 2 are designed so as to be flexible so that the trunk of the human body can be folded and held. As shown in Fig. 5, each of the trunk holding members 2 is constructed by interlinking plural blocks 20 freely rotatably so as to form a framework. A cushion member 21 formed of urethane resin or the like is secured to the inner surface of each block 20, and the surface of each block 20 is covered by artificial leather. By installing the framework comprising the plural blocks which are freely rotatably interlinked to one another, the trunkholding members thus constructed have mechanical strength enough to support the weight of the user and further fit the trunk of the human body, so that the trunk can be surely held.

[0035] Amount ring 22 is equipped to the base end of each trunk holding member 2, and the base end of each trunk holding member 2 is secured to the intermediate position of the support pole 11 by engagedly fitting the mount ring 22 to the support pole 11. In this embodiment, two pairs of right and left trunk holding members are arranged in the vertical direction, however, three or more pairs of right and left trunk holding members 2 may be arranged in the vertical direction.

[0036] Belts 23 for fastening the trunk holding members 2 are equipped to the tip portions of the trunk holding members 2.

[0037] As shown in Fig. 4, the respective trunk holding members 2 folds the flank portion of the user from the right and left sides through the intermediate portions thereof, and the belts 23 equipped at the tip portions are jointed to each other in the vicinity of the abdominal portion of the user to hold the trunk of the user.

[0038] As shown in Figs. 1 and 2, the chair 3 is disposed at the center portion of the base frame 10. This chair 3 is designed so that the seat portion 3a thereof is movable in the vertical direction by hydraulic pressure or air pressure, and it is elevated upward and downward by an operating pedal 30 or operating lever 31 so that it can be locked at any height. The seat portion 3a may be upward and downward elevated by using an electric motor which can be turned on/off by operating a remote controller.

[0039] A second guide bar 15 is secured to the first guide bar 13 through a guide bush 14. The second guide bar 15 is designed so as to extend in the right-and-left direction, and a pair of right and left leg hanging units 4 are suspended by the second guide bar 15. The guide bush 14 is movably adjusted in position along the first guide bar 13.

[0040] Each leg hanging unit 4 contains a pulley member 40, a lower pulley 41, a stopper 42, a hanging string member 43 and a leg holder 44. The pulley member 40 comprises a fitting attachment 40a secured to the second guide bar 15, a shaft pin 40b extending in the front-and-rear direction and a pulley 40c which is freely rotatably joined to the fitting attachment 40a through the shaft pin 40b. The fitting attachment 40a is movably adjustable in position along the second guide bar 15.

[0041] The hanging stringmember 43 is suspended

between the pulley 40c and the lower pulley 41, and the terminal portion thereof is fixed by a stopper 42. The length of the hanging string member 43 in the vertical direction can be freely adjusted by releasing the fixed state of the stopper 42 and then pulling or pulling back the terminal portion of the hanging string member 43.

[0042] A hook 41a is secured to the lower pulley 41, and the leg holder 44 is hooked to the hook 41a.

[0043] The leg hanging unit 4 is used to carry out a composite lumbago treatment called as mobilization, and it has a function of supporting a user's ankle or knee with the leg holder 44 and lifting the hanging string member 43 to make the leg portion of the human body floated in the air as shown in Fig. 4.

[0044] Here, when a user's leg hung by the leg hanging unit 4 is waggled in the right and left direction, interlocking with the waggling motion, the pulley 40c is rotated around the shaft pin 40b, so that the leg hanging unit 4 can be smoothly swung in the right and left direction and thus the leg can be moved with no resistance.

[0045] Next, a way to use the health equipment according to the first embodiment of the present invention will be described.

[0046] Here, the method of performing a composite lumbago treatment called as mobilization and an acupuncture treatment or massage treatment by a doctor or physical therapist will be described.

[0047] The chair 3 is positioned so that the seat portion 3a is located at the uppermost position. The trunk holding members 2 are positionally fixed substantially at the same height position as the trunk of the body of a user when the user sits on the seat portion 3a at the uppermost height. The leg holders 44 are lowered in advance so that the user can easily attach the leg holders 44 to his or her knees or ankles in the state where he or she is sitting on the seat portion 3a.

[0048] The user sits on the seat portion 3a and attaches the leg holders 44 on his or her knees or ankles, and then he or she pulls the trunk holding members 2 inward to place them around his or her trunk and fastens the belts 23. By fastening the belts 23, the trunk holding members 2 are kept so as to fold the trunk of the human body.

[0049] When the user operates the operating lever 31 to lower the seat portion 3a, the trunk of the human body is held by the trunk holding members 2 and the weight of the lower part of the body acts on the lumbar, so that the lumbar is dragged. In this case, it is preferable that the chair 3 is lowered with the aid of an assistant until it comes out of contact with the hip in order to ensure that the weight of the lower part of the body more surely acts on the lumbar.

[0050] In order to carry out mobilization, the stopper 42 is released and the hanging string 43 is pulled to raise the leg holder 43 to a desired height. According to experiments of the inventors of this application, the most suitable posture of the user for mobilization was such that the trunk and the knees, and the knees and the shanks form an angle of approximately 90° respectively. However, since maintaining the same posture for a long time makes the user tired, it is preferable to change the height of the leg holders 43 or change the part to be supported by the leg holders 43 (for example, from the knees to the ankles) in order to continue comfortable lumbago treatment.

[0051] Mobilization is an operation to turn the human left and right leg portions clockwise and counterclockwise with the legs of the human body hanged as described above. Therefore, force in the twisting direction is applied to the lumbar that is being dragged by the weight of the lower part of the body, thereby increasing the effectiveness of the lumbago treatment.

[0052] The acupuncture treatment or the massage treatment may be carried out while the lumbar of the user is dragged by the trunk holding members 2. According to the health equipment of this embodiment, an opening 11a is formed between the two support poles 11, 11 and thus the back of the user is exposed to the outside through the opening 11a. Accordingly, a doctor or a physical therapist can carry out an acupuncture treatment or massage treatment on the back of the user by using this opening 11a. Particularly, the opening 11a formed between the two support poles 11, 11 expands along the backbone from the rear head portion of the user to the hip of the user. The acupuncture treatment and the massage treatment are particularly, effective to this part of the human body. Accordingly, by bringing the synergistic effect between the dragging of the lumbar and the acupuncture treatment or massage treatment, a peculiar medical treatment effect which cannot be implemented by the conventional lumbago treatment device can be expected.

