A dental chair (100) is disclosed, comprising a flat upper surface (13) and lower surface (10) with suitably curved profile in order to adapt to curvature of the chair (100), so that upper surface (13) of mattress is disposed according to a horizontal plane, converting dental chair (100) into a surgery couch.
Description

An adapter mattress for dental chairs

The present patent application for industrial invention relates to an adapter mattress for dental chairs.

Dentist's surgeries make large use of dental chairs connected to a dental drill unit that controls operation of dental chair.

Fig. 4 shows a dental chair (100) connected to a dental drill unit (200).

Dental chair (100) comprises:
- first portion (101) where legs rest, called leg rest;
- second portion (102) where buttocks rest, called seat; and
- third portion (103) where back rests, called back rest.

Leg rest (101) is coupled with seat (102) and joined by means of curved connection portion (104). Leg rest (101) is disposed according to a plane that is substantially horizontally or slightly inclined downwards. Seat (102) is inclined downwards with respect to leg rest (101). So between leg rest (101) and seat (102) an obtuse angle (a) of approximately 140° - 160° is defined.

Back rest (103) is articulated with respect to seat (102). Back rest (103) can be inclined upwards with respect to seat (102) by an angle (β) from 180° to 90° according to the operator's needs. So, between seat (102) and back rest (103) a curved recessed portion (105) is defined. Generally, during surgical sessions, the angle (β) is regulated substantially equal to angle (a). Therefore, the upper part of dental chair (100) comprises a concave recessed part (105) separating seat (102) from back rest (103) and convex upward-protruding part (104) connecting leg rest (101) to seat (102).

The dental drill unit (200) controls the height of seat (102), inclination of back rest (103) and comprises various functions, such as delivery of water, compressed air and electricity to power scyalitic lamps and other dental tools.
In any case, upper surface of leg rest (101), seat (102) and back rest (103) is ergonomic and suitably curved and shaped to follow the configuration of the patient's body.

Such a type of dental chair is impaired by some drawbacks, being not versatile and not suitable to patient's treatments other than dental ones.

Following to dental treatment, patients often need surgical, dermatological, osteopathic, massotherapy and similar treatments. Evidently, such treatments cannot be carried out on a dental chair. Consequently, patients are obliged to abandon the dentist's surgery and move to another room provided with surgical couch provided with perfectly horizontal patient's support surface.

The purpose of the present invention is to eliminate the drawbacks of the prior art, by disclosing an adapter mattress for dental chairs that is practical, versatile, easy to use, inexpensive and simple to make.

These purposes have been achieved according to the invention, with characteristics claimed in independent claim 1.

Advantageous embodiments appear from the dependent claims.

The adapter mattress for dental chairs of the invention comprises flat upper surface and lower upper surface with suitably curved profile in order to adapt to curvature of dental chair, so that upper surface of mattress is disposed according to a horizontal plane, converting the dental chair into a surgery couch.

The advantages of the invention are clear, it being able to convert a dental chair into a surgical couch rapidly, simply and safely.

Further characteristics of the invention will appear more evident from the detailed description below, which refers to a merely illustrative, not limiting, embodiment, as shown in the attached drawings, wherein:

Fig. 1 is a perspective view of the adapter mattress of the invention disposed on a dental chair;

Fig. 2 is a perspective top view of the adapter mattress of Fig. 1;

Fig. 3 is a perspective view of the adapter mattress of Fig. 2, disposed on one side;
Fig. 4 is a perspective view of a dental chair according to prior art.

Referring to Figs. 1 to 3, the adapter mattress of the invention is disclosed, being generally indicated with numeral (1).

Hereafter parts of dental chair (100) that have been already described are indicated with same numerals, omitting a detailed description.

The adapter mattress (1) has a basically parallelepiped shape and comprises first transversal border (10) in correspondence of feet, second transversal border (11) in correspondence of head and two lateral borders (12).

Mattress (1) comprises upper flat surface (13) and lower surface (2) (Fig. 3) with suitably curved profile to adapt to curvature of dental chair (100), so that upper surface of mattress is disposed according to a horizontal plane, converting dental chair (100) into a surgery couch.

Upper surface (13) has rectangular dimensions typical of surgery couch, for example 2 m x 0.5 m.

In particular, lower surface (2) of mattress comprises convex portion (25), shaped as downward-protruding bump, which is disposed in said recessed concave portion (105) between seat (102) and back rest (103) of dental chair (Fig. 1).

Moreover, lower surface (2) of mattress provides for concave portion (105) disposed above curved portion (104) connecting seat (102) and leg rest (101) of dental chair.

Therefore, lower surface (2) of mattress comprises:

- first portion (21) extending from first transversal edge (10) to concave portion (24);
- second portion (22) extending from concave portion (24) to convex portion (25); and
- third portion (23) extending from convex portion (25) to second transversal edge (11).

