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Muramatsu

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[54] **CHIROPRACTIC ADJUSTING DEVICE**

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[52] **U.S. Cl.** **128/69;** 128/69

[51] **Int. Cl.**[2] **A61F 5/00**

[58] **Field of Search** ..... 128/68–70, 128/67, 60, 24 R, 54, 55

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Attorney, Agent, or Firm—Kemon, Palmer & Estabrook

[57] **ABSTRACT**

The chiropractic adjusting device comprises an elongate bedplate and a pair of pressing members retained on said bedplate with the pressing planes thereof opposed to each other and adopted to render the interval between said pressing planes adjustable.

8 Claims, 12 Drawing Figures

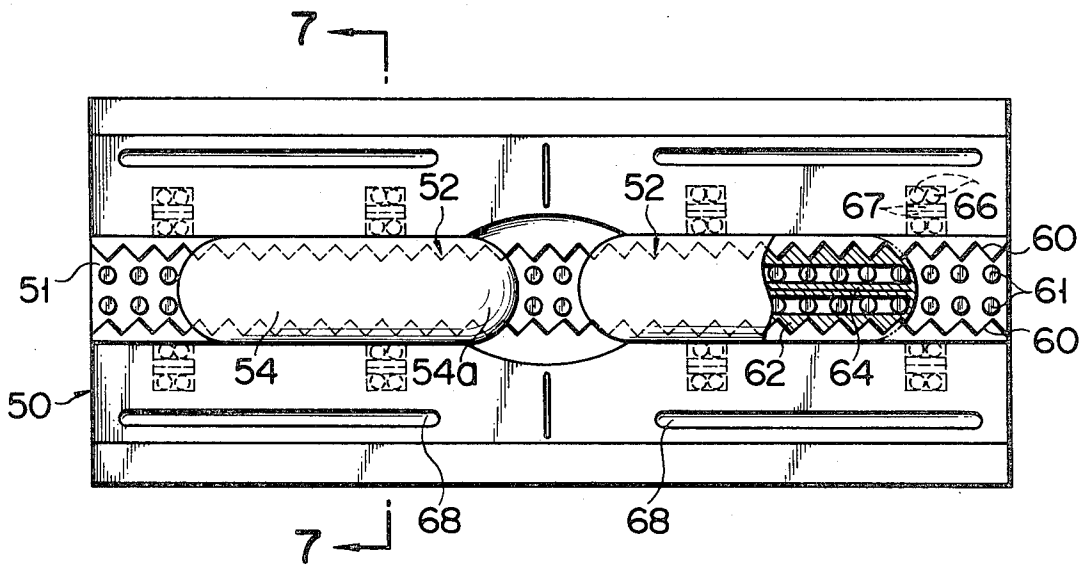


FIG. 1

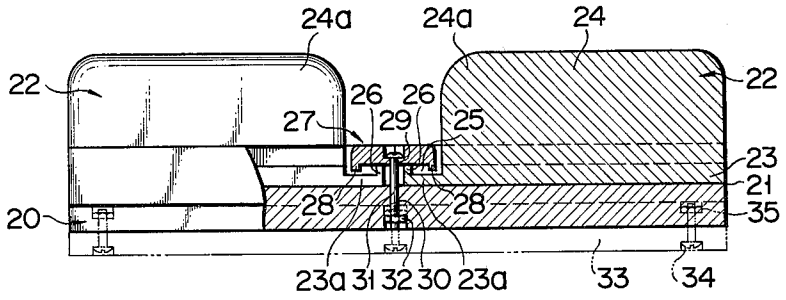


FIG. 2

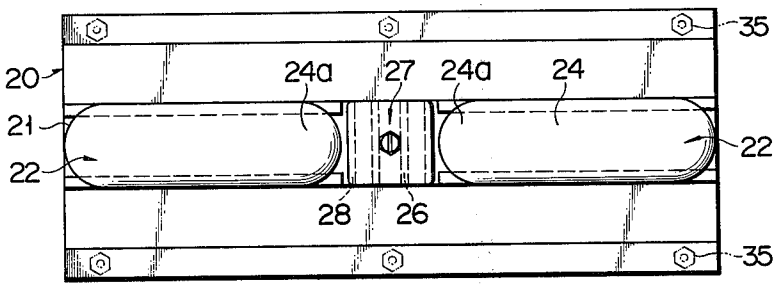


FIG. 3

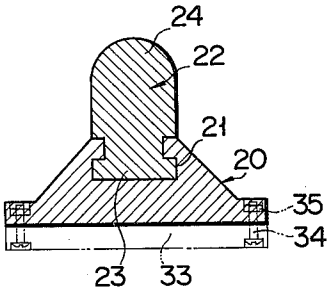


FIG. 4

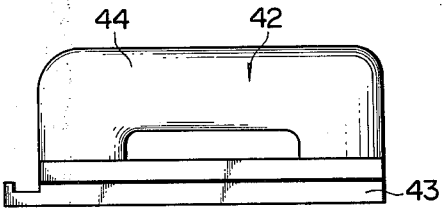


FIG. 5

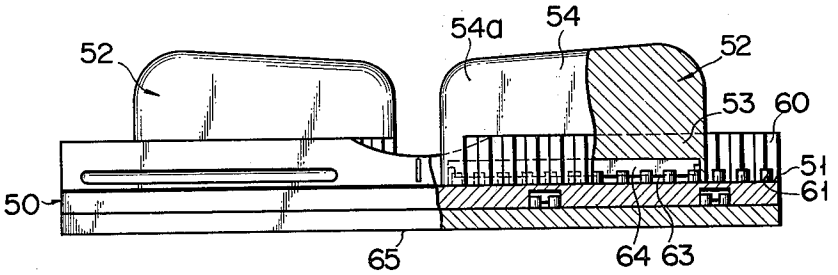


FIG. 6

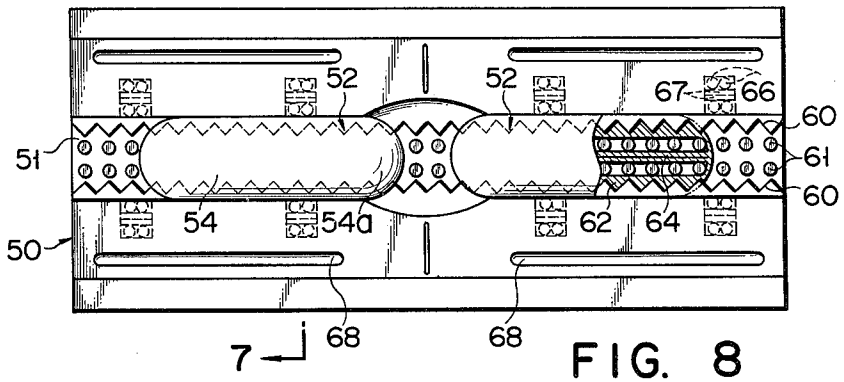


FIG. 8

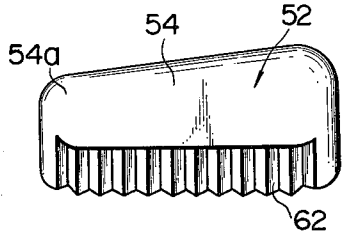


FIG. 7

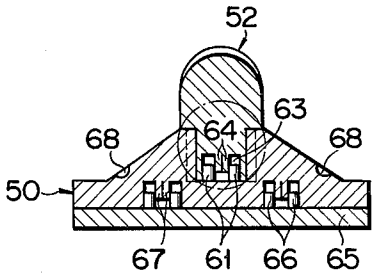


FIG. 9

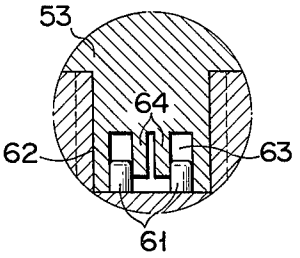
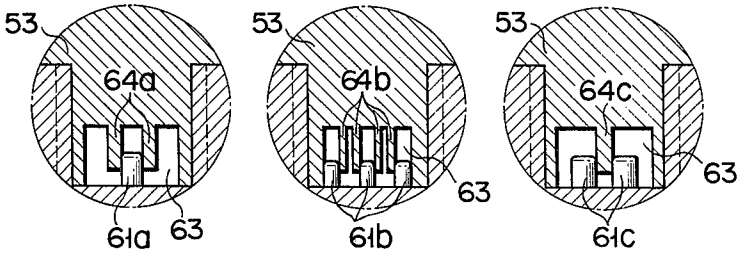


FIG. 10 FIG. 11 FIG. 12



CHIROPRACTIC ADJUSTING DEVICE

This invention relates to a chiropractic adjusting device for pressing a diseased part of a patient's body utilizing his own weight.