[0053] When the treatment is finished, the operating lever 31 is operated so that the seat portion 3a of the chair 3 is upwardly moved and comes into contact with the hip of the user. Subsequently, the leg holders 44 are downwardly moved to the floor face, and also the fastening of the belts 23 is released to release the trunk holding members 2 from the trunk of the human body.

[Second Embodiment]

[0054] Next, health equipment according to a second embodiment of the present invention will be described with reference to Figs. 6 to 9B. The same elements as the health equipment of the first embodiment described above are represented by the same reference numerals.

[0055] In the second embodiment of the present invention, a cervical vertebra dragging unit 5 is secured to the first guide bar 13 in place of the leg hanging units 4 of the first embodiment.

[0056] The cervical vertebra dragging unit 5 is used to support the jaw portion of the human body and drag the cervical vertebra, and it has an effect on medical treatments of whiplash, stiff neck, etc. The cervical vertebra dragging unit 5 and the leg hanging units 4 described above may be provided as an option.

[0057] The cervical vertebra dragging unit 5 contains pulley members 50 and 51, a hanging string member 52, a jaw holder 53 and a weighing adjuster 54 (weighting mechanism). One pulley member 51 is secured to the intermediate portion of the first guide bar 13, and the other pulley member 50 is secured at the upper side of the head portion of the user. The pulley member 50 is movably adjustable along the first guide bar 13. The hanging string member 52 is guided by the pulley members 50, 51 so that the tip portion thereof is suspended in the vicinity of the head portion of the user. The rear end portion of the hanging string member 52 is joined to a cover 59 of the weighting adjuster 54.

[0058] The jaw holder 53 is hooked to a mounting attachment 55 secured to the tip portion of the hanging string.

[0059] The weighting adjuster 54 is secured to the base frame 10, and it contains a stock case 56, plural first weights 57, a second weight 58, the cover 59 and an interlinking pin 60.

[0060] The plural first weights 57 are stacked in the stock case 56. A penetrating hole 57a is formed in the lateral direction in each first weight 57. The second weight 58 is accommodated in the vertical direction along the side surfaces of the first weights 57 in the stock case 56. Penetrating holes 58a are formed in the second weight 58 so as to face the penetrating holes 57a of the first weights 57 thus stacked.

[0061] Notches 56a are formed along the penetrating holes 57a and 58a of the weights 57 and 58 in the side walls of the stock case 56.

[0062] The cover 59 is engagedly fitted to the outer periphery of the stock case 56. Weight adjusting holes 59a are formed in the side walls of the cover 59 so as to face the penetrating holes 57a and 58a of the weights 57 and 58 stocked in the stock case 56.

[0063] The weighting adjuster thus constructed can adjust the weight acting on the jaw holder 53 by the following operation.

[0064] That is, as shown in Fig. 9A, any first weight 57 is selected, and the interlinking pin 60 is inserted into the penetration hole 57a of the first weight 57 thus selected through the hole 56a of the stock case 56. At this time, when the tip of the interlinking pin 60 is stopped at the first weight 57, the total weight of the first weight 57 concerned and other first weights 57 stacked above the first weight 57 concerned is applied to the hanging string member 52 through the cover 59.

[0065] On the other hand, as shown in Fig. 9B, when the interlinking pin 60 is inserted from the penetrating hole 57a of the first weight 57 concerned to the penetrating hole 58a of the second weight 58, the first weight 57 concerned, other first weights 57 stacked above the first weight 57 concerned and the second weight 58 is applied to the hanging string member 52 through the cover 59.

[0066] According to the weighting adjuster 54 thus constructed, not only the weight of the first weights stacked are applied to the hanging string member 52 one by one, but also the weight of the second weight is properly added to the total weight of the first weights, whereby the weight setting can be performed more finely while suppressing the stack number of the first weights 57 to miniaturize the weighting mechanism.

[0067] Next, a way to use the health equipment according to the second embodiment of the present invention will be described.

[0068] After the user adjusts the load applied to the jaw holder 53 by the weighting adjuster 54, he/she sits on the seat portion 3a of the chair 3 and puts his/her jaw portion in the jaw holder 53, whereby the load of the weighting adjuster 54 is transmitted to the jaw holder 53 through a wire 52, and the cervical vertebra of the user is dragged.

[0069] When the dragging treatment is carried out on the cervical vertebra by using the cervical vertebra dragging unit 5, use of the trunk holdingmembers 2 described above is not indispensable . However, if the trunk holding members 2 are used in combination with the cervical vertebra dragging unit 5, the jaw portion is dragged while the trunk of the human body is supported, so that only the bone of the upper body is dragged and thus the medical treatment effect can be more enhanced.

[0070] Furthermore, the acupuncture treatment or the massage treatment can be performed while keeping such a posture that the lumbar of the user is dragged by the trunk holding members 2 or the cervical vertebra is dragged by using the cervical vertebra dragging unit 5. That is, a doctor, a physical therapist or the like can carry out the acupuncture treatment or massage treatment on the back of a user by using the opening 11a between the two support poles 11, 11.

[0071] The two embodiments of the present invention have been described, however, the present invention is not limited to the above embodiments.

[0072] For example, in the above embodiments, the seat portion 3a is designed in an elevating type. However, the seat portion 3a is not necessarily designed in an elevating type if the chair 3 is designed so that it can be simply removed from the seating position of the user.

[0073] If the trunk holding members 2 are designed to be elevated upward and downward with respect to the equipment body 1, it is unnecessary to elevate the seat portion 3a upward and downward, and it is also unnecessary to remove the chair 3.

[0074] The leg hanging units 4 may be supported by an optional structure separate from the equipment body 1. Likewise, the cervical vertebra dragging unit 5 used in the second embodiment can be supported by an optional structure separate from the equipment body 1.