The first portion (21) of lower surface of mattress is parallel or slightly inclined with respect to upper surface (13) of mattress with slightly increasing thickness from concave portion (24) to first transversal edge (10).
Second portion (22) of lower surface of mattress is inclined with respect to first portion (21) by obtuse angle (a) of approximately 140° - 160°.

Third portion (23) of lower surface of mattress is inclined with respect to second portion (22) by obtuse angle (β) of approximately 140° - 160°.

Preferably angle (a) is identical to angle (β).

Transversal edges (10, 11) of mattress are basically flat with thickness of approximately 15 - 30 cm, so that mattress can be positioned vertically on ground with minimum overall dimensions.

Belts (31, 32) are connected to mattress (1) in order to be firmly fixed to dental chair (100). Belts (31, 32) are provided with suitable buckles for closing and tensioning. A first belt (31) is disposed in correspondence of first portion (21) of lower surface of mattress to tie round foot rest (101) of dental chair. A second belt (32) is disposed in correspondence of third portion (23) of lower surface of mattress to tie round back rest (103) of dental chair, in proximity of part connecting with seat (102).

For illustrative, not limiting purposes, mattress (1) comprises padding and external coating. Padding can be obtained from molding foamed material, such as polyurethane foam. External coating can be, for instance, poly latex, leather or imitation leather.

Mattress (1) is provided with cushion (4) with low thickness, in such way to be folded and rolled up, as shown in Fig. 2. Cushion is provided with Velcro (40) to be maintained in rolled-up configuration. Cushion (4) can be made from same material as mattress.

Numerous variations and modifications can be made to the present embodiment of the invention, within the reach of experts of the field, while still falling within the scope of the invention as claimed in the attached claims.
Claims

1) An adapter mattress (1) for dental chair (100), comprising flat upper surface (13) and lower surface (2) with suitably curved profile in order to adapt to curvature of dental chair (100), so that upper surface (13) of mattress is disposed according to a horizontal plane, converting dental chair (100) into a surgery couch.

2) An adapter mattress (1) according to claim 1, wherein said dental chair (100) comprises seat (102), back (103) and concave portion recessed (105) between seat (102) and back (103), characterized by the fact that lower surface (2) of said adapter mattress (1) comprises convex portion (25) shaped as downward-protruding bump, which is disposed in said recessed concave portion (105) of the dental chair.

3) An adapter mattress (1) according to claim 1 or 2, wherein said dental chair (100) comprises seat (102), leg rest (101) and curved convex portion (104) connecting seat (102) and leg rest (101), characterized by the fact that lower surface (2) of said adapter mattress (1) comprises a concave portion (24) shaped as bump, which is disposed above said curved convex portion (104) of dental chair.

4) An adapter mattress (1) according to claims 2 and 3, characterized by the fact that lower surface (2) of mattress comprises:

- first portion (21) extending from first transversal edge (10) to concave portion (24);
- second portion (22) extending from concave portion (24) to convex portion (25); and
- third portion (23) extending from convex portion (25) to second transversal edge (11).

5) An adapter mattress (1) according to claim 4, characterized by the fact that first portion (21) of lower surface of mattress is slightly tilted with respect to upper surface (13) of mattress with slightly increasing thickness from concave portion (24) to first transversal edge (10).
6) An adapter mattress (1) according to claim 4, characterized by the fact that first portion (21) of lower surface of mattress is parallel to upper surface (13) of mattress.

7) An adapter mattress (1) according to any one of claims 4 to 6, characterized by the fact that second portion (22) of lower surface of mattress is tilted with respect to first portion (21) by obtuse angle (α) of approximately 140° - 160°.

8) An adapter mattress (1) according to any one of claims 4 to 7, characterized by the fact that third portion (23) of lower surface of mattress is tilted with respect to second portion (22) by obtuse angle (β) of approximately 140° - 160°.

9) An adapter mattress (1) according to any one of the preceding claims, characterized by the fact that it comprises first transversal edge (10) and second transversal edge (11) that are basically flat with thickness of approximately 15 - 30 cm, so that mattress can be positioned vertically on ground with minimum overall dimensions.

10) An adapter mattress (1) according to any one of the preceding claims, characterized by the fact that it comprises belts (31, 32) connected to mattress (1) in order to be firmly fixed to dental chair (100).
**INTERNATIONAL SEARCH REPORT**

International application No

PCT/IT2011/00Q314

A. **CLASSIFICATION OF SUBJECT MATTER**

INV. A61G 15/10

ADD.

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)

A61G A47C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

EPO-Internal, WPI Data

C. **DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>DE 499 358 C (ARTHUR ARNHEIM DR) 5 June 1930 (1930-06-05) abstract; figure 1</td>
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<td>DE 100 35 681 AI (GRÖS ERWIN [DE]) 7 February 2002 (2002-02-07) figure 1</td>
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**Date of the actual completion of the international search**

7 May 2012

**Date of mailing of the international search report**

16/05/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2

NL-2280 HV Rijswijk

Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

Authorized officer

Birlanga Perez, J

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