Conventionally, a chiropractic adjusting device is known in which a pair of ball-like pressing members are fixed on a bedplate, and a patient's back is supported on said paired pressing members thereby applying a pressure to the patient's back. In this type of chiropractic adjusting device, however, the interval between the adjacent pressing members is fixed to disable this interval from being adjusted in accordance with a patient's body structure, so that it is impossible to enhance the chiropractic effect sufficiently. Further, the paired pressing members make point-contact with the patient's back at two points, with the result that not only the range in which the chiropractic manipulation is performed is narrow but also the pain from which the patient suffers is relatively severe to render long use of the device difficult.

An object of the invention is to provide a chiropractic adjusting device capable of easily adjusting the position of the pressing member in accordance with a patient's body structure.

Another object of the invention is to provide a chiropractic adjusting device capable of long performing with precision the chiropractic manipulation without inflicting pain on a patient.

The chiropractic adjusting device according to the invention comprises a bedplate having a longitudinally extending central axis and a pair of pressing members which are retained on the bedplate so as to enable their positions to be adjusted in the direction of its central axis and in which the respective apex planes of the end portions opposed to each other constitute a bent plane for being pressed against a patient's back. In the foregoing construction, the interval between said apex planes of the end portions can be so adjusted as to most suit a patient's body structure, so that the patient can be subjected to chiropractic manipulation in an extremely effective condition.

Said pair of pressing members can be each formed of an elongate member having an apex section whose cross section acquires a curved configuration. When a person being subjected to chiropractic manipulation lies on his back on the paired pressing members with his pith intersecting the longitudinal axis thereof at right angles, the apex planes of the end portions of the both pressing members abut against both sides of the pith and simultaneously said curved apex sections uniformly abut against the patient's back in a linear form. For this reason, the patient is uniformly and consecutively pressed over a wide range by the paired pressing members, so that he suffers no pain.

In an embodiment of the invention, said pair of pressing members are so constructed as to longitudinally slidably engage a retaining groove formed in the bedplate and as to be fixed in a prescribed position by a fastening member.

In another embodiment of the invention, said pair of pressing members each are engageable with or detachable from a retaining groove formed in the bedplate, in a direction perpendicular to said groove, and are retained in a prescribed position by frictional engagement of plate members provided on the underside of the pressing member with projections protruded from the groove bottom. In this case, it is preferred that saw-tooth like portions are provided both for the side walls of each pressing member and for the side walls of the groove so as to enable the former saw-tooth like portions to be complementarily engaged with the latter saw-tooth like portions, thereby preventing the longitudinal axial movement of each pressing member.

This invention can be more fully understood from the following detailed description when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a side view, partly in section, of a chiropractic adjusting device according to an embodiment of the invention;

FIG. 2 is a plan view of FIG. 1;

FIG. 3 is a sectional view on line 3—3 of FIG. 2;

FIG. 4 is a side view illustrating a modification of a pressing member;

FIG. 5 is a partly sectional side view of a chiropractic adjusting device according to another embodiment of the invention;

FIG. 6 is a partly sectional plan view of FIG. 5;

FIG. 7 is a sectional view on line 7—7 of FIG. 6;

FIG. 8 is a perspective view illustrating the pressing member of the chiropractic adjusting device shown in FIG. 5;

FIG. 9 is an enlarged view illustrating the engagement condition of flexible plates with projections, both being shown in FIG. 7; and

FIGS. 10 to 12 are views similar to FIG. 9, respectively illustrating respective modifications of the flexible plate and the projection.

Referring to FIGS. 1 to 3, a reference numeral 20 denotes an elongate bedplate whose cross section is substantially trapezoid and which is formed on its upper port with a single longitudinally extending guide groove 21 presenting a reversed T-shaped cross section. A pair of pressing members 22 each are an elongate member made of a material of suitable quality such as wood, plastic, metal or the like, and the foot section 23 of each member is reversed T-shaped in cross section so as to exactly engage said guide groove 21. The apex section 24 of each member is so formed as to have a substantially semicircular cross section, and one end portion 24*a* of said apex section is so formed as to have a curved plane approximate to that of, for example, the thumb operated at the chiropractic manipulation. The diameter of the semicircular cross section of the apex section 24, the curvature of the curved plane of the apex end portion 24*a*, the length of the pressing member and the like can properly be determined in accordance with the object for which the member is used, or a patient's body structure. From the ends of the foot section 23 situated on the side of said end portions 24*a* are longitudinally protruded extending sections 23*a*, which are each formed in the upper surface with a groove 25 so as to form an erect piece 26 extending to intersect the longitudinal axis at right angles. The height of the erect piece 26 is determined so that the erect piece may not obstruct the insertion of the foot section when the foot section 23 of the member 22 is inserted into the guide groove 21 in the longitudinal axial direction.