[0075] In the embodiments of the present invention, the present invention is applied to the lumbago treatment device. However, the present invention is not limited to the health equipment, and may be applied to rehabilitation assisting equipment for crippled persons.

INDUSTRIAL APPLICABILITY

[0076] As described above, according to the present invention, the doctor or physical.therapist can carry out other medical treatments on the back of a patient while dragging the lumbar, whereby the lumbago can be treated more effectively.

Claims

1. Health equipment for supporting the trunk of a user and dragging the lumbar of the user with the weight of the lower part of the user, comprising:

   an equipment body;
   at least one pair of trunk holding members which are supported by the equipment body and are designed to be freely flexible and deformable so as to fold the trunk of the user from the right and left sides and hold the trunk of the user; and
   a seat portion on which the user sits, wherein an opening is formed so as to expose the back of the user whose trunk is folded and held by the trunk holding members.

2. The health equipment according to claim 1, wherein the rear portions of the at least one pair of trunk holding members are secured to the equipment body at the user's back side, the flank portion of the user is folded from the right and left sides by the intermediate portions thereof, and the front end portions thereof are mutually jointed to each other in the vicinity of the abdominal region of the user to thereby hold the trunk of the user, and the opening is formed at the back portion of the equipment body.

3. The health equipment according to claim 2, wherein plural pairs of trunk holding members are arranged in a vertical direction.

4. The health equipment according to claim 2, wherein the equipment body has two support poles extending in the vertical direction at the back portion thereof, the rear end portions of the respective trunk holding members are secured to the respective support poles, and the support poles are disposed so as to be spaced from each other, whereby the opening is formed between the support poles.

5. The health equipment according to claim 4, further comprising:

   a first guide bar supported by the two support poles so as to extend in the front-and-rear direction at the upper side of the head portion of the user;
   a second guide bar secured to the first guide bar and extending in the right-and-left direction; and
   a pair of leg hanging units which are suspended by the second guide bar through pulley members, and hang and hold the leg portions of the user.

6. The health equipment according to claim 5, wherein each of the leg hanging units comprises a hanging string member suspended by the second guide bar through the pulley member, and a leg holder which is secured to the lower end portion of the hanging string member and holds a leg portion of the user, wherein the leg holder is freely adjustable in height by operating the hanging string member.

7. The health equipment according to claim 6, wherein the pulley member comprises a fitting attachment secured to the second guide bar, and a pulley which is freely rotatably joined to the fitting attachment through a shaft pin extending, in the front-and-rear direction.

8. The health equipment according to claim 4, further comprising:

   a first guide bar which is supported by the two support poles and extends in the front-and-rear direction at the upper side of the head portion of the user; and
   a cervical vertebra dragging unit which is supported by the first guide bar through a pulley member, and holds the jaw portion of the user to drag the cervical vertebra.

9. The health equipment according to claim 8, wherein the cervical vertebra dragging unit comprises a hanging string member which is suspended by the first guide bar through the pulley member, a jaw holder which is secured to the tip portion of the hanging string member and holds the jaw portion of the user, and a weighting mechanism for applying a pulling load to the base end portion of the hanging string member.

10. The health equipment according to claim 9, wherein the weighting mechanism comprises: a stock case; plural first weights disposed so as to be stacked in the stock case; and a second weight disposed along the plural first weights in the stock case, wherein a penetrating hole is formed in the lateral direction in each of the first weights, and penetrating holes are formed in the second weight so as to face the respective penetrating holes of the plural first weights stacked in the stock case, an interlinking pin is inserted into the penetrating hole of any first weight, whereby the total weight of the first weight concerned and other first weights stacked above the first weight concerned is applied to the hanging string member,

and the interlinking pin is inserted into the penetrating hole of any first weight and the corresponding penetrating hole of the second weight, whereby the total weight of the first weight concerned, other first weights stacked above the first weight concerned and the second weight is applied to the hanging string member.

11. The health equipment according to the claim 1, wherein the trunk holding members and the seat portion are relatively movable in the vertical direction.

12. The health equipment according to claim 1, wherein the seat portion is constructed by a chair which can be removed from the seating position of the user.

13. The health equipment according to claim 1, wherein each of the trunk holding members contains a framework achieved by joining plural blocks freely rotatably.

Fig.1

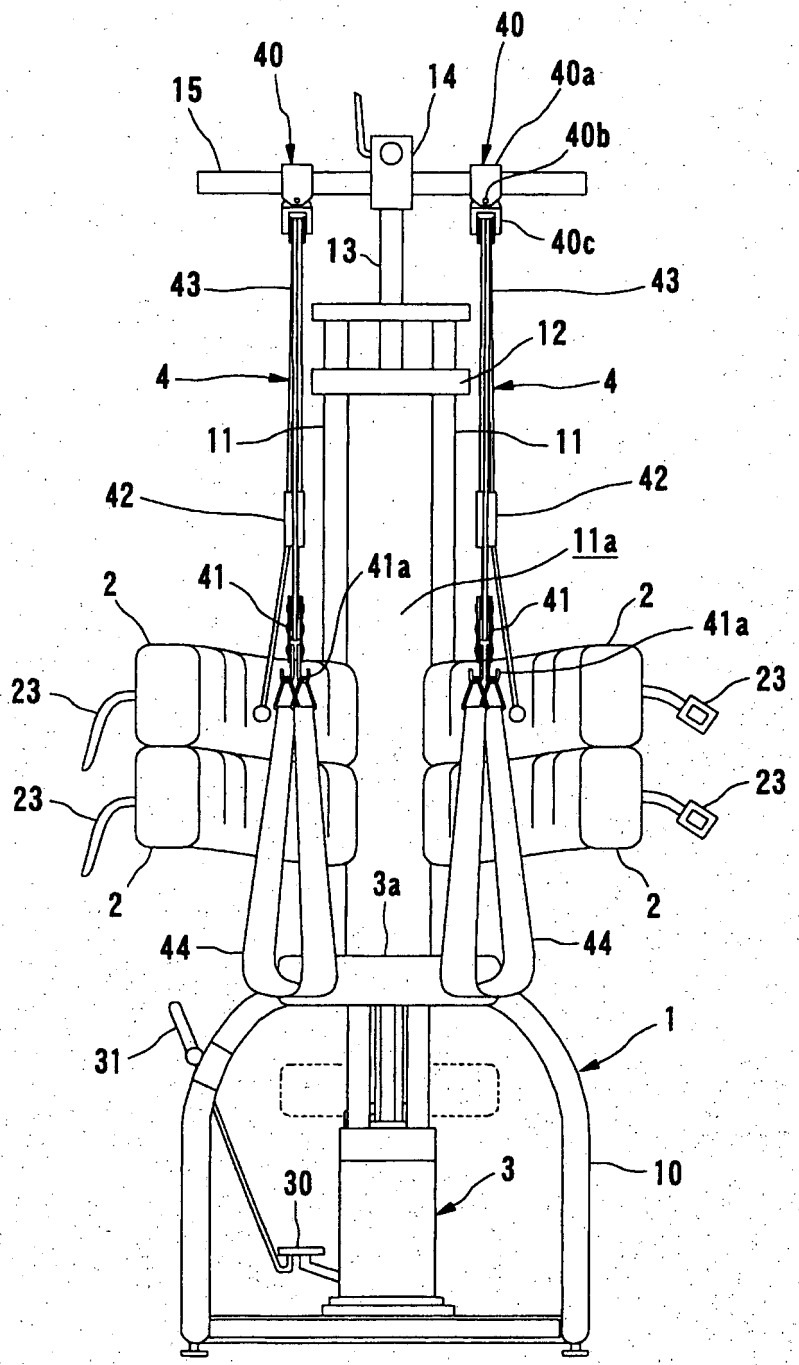

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Fig.2

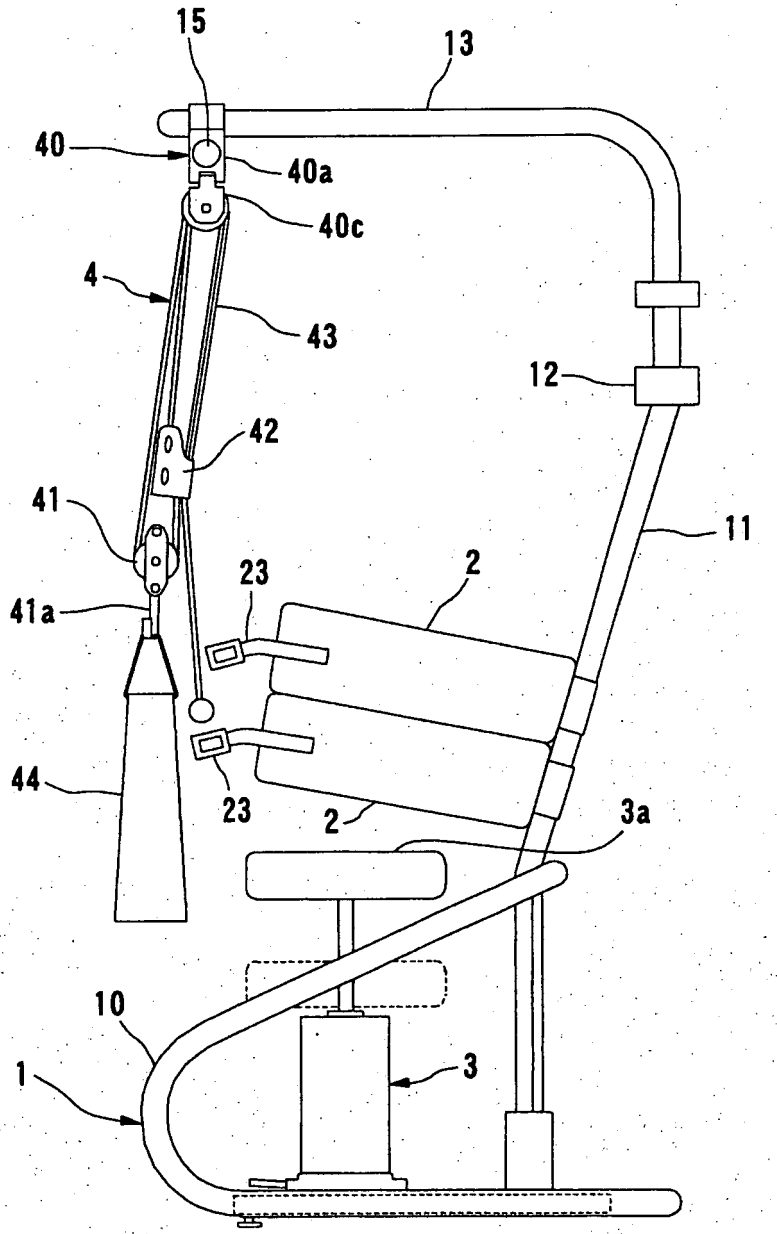


Fig.3

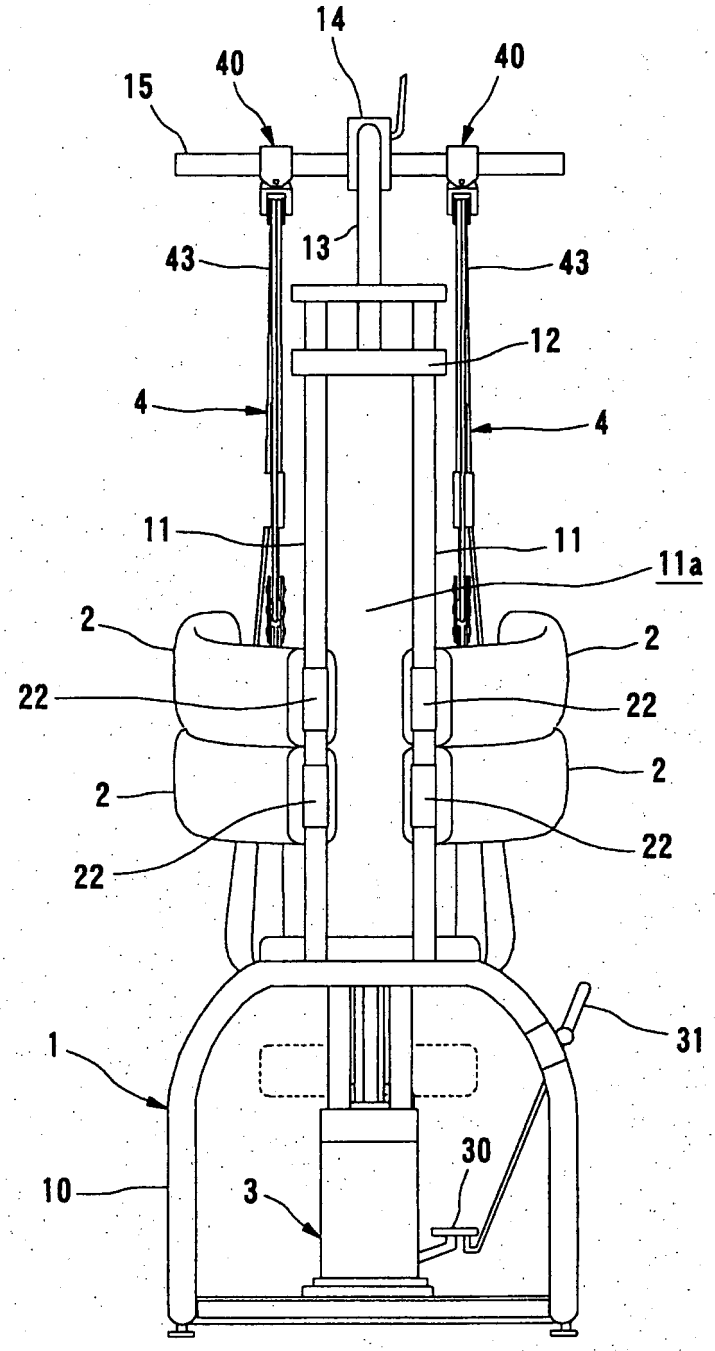