The paired pressing members 22 thus formed are respectively inserted into the guide groove 21 in the longitudinal axial direction from the ends thereof so as to permit the apex end 24*a* to oppose each other at the center of the bedplate 20. At this time, the end portion

24*a* constitutes a pair of pressing planes for being pressed against a patient's back.

A reference numeral **27** indicates a fastening member, which is a plate-like member provided on its underside with a pair of stoppers **28** downwardly extending to intersect the longitudinal axis at right angles. The length of each stopper **28** projected is smaller than the length of each erect piece **26**, so that even when the erect piece **26** has abutted against the underside of the member **27**, the stopper **28** is slightly spaced from the upper surface of the extending section **23***a* of the pressing member. The fastening member **27** and the bedplate **20** are respectively formed at the center with through holes **29**, **30** extending perpendicular to the horizontal plane of the device, and a bolt **31** is penetrated through these holes. A nut **32** is fitted to the lower end portion of the bolt by screw engagement, and when the bolt is screwed, the fastening member **27** is made to press the erect piece **26** against the extending portion **23***a* to fix the pressing members at that position. When the paired pressing members **22** have been spaced from each other at a maximum interval, the stoppers **28** are engaged with the erect pieces **26**, respectively, to prevent said paired members from being further separated from each other.

A reference number **33** designates a plate for adjusting the height of the device, and said plate is adapted to be fixed to the underside of the bedplate **20** by a bolt **34** and nut **35** on demand.

Where the chiropractic adjusting device thus constructed is used, the bolt **31** is first loosened and the pressing members are then slid in the longitudinal axial direction so as to form an inter-member space matched with the body structure and chiropractic therapy undergoing portion of a patient. When a desired space has been formed between the apex end portions **24***a* of the pressing members, bolt fastening is carried out to cause the fastening member **27** to fix the pressing members **22** at that position. Further, the plates **33** of a given number are fixed to the underside of the bedplate, if necessary. Subsequently, the chiropractic adjusting device is put on a bed, matting or the like, and a patient lies with his back on the device in a manner that his pith intersects substantially at right angles to the longitudinal axis of the device. Subsequently, the patient rolls his pith or neck with the apex end portions **24***a* of the members **22** pressed against both sides of the pith or neck by his own weight.

After rolling for a prescribed length of time, the patient changes his position relative to the device, and performs a rolling operation once again.

Since, in this type of chiropractic adjusting device, a space between the apex end portions **24***a* of the pressing members can freely be adjusted in accordance with the patient's body structure, it is possible that the patient undergoes the chiropractic therapy at an optimum condition. Further, the pressing member **22** is so constructed as to permit the apex end portion **24***a* to press the deseased part most effectively and simultaneously the apex section **24** to press the patient widely and uniformly with its whole length. As the result, the chiropractic therapy effect is more increased, and even a long use of the device does not cause the patient to suffer a pain.

FIG. **4** shows a modification of the pressing member. The pressing member **42** is one in which a rod like member **44** formed into a reversed U-shape is fixed onto a foot section **43** similar to that of FIGS. **1** to **3**. The upper plane of the member **44** is formed into a bent plane similar to that of said pressing member **22**.

In another embodiment illustrated in FIGS. **5** to **9**, a chiropractic adjusting device is provided with a bedplate **50** having a lengthwise extending groove **51** in its upper surface. Fitted into said groove **51** are the foot sections **53** of mutually opposing paired lengthwise extending pressing members **52**. The manner in which the pressing member is connected to the groove will later be described.

The apex section **54** and apex end portion **54***a* of each pressing member are constructed substantially similar to those of the member **22** according to the preceding embodiment except that the apex section **54** is slightly downwardly inclined toward the apex end portion **54***a*. This inclination is helpful to cause the member **52** to abut against the patient's back in a better condition thereby to enhance the therapy effect.

Both side wall sections of said groove **51** are respectively formed with saw-tooth like portions **60** whose tooth-tips are arranged at the same pitch over the entire length of the groove. The respective outer surfaces of the saw-tooth like portions are formed perpendicular to the groove bottom, and the respective cross sections thereof, according to this embodiment, are triangle-shaped. The cross section of each tooth of the saw-tooth like portions may be of any suitable shape such as a rectangular or a semicircular shape. From the bottom surface of the groove **51** engagement projections **61** in two rows are protruded perpendicularly to the bottom surface at the same pitch as that at which, for example, the saw-tooth like portions **60** are formed. Each projection is formed cylindrical and the top end thereof is formed slightly round. Further, the projections in one row are spaced at a prescribed interval from those in the other row.