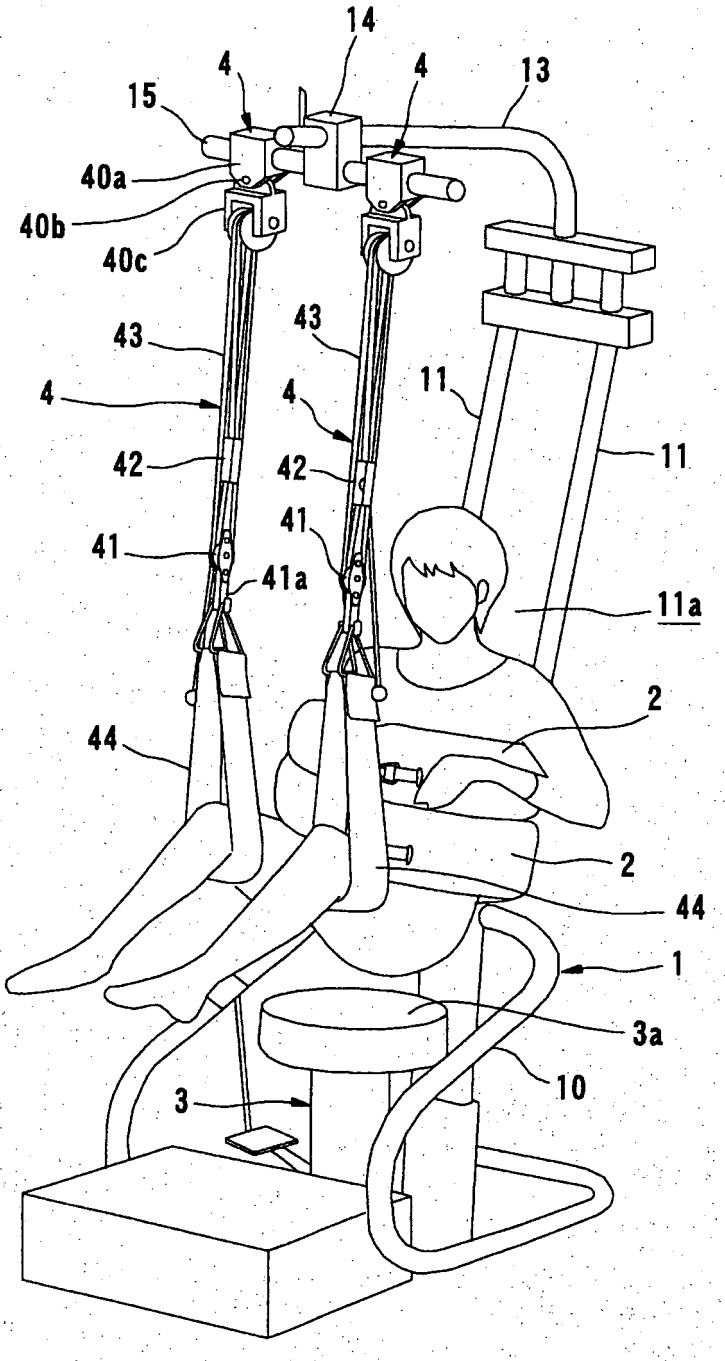


Fig.4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3a
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Fig.5

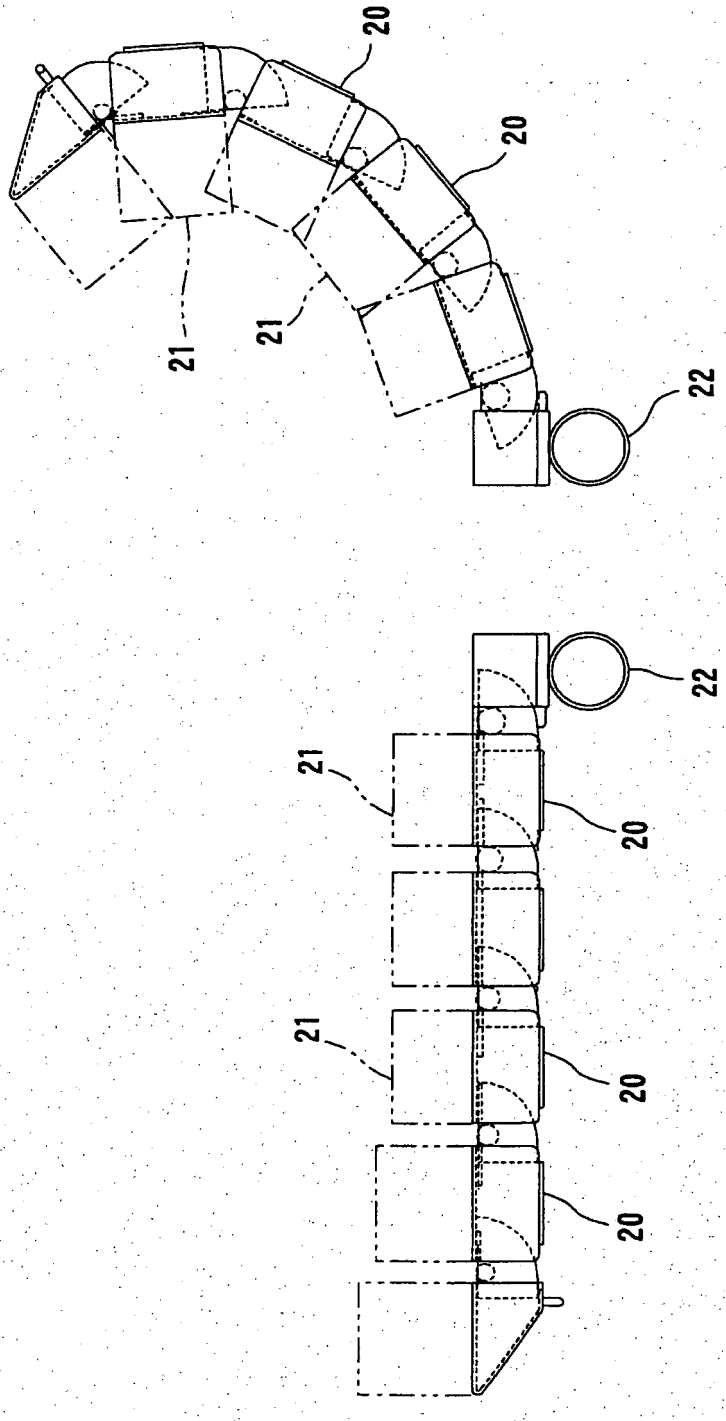

Fig.6

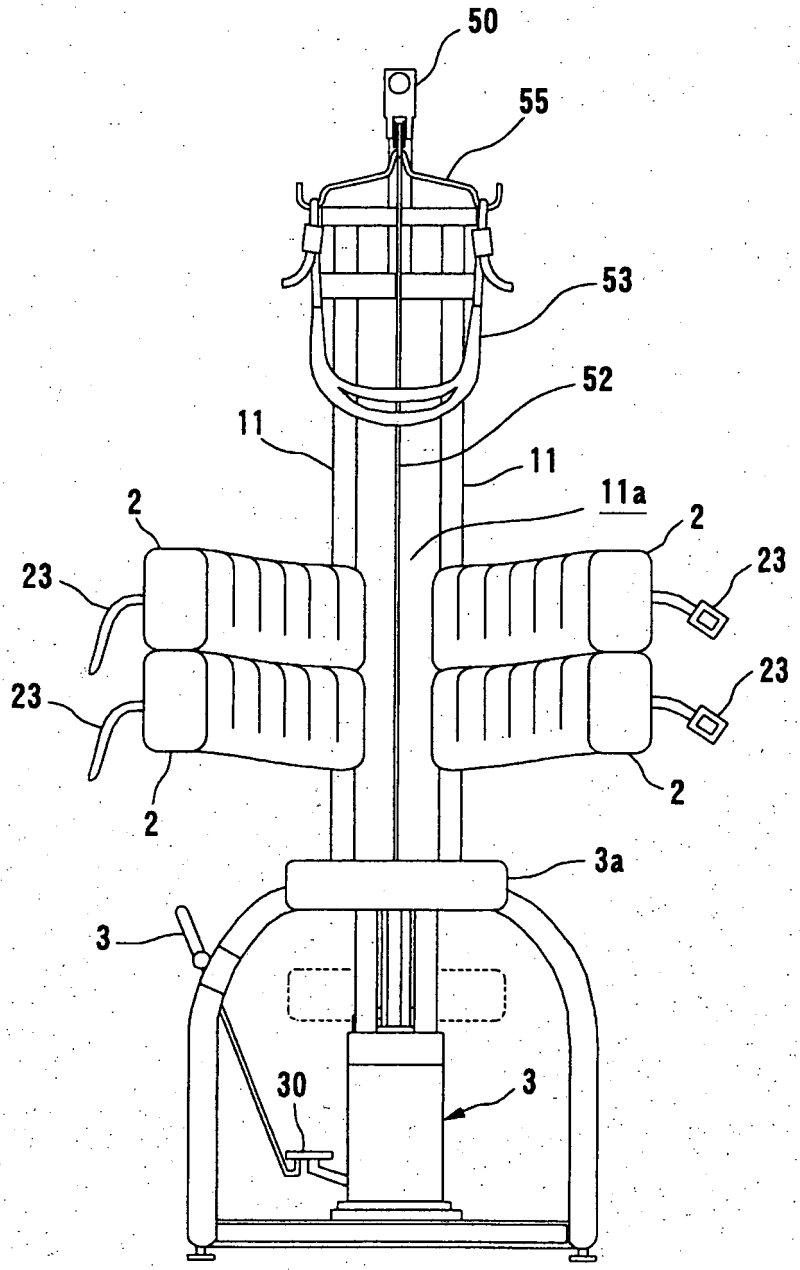

Fig.7

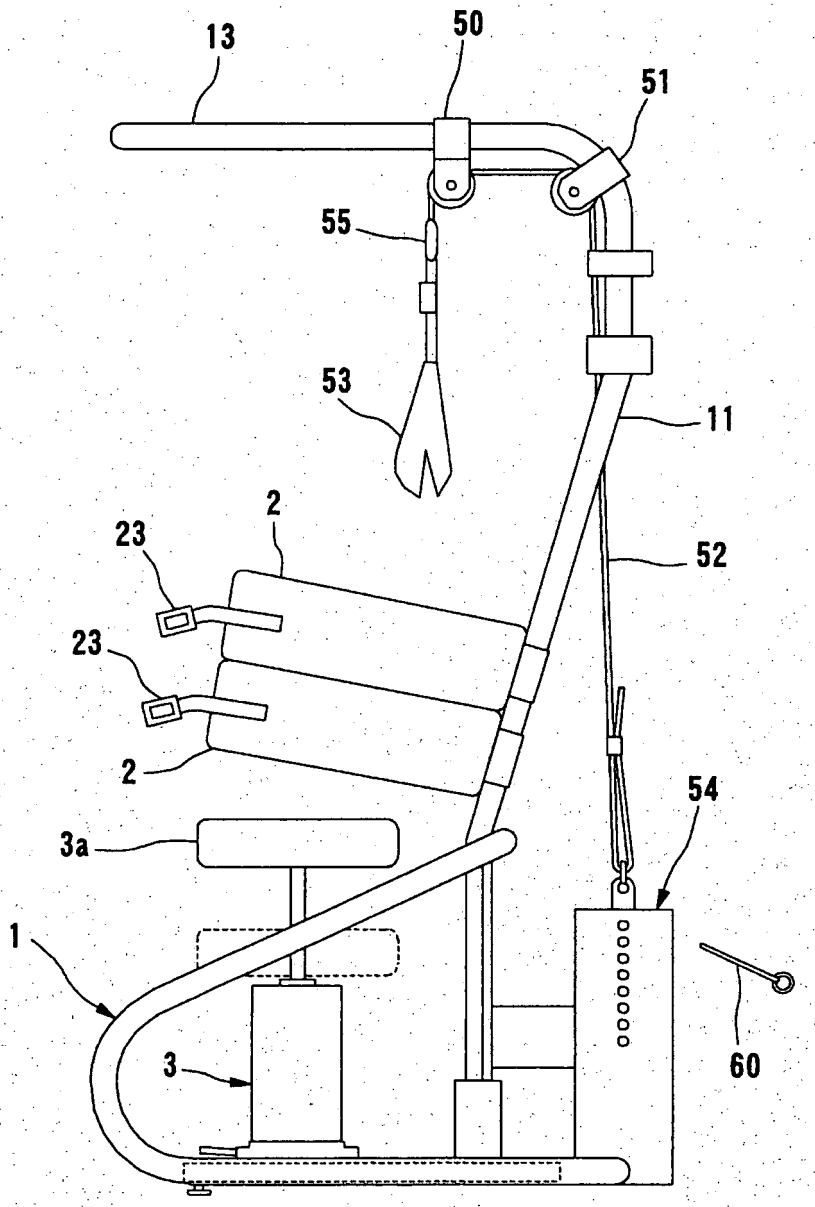

Fig.8A

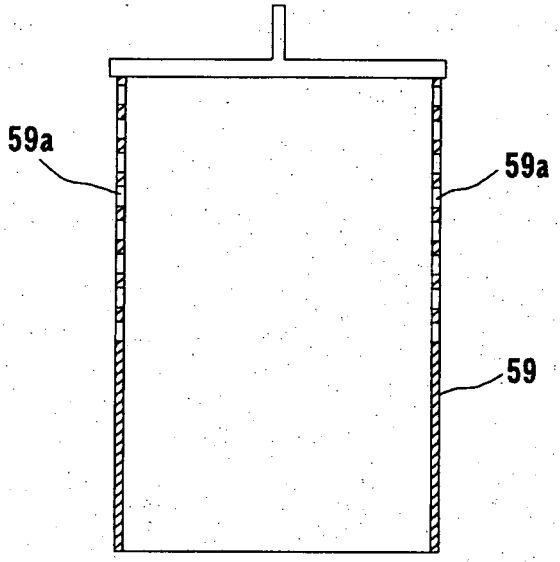
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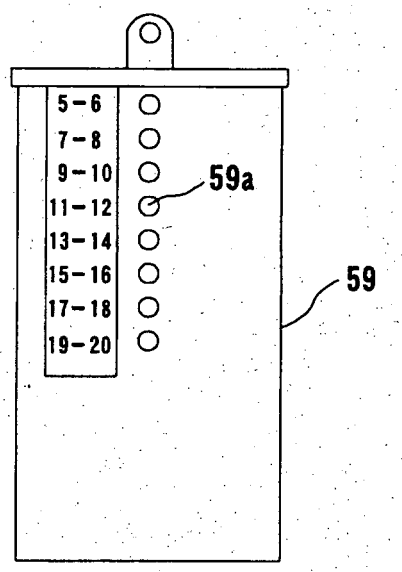