As apparent from FIG. **8**, both side wall sections of the foot section **53** of each pressing member **52** are respectively formed with saw-tooth like portions **62** complementarily engageable with the saw-tooth like portions **60** of the groove **51**. Further, the underside of the foot section **53** is formed with a longitudinally extending recess **63** and a pair of vertical flexible plates **64** are so arranged in said recess as to longitudinally extend parallel with each other. According to this embodiment, these plates are formed integrally with the foot section **53**, and the interval between the respective outer side walls of both plates **64** is made slightly larger than that between said projection rows.

In this embodiment, the pressing member **52** is vertically inserted into the groove **51** from above the same. At this time, the saw-tooth like portions **60** of the groove are respectively complementarily fitted to those **62** of the pressing member to guide the member vertically. As the foot section of the member approaches the bottom surface of the groove, the paired plates **64** are engaged with the projections **61** and are frictionally and flexibly sandwiched between the projection rows (see FIG. **9**). In this manner, the pressing member **52** is prevented from being moved in the lengthwise direction and being inclined in the transverse direction, by engagement of the saw-tooth like portions **60** with the saw-tooth like portions **62**, and simultaneously is prevented from being floated from the groove **51** by a frictional engagement of the projections **61** with the flexible plates **64**.

The interval between the pressing members **52** can easily be adjusted by upwardly pulling the member out and again inserting into the groove at another position.

A plate **65** is detachably fixed to the underside of the bedplate **50** for the purpose of adjusting the device height, as required. It is preferred that the plate **65** be engaged with the bedplate through engagement of projections **66** formed on the upper surface of the plate **65** with flexible plates **67** formed on the lower part of the bedplate as in the case of engagement between the projections **61** and the plates **64.** Alternatively, the plate **65** may be fixed to the bedplate by means of bolts and nuts as in the preceding embodiment.

A reference numeral **68** indicates grooves formed in the side walls of the bedplate, and said grooves are used to take hold of the bedplate.

FIGS. **10** to **12** respectively illustrate the modified projections of the groove **51** and the modified flexible plates of the foot section **53** of the pressing member. In FIG. **10,** projections **61***a* are arranged only in one row and sandwiched between a pair of flexible plates **64***a* spaced from each other at an interval slightly smaller than the diameter of said projection. The groove **51** of FIG. **11** has projections **61***b* arranged in three rows, and two plates **64***b* are sandwiched in each of the spaces between the respective projection rows. In FIG. **12,** a piece of plate **64***c* formed on the underside of the foot section **53** is sandwiched between two rows of projections **61***c*. In this case, the projection **61***c* has a prescribed degree of flexibility, and the interval between the projection rows is made slightly smaller than the thickness of the plate **64***c*.

What is claimed is:

1. A chiropractic adjusting device comprising a bedplate, a pair of elongated pressing members each provided with an apex section for supporting a patient's back, said apex section presenting a substantially semicircular configuration in its cross-sectional plane vertical to the longitudinal axis of the pressing member and having at one terminal portion a curved surface for pressing an effective point of the patient's back, and connection means for retaining said pressing member on said bedplate in a manner that they are in alignment with each other and their curved surfaces are faced to each other at an interval and for adjusting said interval.

2. A chiropractic adjusting device according to claim **1** wherein said connection means comprises a longitudinally extending groove whose cross section is reversed T-shaped and which is formed in the upper surface of the bedplate, and the foot section of the pressing members having a cross sectional configuration adapted for the configuration of said groove and slidable longitudinally of the groove.

3. A chiropractic adjusting device according to claim **2** further comprising fastening means for fixing said pressing members in a desired position.

4. A chiropractic adjusting device according to claim **1** wherein said connection means comprises a groove formed in the upper surface of the bedplate and provided with side wall portions having a saw-tooth like cross section whose tooth-tips are arranged at prescribed pitches, and foot section of the pressing member detachably insertable into said groove in a direction perpendicular thereto and provided with side wall portions complementarily engageable with those of said groove.

5. A chiropractic adjusting device according to claim **4** wherein said pressing members each include flexible plate means provided on the underside of said foot section; and the bottom of said groove is provided with projecting means frictionally engageable with said plate means.

6. A chiropractic adjusting device according to claim **5** wherein said plate means consists of a pair of vertical plates longitudinally extending parallel with each other; and said projecting means consists of projections in two rows for sandwiching said paired plates between the two projection rows.

7. A chiropractic adjusting device according to claim **4** wherein said apex section of each pressing member is downwardly inclined toward said one apex terminal portion.

8. A chiropractic adjusting device according to claim **1** wherein said apex section of each pressing member is downwardly inclined toward said one apex terminal portion.

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