Fig.8B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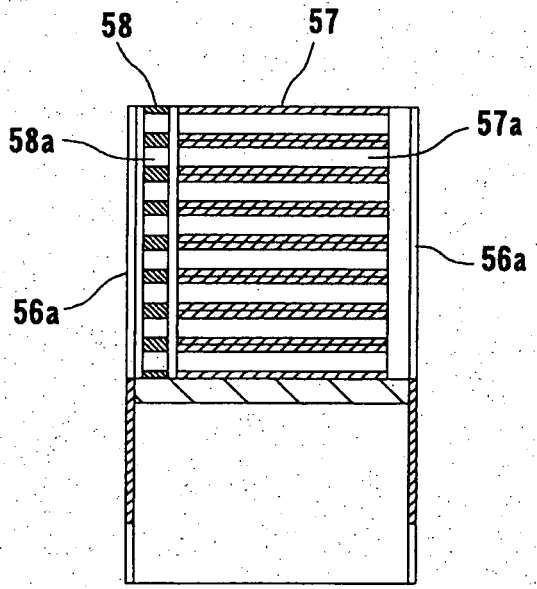
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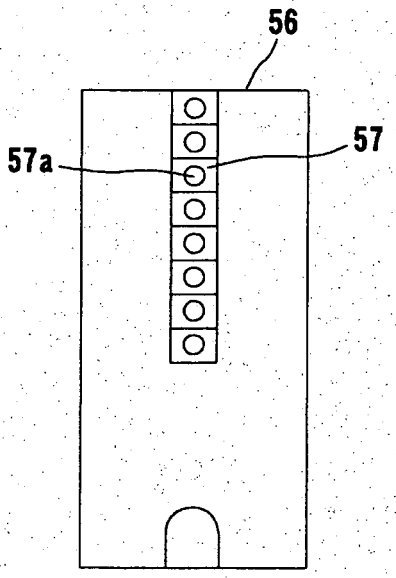
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Fig.9B

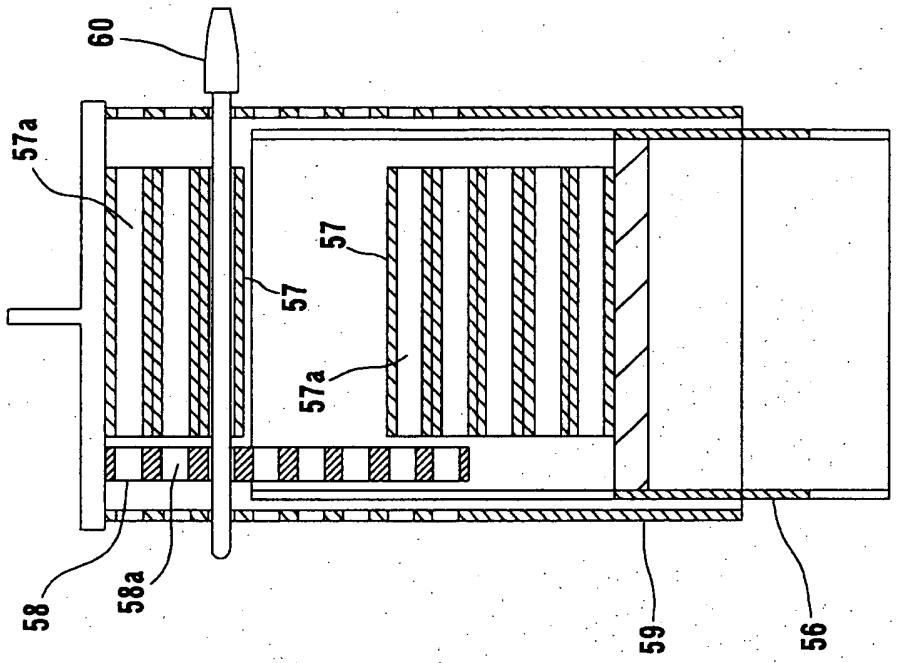
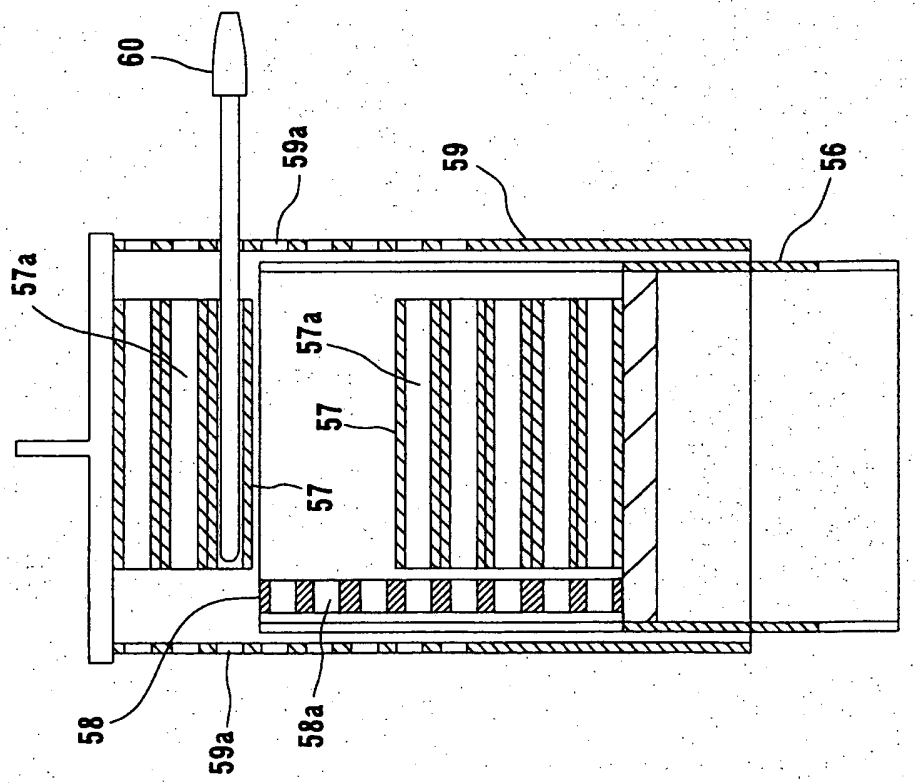


Fig.9A



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/009351

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A61F5/042, A61H1/02, A61H39/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] A61F5/042, A61H1/02, A61H39/08

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1940-1996 Toroku Jitsuyo Shinan Koho 1994-2004
Kokai Jitsuyo Shinan Koho 1971-2004 Jitsuyo Shinan Toroku Koho 1996-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 00/41657 A1 (Protec House Co., Ltd,), 20 July, 2000 (20.07.00), Full text; all drawings (Family: none)	1-13
Y	JP 61-33936 Y2 (Tsutomu SUZUKI), 03 October, 1986 (03.10.86), Full text; all drawings (Family: none)	1-13

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

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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 August, 2004 (17.08.04)	31 August, 2004 (31.08.04)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/009351

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 155076/1978(Laid-open No. 72916/1980) (Ichiro KAWABATA), 20 May, 1980 (20.05.80), Full text; all drawings (Family: none)	1-13
Y	JP 2001-212163 A (Atsutaka NAKAJIMA), 07 August, 2001 (07.08.01), Full text; all drawings (Family: none)	1-13
A	JP 55-136071 A (Shimamoto Gosei Jushi Kogyo Kabushiki Kaisha), 23 October, 1980 (23.10.80), Full text; all drawings (Family: none)	1-13

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